Final Site Inspection Report
Air National Guard Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances

Hancock Field Air National Guard Base
Syracuse, New York

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List of Acronyms and Abbreviations

AFFF	aqueous film-forming foam
AGE	Aerospace Ground Equipment
amsl	above mean sea level
ANG	Air National Guard
ANGB	Air National Guard Base
bgs	below ground surface
btoc	below top of casing
cm/s	centimeters per second
COPC	chemical of potential concern
CSM	conceptual site model
DoD	Department of Defense
DPT	direct-push technology
DQO	data quality objective
ESS	environmental sequence stratigraphy
FD	Fire Department
FSS	fire suppression system
ft	foot or feet
FTA	fire training area
gpm	gallon per minute
HA	Health Advisory
HEF	high expansion foam
IDW	investigation-derived waste
IRP	Installation Restoration Program
LOD	limit of detection
LOQ	level of quantitation
MS	matrix spike
MSD	matrix spike duplicate
NA	Not Applicable
NFA	no further action
NGB/A4OR	National Guard Bureau, Operations Division, Restoration Branch
ng/g	nanograms per grams
ng/L	nanograms per liter
NRCS	Natural Resources Conservation Service
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
OWS	oil/water separator
PA	Preliminary Assessment
PAL	project action levels
PFAS	per- and polyfluoroalkyl substances
PFBS	Perfluorobutanesulfonate

PFC	Perfluorinated compounds
PFHpA	Perfluoroheptanoic acid
PFHxS	Perfluorohexanesulfonate
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluoro-octanesulfonate
PID	photoionization detector
POL	Petroleum, Oil, and Lubricant
ppm	parts per million
PRL	potential release location
PVC	polyvinyl chloride
QC	Quality Control
RI	Remedial Investigation
RIV	Rapid Intervention Vehicle
RPA	Remotely Piloted Aircraft
RSL	Regional Screening Levels
SI	Site Inspection
SOP	standard operating procedure
sq ft	square feet
THQ	Target Hazard Quotient
UCMR-3	Unregulated Contaminant Monitoring Rule
US	United States
USAF	United States Air Force
US EPA	United States Environmental Protection Agency
VOC	volatile organic compounds
WP	work plan

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Executive Summary

Under contract to the National Guard Bureau, Operations Division, Restoration Branch (NGB/A4OR), AECOM conducted a basewide Comprehensive Environmental Response, Compensation, and Liability Act Site Inspection (SI) for per- and polyfluoroalkyl substances (PFAS) at the Hancock Field Air National Guard Base (ANGB) (base), 174th Attack Wing, Onondaga County, Syracuse, New York. The objectives for the SI are to: (1) determine the presence or absence of PFAS in soil, surface water, and sediment at 12 potential release locations (PRL) and in groundwater immediately downgradient of each PRL, (2) assess if PFAS from the base are migrating off-base, and (3) determine if the concentrations of PFAS at each PRL are present in quantities or concentrations that warrant no further action or additional investigation as part of the Expanded SI or Remedial Investigation / Feasibility Study phase, and if so, what the appropriate data quality objectives (DQO) should be.

PFAS are not currently regulated at the federal level and are not regulated in soil or groundwater by the State of New York; however, the United States Environmental Protection Agency (US EPA) has established lifetime health advisory (HA) levels for Perfluoro-octanesulfonate (PFOS) and Perfluorooctanoic acid (PFOA) to protect against potential risk from exposure to these compounds via drinking water; additionally, US EPA tapwater regional screening level (RSL) has been established for Perfluorobutanesulfonate (PFBS). US EPA residential soil RSLs were calculated for PFOS, PFOA, and PFBS to address direct contact with soils. Effective 3 March 2017, the New York State Department of Environmental Conservation (NYSDEC) added PFOA and PFOS to the New York State 6 New York Codes, Rules and Regulations Part 597 list of hazardous substances. While the Final Rule lists PFOS and PFOA as hazardous substances, it does not include any screening or clean-up criteria. The US EPA values were considered in establishing project action levels (PAL) that were provided in Appendix C, Laboratory Quality Assurance Project Plan in the Final SI Work Plan (WP) (AECOM, 2017). There are no PALs for Perfluoroheptanoic acid (PFHpA), Perfluorohexanesulfonate (PFHxS), and Perfluorononanoic acid (PFNA) due to a lack of toxicity data.

The PALs for PFOS, PFOA, and PFBS for groundwater and soil are as follows:

- Groundwater:
    - PFOS and PFOA: A PAL of 70 nanograms per liter (ng/L) was selected for PFOS and PFOA; it is the US EPA drinking water HA level for screening the individual and combined PFOS + PFOA groundwater concentrations (USEPA, 2016a,b,c).
    - PFBS: A PAL of 400,000 ng/L was selected for PFBS; it is the May 2018 US EPA generic tapwater RSL that was derived using a target hazard quotient (THQ) equal to 1.0 and is protective of a residential receptor drinking the water (US EPA, 2018).
- Soil:
    - PFOS and PFOA: PALs of 1,260 nanograms per gram (ng/g) for both PFOS and PFOA were conservatively calculated using the US EPA RSL calculator (May 2018 version). The calculated PALs were derived using a THQ equal to 1.0 and are protective of a residential receptor coming into direct contact with soil (i.e., incidental ingestion of soil, dermal contact and outdoor inhalation of particulates) (US EPA, 2018).
    - PFBS: A PAL of 1.26×10^6 ng/g for PFBS was conservatively calculated using the US EPA RSL calculator (May 2018 version). The calculated PAL was derived using a THQ equal to 1.0 and is protective of a residential receptor coming into direct contact with soil (i.e., incidental ingestion of soil, dermal contact and outdoor inhalation of particulates) (US EPA, 2018). US EPA does provide a generic residential direct contact soil RSL of 1.30×10^6 ng/g dated May 2018 (US EPA 2018). However, the Air National Guard (ANG) bases around the country have chosen to use the more stringent, calculated RSL for screening PFBS.

PALs were not specifically defined for surface water and sediment in the SI WP (AECOM, 2017), for purposes of this SI Report, they are defined as follows:

- Surface Water: There are no surface water specific screening criteria due to the absence of state or federal guidance levels; therefore, surface water PALs are equivalent to groundwater PALs, defined above.
- Sediment: There are no sediment specific screening criteria due to the absence of state or federal guidance levels; therefore, sediment PALs are equivalent to the soil PALs, defined above.

Twelve PRLs at Hancock Field ANGB were selected for SI activities based on a Preliminary Assessment (PA) site visit conducted in February 2016. The results of the PA site visit were documented in the *Final Perfluorinated Compounds Preliminary Assessment Site Visit Report* (BB&E, Inc. [BB&E], 2016). The PA Report identified 13 PRLs, 12 of which were recommended for further investigation. Since there were no documented releases of aqueous film-forming foam (AFFF) at Building 614 - Warehouse (PRL 7), it was recommended for no further action (BB&E, 2016).

The SI field activities were conducted during April 2018 and May 2018, culminating in the collection of 54 soil samples, 18 groundwater samples, six surface water samples and six sediment samples. Collected samples were analyzed for six PFAS consistent with the US EPA third Unregulated Contaminant Monitoring Rule (UCMR-3) (US EPA, 2012). One new monitoring well was installed at the northern base boundary, along with four other monitoring wells which were also used to evaluate PRLs, and to evaluate off-base migration. A summary of the maximum sampling results exceeding PALs for each PRL is provided in **Table ES-1.**

Table ES-1. Summary of SI Maximum Sampling Results Exceeding PALs

PRL Number	PRL Name	Media	Result Exceeding PAL[a,b,c]		
			PFOS	PFOA	PFBS
1	IRP Site 1 Fire Training Area	Soil	None above the PALs		
		Groundwater	130,000 ng/L	9,500 ng/L	--
2	Building 644 – Current Fire Station	Soil	None above the PALs		
		Groundwater	2,000 J- ng/L	100 ng/L	--
3	Former Building 608 – Former Fire Station	Soil[1]	None above the PALs		
		Groundwater	470 ng/L	330 ng/L	--
4	Hangar 610	Soil	None above the PALs		
		Groundwater	3,000 ng/L	350 ng/L	--
5	Hangar 618	Soil[2]	None above the PALs		
		Groundwater	None above the PALs		
6	Hangar 646	Soil	None above the PALs		
		Groundwater	1,100 ng/L	2,800 ng/L	
8	Building 620 – Vehicle Maintenance	Soil	None above the PALs		
		Groundwater	1,300 J- ng/L	120 ng/L	--
9	Apron[d]	Soil[3]	None above the PALs		
		Groundwater[4]	230 ng/L	77 ng/L	--
		Surface Water	440 ng/L	74 J ng/L	--
		Sediment	None above the PALs		
10	ANG-1 – Outfall 001[d]	Soil	None above the PALs		
		Groundwater	None above the PALs		
		Surface Water	80 ng/L	--	--
		Sediment	None above the PALs		
11	ANG 2 – Outfall 002	Surface Water	1,700 ng/L	92 J ng/L	--
		Sediment	None above the PALs		
12	ANG 3 – Outfall 003 or HIA-E[d]	Soil	None above the PALs		
		Groundwater	None above the PALs		
		Surface Water	460 ng/L	190 J ng/L	--
		Sediment	None above the PALs		
13	ANG-4 – Outfall 004[d]	Soil	None above the PALs		
		Groundwater	None above the PALs		
		Surface Water	920 ng/L	93 J ng/L	--
		Sediment	None above the PALs		
NA	Base Boundary	Soil	None above the PALs		
		Groundwater[5]	None above the PALs		

Note: PRL 7 (Building 614 - Warehouse) was recommended for no further action during the Preliminary Assessment (BB&E, 2016).

Table ES-1 lists the compounds that exceed the following PALs. Compounds without PALs are included in Tables in **Appendix B**.

Compound	Groundwater and Surface Water (ng/L)	Soil and Sediment (ng/g)
PFOS	70	1,260
PFOA	70	1,260
PFOS + PFOA	70	NA
PFBS	400,000	1.26×10^6

a) US EPA, 2016a. Drinking Water Health Advisory for PFOS. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. US EPA Document Number: 822-R-16-005. May 2016.
(b) US EPA, 2016b. Drinking Water Health Advisory for PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. US EPA Document Number: 822-R-16-004. May 2016.
(c) US EPA, 2018. Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on the RSL for tap water. Soil PALs were calculated for PFOS, PFOA, and PFBS using the RSL calculator. The RSLs are protective of a residential receptor and a THQ = 1.0.

Table ES-1. Summary of SI Maximum Sampling Results Exceeding PALs (cont.)

(d) Monitoring wells associated with this PRL served as base boundary wells to characterize potential PFAS in groundwater at the base boundary.

-- indicates compound was not detected above the PAL
ANG = Air National Guard
IRP = Installation Restoration Program
J = Estimated concentration
J- = Estimated concentration, result may be biased low
NA = Not Applicable
ng/g = nanograms per gram
ng/L = nanograms per liter
PAL = project action level
PFAS = per- and polyfluoroalkyl substances
PFBS = Perfluorobutanesulfonate
PFOA = Perfluorooctanoic acid
PFOS = Perfluoro-octanesulfonate
PRL = potential release location
RSL = Regional Screening Level
THQ = target hazard quotient

[1] Includes soil boring 610-SB03 used to evaluate potential PFAS from operations at Former Building 608 and Building 610.
[2] Includes soil boring 608-SB02 used to evaluate potential PFAS in soil from Hangar 618.
[3] Includes soil borings 646-SB02, 646-SB03, 618-SB02, 608-SB02, and 610-SB01 used to evaluate potential PFAS in soil from the Apron.
[4] Includes monitoring wells 646-MW01, 618-MW01, 608-MW01, 610-MW-01, and 644-MW01 used to evaluate potential PFAS in groundwater from the Apron.
[5] Monitoring wells BBW-MW01, OF1-MW01, OF3-MW01, OF4-MW01, and APN-MW01 are located at the base boundary and were used to characterize potential PFAS in groundwater at the base boundary and to evaluate off-base migration. Analytical results for these wells are included in the PRL-specific discussions, and in **Section 5.14**.

PFAS were present in all media sampled at each PRL. PFAS were detected in all eleven PRLs where groundwater was sampled, and PFAS exceeding PALs in groundwater occurred at seven of those PRLs. The highest concentrations of PFAS in groundwater were recorded at IRP Site 1 Fire Training Area (PRL 1). PFAS were detected in all eleven PRLs where soil was sampled but no PFAS exceeding PALs were detected. PFAS were detected at concentrations that exceeded PALs in four of the five base boundary wells and could be migrating off-base based on a groundwater flow direction to the south/southeast. There are no known public water supply wells at the base and the shallow groundwater system in the area of the base is not used as a source of drinking water. There are no public water supply wells within one mile of the base. The Onondaga County Water Authority provides water service to the area surrounding the ANGB and obtains water from Skaneateles Lake, Otisco Lake, and Lake Ontario (AECOM, 2014).

PFAS were detected in all six surface water samples and all six sediment samples. PFAS concentrations exceeded PALs in all six surface water samples. PFAS concentrations did not exceed the PALs in any of the sediment samples. Stormwater that drains to these outfalls is not exclusively from the ANGB; therefore, additional sources of PFAS are possible.

The following recommendations are provided for consideration based on the SI results:

- Further investigation at all 12 PRLs is necessary to determine the nature and extent of PFAS contamination due to detectable levels at all PRLs.
- Expand the conceptual site model (CSM) that considers localized groundwater and surface water flow paths to select future sampling locations. To refine the CSM for Hancock Field ANGB, an environmental sequence stratigraphy (ESS) analysis could be performed to generate new cross sections. This information could:
    - Identify and map (the composition, shape, and interconnectivity of) potentially undefined fluvial channels and other geologic features at the plume scale.
    - Construct a geologically defensible framework of the subsurface that better defines subsurface heterogeneity, accurately predicts preferential pathways, and reduces data gaps.
    - Achieve a greater understanding of groundwater and dissolved contaminant flow preferential pathways and thus target areas for active remedial implementation.
    - Reduce the number of future wells for plume measurements through stratigraphic guidance.
- Complete the delineation of PFAS as part of an Expanded SI or a Remedial Investigation that could consist of:

- Expanding the monitoring well network and groundwater sampling program to complete horizontal and vertical delineation of the PFAS. Further groundwater evaluation is recommended at the base boundary and at all PRLs where the presence of PFAS in groundwater exceeded the PALs.
- Installing and sampling downgradient monitoring wells to better define the PFAS that may have migrated off-base, and installing upgradient monitoring wells to better define the PFAS that may have migrated on-base (from off-base sources).
- Conducting additional surface water and sediment sampling both on-base and off-base to determine the nature and extent of PFAS in these media. Potential locations include the five drainage basins, grass-lined ditches, and the North Branch of Ley Creek.
- Performing additional soil, groundwater, surface water and sediment sampling and analysis of an expanded list of PFAS (in addition to the six UCMR-3 compounds) and precursor analysis to determine if significant source areas related to precursor substances are present. Precursor substances have been demonstrated to oxidize into PFOS and PFOA via biological and abiotic processes and thus could provide a lingering source of PFOS and PFOA in soil, groundwater, surface water, and sediment.

- Conduct preliminary site-specific risk assessment calculations in order to identify chemicals of potential concern in every media and establish preliminary remedial goals for screening.

DQOs are proposed based on the results of the SI and are presented in **Section 6.5.3.** A summary of these DQOs are presented in **Table ES-2**. Additional sampling and analysis is required at each PRL to establish the nature and extent of PFAS for each applicable media and determine if there is a complete receptor pathway. For soil, additional sampling and analysis is required to determine if a source area exists and if so, the vertical and horizontal extent for both the vadose and saturated zones. For groundwater, additional sampling is proposed to better define potential groundwater impacts both vertically and horizontally through the sampling of existing and additional new monitoring wells in both upgradient and off-base locations. Surface water and sediment sampling and analysis is required at PRLs where the presence of PFAS has been identified in either or both media; including upstream and downstream surface water and sediment at on-base and off-base locations.

Table ES-2. Relevant Data Quality Objectives

PRL No.	PRL Description	Compounds Exceeding PALs	Sampling Recommendation(s) and Objectives
1	IRP Site 1 Fire Training Area	Groundwater: PFOS, PFOA	Soil: Although PALs were not exceeded, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Determine the nature and extent both vertically and horizontally through the sampling of existing and additional new monitoring wells.
2	Building 644 - Current Fire Station	Groundwater: PFOS, PFOA	
3	Former Building 608 – Former Fire Station	Groundwater: PFOS, PFOA	
4	Hangar 610	Groundwater: PFOS, PFOA	
5	Hangar 618	None	Soil: Although PALs were not exceeded, PFAS were detected in soil samples. Therefore, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Although PALs were not exceeded, PFAS were detected in collected groundwater samples. Therefore, additional groundwater sampling is proposed to better define potential PFAS in groundwater both vertically and horizontally through the sampling of existing and additional new monitoring wells.
6	Hangar 646	Groundwater: PFOS, PFOA	Soil: Although PALs were not exceeded, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Determine the nature and extent both vertically and horizontally through the sampling of existing and additional new monitoring wells.
8	Building 620 – Vehicle Maintenance	Groundwater: PFOS, PFOA	
9	Apron	Groundwater: PFOS, PFOA Surface Water: PFOS	Soil: Although PALs were not exceeded, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Determine the nature and extent both vertically and horizontally through the sampling of existing and additional new monitoring wells. Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
10	ANG-1 (Outfall 001)	Surface Water: PFOS	Soil: Although PALs were not exceeded, PFAS were detected in soil samples. Therefore, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Although PALs were not exceeded, PFAS were detected in collected groundwater samples. Therefore, additional groundwater sampling is proposed to better define potential PFAS in groundwater both vertically and horizontally through the sampling of existing and additional new monitoring wells. Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
11	ANG-2 (Outfall 002)	Surface Water: PFOS, PFOA	Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
12	ANG-3 (Outfall	Surface Water:	Soil: Although PALs were not exceeded, PFAS were detected in soil samples.

Table ES-2. Relevant Data Quality Objectives

PRL No.	PRL Description	Compounds Exceeding PALs	Sampling Recommendation(s) and Objectives
	003 or HIA-E)	PFOS	Therefore, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Although PALs were not exceeded, PFAS were detected in collected groundwater samples. Therefore, additional groundwater sampling is proposed to better define the potential presence of PFAS in groundwater both vertically and horizontally through the sampling of existing and additional new monitoring wells. Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
13	ANG-4 (Outfall 004)	Surface Water: PFOS	
General			Groundwater: (1) Collect additional groundwater samples in upgradient locations to quantify potential PFAS in upgradient sources; (2) collect additional groundwater samples off-base from a limited number of new monitoring wells to assess the nature and extent of PFAS impacts beyond the base boundary.

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1. Introduction

Under contract to National Guard Bureau, Operations Division, Restoration Branch (NGB/A4OR), AECOM has prepared this Site Inspection (SI) Report to document the per- and polyfluoroalkyl substances (PFAS) focused field activities at twelve potential release locations (PRLs) and the base boundary wells identified by the Air National Guard (ANG) on Hancock Field Air National Guard Base (ANGB) (referred to herein as base), 174th Attack Wing, Hancock Field, Onondaga County, Syracuse, New York. **Figure 1-1**, located in **Appendix A**, provides a general location map for Hancock Field ANGB.

The SI, which follows the Preliminary Assessment (PA) in the Comprehensive Environmental Response, Compensation, and Liability Act process, is not intended as a full-scale study of the nature and extent of contamination. The United States Environmental Protection Agency (US EPA) identifies the SI as the onsite inspection to determine what hazardous substances are present and if they are being released to the environment. Its purpose is to augment the data collected in the PA and to generate, if necessary, sampling and other field data to determine if further response action or remedial investigation is appropriate.

A detailed description of the field procedures and scope of work intended to be performed during this SI is included in the Final SI Work Plan (WP) (AECOM, 2017). Field activities for the SI were conducted between April 2018 and May 2018. This SI Report presents the analytical results of the groundwater, soil, surface water, and sediment sampling. Finally, it provides conclusions and recommendations based on the results of the SI.

1.1 PFAS Overview

Perfluorinated compounds (PFCs), which are more recently referred to as PFAS, comprise a diverse group of synthetic chemicals used for over 50 years in various military and industrial applications and consumer products. The term “PFAS” is used hereafter throughout the SI report when referring to “PFCs”. PFAS are detected in aqueous film-forming foams (AFFF) used for firefighting and fire suppression systems (FSS) starting in the 1970s; however, it was introduced to some bases prior to 1970. Sources of PFAS used by military and commercial airports can include: fire training areas, nozzle testing areas, hangars and other buildings equipped with fire suppression equipment, fire stations, AFFF loading, handling and storage areas, aircraft and vehicle crash response areas, and AFFF ponds, sumps, tanks, landfills and/or other areas of disposal. The United States Air Force (USAF) estimates PFAS-containing AFFF may have been used at approximately 200 active and former USAF bases, including ANG and USAF Reserve facilities.

Properties of some PFAS that were analyzed for in this SI include:

- Limited sorption to soil and sediments
- Highly water soluble, non-volatile and extremely mobile in water
- Exceptional stability
- Persistent with very little attenuation
- Widely present in the environment, bioaccumulative, and detected in plants, animals, and humans

Potential health effects are based on toxicological data that is generally limited for most PFAS with the exception of a few more highly studied compounds. The C8 Science Panel identified the following probable links to Perfluorooctanoic acid (PFOA) exposures (C8 Science Panel, 2018):

- Ulcerative colitis
- Thyroid disease
- Testicular and kidney cancer
- Pregnancy-induced hypertension
- Diagnosed high cholesterol

Concerns associated with PFAS prompted the US EPA to include six PFAS in its third Unregulated Contaminant Monitoring Rule (UCMR-3) requiring sampling for PFAS in many large public water systems (US EPA, 2012). This sampling resulted in the discovery of impacted drinking water supplies; several linked to Department of Defense (DoD) and commercial airport sites. The US EPA finalized its lifetime health advisory (HA) levels in 2016 for Perfluoro-octanesulfonate (PFOS) and PFOA in drinking water at 70 nanograms per liter (ng/L) with a recommendation for combined PFOS/PFOA concentrations less than 70 ng/L (US EPA, 2016a,b). Given these impacts to drinking water sources and the establishment of US EPA HA levels, increased environmental regulatory scrutiny is occurring and is expected to continue.

1.2 Scope and Objectives

The objectives for the SI are to: (1) determine the presence or absence of PFAS in groundwater, soil, surface water, and or sediment (if present) at 12 PRLs and in groundwater immediately downgradient of each PRL, (2) assess if PFAS from the base are migrating off-base, and (3) determine if the concentrations of PFAS at each PRL are present in quantities or concentrations that warrant no further action (NFA) or additional investigation as part of the Expanded SI or Remedial Investigation (RI) / Feasibility Study phase, and if so, what the appropriate data quality objectives (DQOs) should be. The scope of work included the completion of soil borings and groundwater monitoring wells, and the collection of soil and groundwater samples, and sediment and surface water samples (if present) to evaluate the presence or absence of SI chemicals of potential concern (COPC).

1.3 Report Organization

This SI Report is organized into the following eight sections:

- Section 1, Introduction
- Section 2, Base Description
- Section 3, Environmental Setting
- Section 4, Investigation Activities
- Section 5, Site Inspection Results
- Section 6, Analysis of Results
- Section 7, Conclusions and Recommendations
- Section 8, References

2. Base Description

2.1 Site History

The US Army built and activated the Hancock Field site in 1942 as the Syracuse Army Air Base to use as a staging area for warplanes bound for England during World War II. The Army Air Corps occupied the 3,500-acre base from 1942 through 1946, when the lands were declared surplus. In 1948, the New York Air National Guard (NYANG) drew approximately 600 acres of land from surplus for use and the newly formed 138th Fighter Squadron formally occupied an area of the inactivated base. It was the sole military occupant of the field until 1952 when the USAF returned and Hancock Field became headquarters of the 32nd Air Division.

The USAF occupied the northern portion of the base (south of Taft Road) while the NYANG occupied the southern portion of the base (north of Molloy Road). The central portions were gradually turned over to the City of Syracuse during transfer of airport operations from Amboy, New York, in the early 1950s. The USAF remained at the base until 1984, shortly after Hancock Field was declared excess to USAF needs. The 138th Fighter Squadron remained and became part of what was then known as the 174th Fighter Wing, located in what is called Tract 3, the southern portion of the base. The USAF owns the land and grants use of Tract 3 to the NYANG and the Army National Guard (Parsons, 2001).

The 174th Attack Wing's primary mission was to attack and destroy enemy forces, supplies, equipment, and communications using conventional weapons. This included support and deployment of F-16 jet aircraft, which was phased out by 2010. The 174th Fighter Wing became the 174th Attack Wing when the mission changed to operation of the MQ-9 Reaper Remotely Piloted Aircraft (RPA). The current mission is to provide qualified airmen and weapon systems engaging in global air, space and cyberspace operations; supporting homeland defense, joint operations and aid to civil authorities at the direction of the Governor. Support operations at Hancock Field ANGB include aircraft operation and maintenance, vehicle maintenance and bulk fuel storage (BB&E, 2016).

Firefighting training was conducted at an on-site firefighting training facility. Operations related to the use and/or storage of AFFF historically occurred at various locations at Hancock Field ANGB to provide support to the overall 174th Attack Wing mission. AFFF is used for fighting Class B Liquid Hydrocarbon fires, which the ANG has historically used for various mission support activities, including for firefighting training exercises, suppressing aircraft/vehicle fires, and in aircraft hangar FSS.

2.2 PRL History

No PFAS focused investigations have been completed at Hancock Field ANGB. The basewide PA site visit was conducted at Hancock Field ANGB in November 2015 to assess known and potential releases of PFAS at various areas known to have stored or released AFFF or other PFAS containing products (BB&E, 2016). The PA Report included assessments of sites to determine if there was sufficient information to indicate if a potential release of PFAS could impact human health and the environment.

As part of the PA, a total of thirteen PRLs were identified; the ANG determined that further investigation was warranted at twelve PRLs to provide consistency within the ANG program in evaluating potential PFAS releases. **Figure 2-1** provides the locations for each of these twelve PRLs. Brief histories associated with PFAS usage at the PRLs are provided below. The following PRL histories were current as of the 2015 PA site visit.

2.2.1 IRP Site 1 Fire Training Area (PRL 1)

Installation Restoration Program (IRP) Site 1 is a former fire training area (FTA). IRP Site 1 is located approximately 1,500 feet (ft) south of the east-west runway and 1,250 ft west of the north branch of Ley Creek. The site occupies 0.75 acre and is bounded to the north by an earthen berm. The burn pit is an old concrete aircraft parking area with no curb or barrier to prevent runoff into the surrounding soil. IRP Site 1 was used for firefighting training exercises from 1948 to 1985. Approximately 100 to 150 gallons of waste fuels (including waste oils, solvents, paint thinners, and jet fuel) were used during each training exercise.

Firefighting training exercises were conducted at least once per month (ANG, 2011). According to the IRP Site 1 Final No Further Response Action Planned Decision Document, AFFF was utilized at the site (Radian, 1998). However, according to base personnel interviewed, only water has been used during firefighting training activities since 1983, with the exception of protein foam, which was used at some point in time. AFFF was not used because fires were lit one after another and AFFF would have hindered the speed at which fires could be re-lit. (BB&E, 2016) Firefighting training activities were moved to Fort Drum, NY.

2.2.2 Building 644 – Current Fire Station (PRL 2)

Building 644 was built in 1996. Observations made during the November 2015 PA site visit include: bulk AFFF was formerly stored here; however, bulk AFFF is now stored at the warehouse (Building 614). AFFF is present in the Fire Department (FD) vehicles. Historically, Ansul was primarily used and now 3M is primarily used. Engine 14 carries 30 gallons, two Rapid Intervention Vehicles (RIV) carry 56 gallons each, and one P-19 carries 130 gallons. AFFF is transferred to vehicles within the Fire Station, formerly from 5 gallon buckets via pouring, later from 55 gallon drums via pumping. FD vehicles are washed within the Fire Station with soap and water when necessary. There are trench drains located in the Fire Station; therefore, any AFFF releases due to vehicle washing would be captured by the trench drains, which discharge into the sanitary sewer system through an oil water separator (OWS). According to the Fire Chief, nozzle testing has been conducted all over the installation, however only water has been used since at least 1983 (BB&E, 2016).

2.2.3 Former Building 608 – Former Fire Station (PRL 3)

Prior to relocation to Building 644, the FD was stationed in Building 608, which was torn down and replaced by Building 611. Building 608 was demolished in 2000/2001. Information on floor drains in the former Building 608 was unavailable at the time of the PA site visit. According to base personnel, AFFF has been in use since at least the late 1970s (carried in FD vehicles) and was stored in Former Building 608.The Fire Chief noted that spills occurred within Building 608; however there are no written records of spills (BB&E, 2016).

2.2.4 Hangar 610 (PRL 4)

The AFFF fire suppression system was installed in 1987 at Hangar 610 and remained until approximately 2001/2002, when the system was retrofitted for use of high expansion foam (HEF). It is not known if, or how often, fire suppression systems were tested. No records of accidental AFFF releases exist, but according to base personnel, at least one accidental release occurred at Hangar 610 in the past. During one incident, it was originally reported that AFFF overfilled the holding tanks on the north side of the building, which may have potentially impacted stormwater. However, further information from base personnel indicate this release was of HEF, not AFFF. Any AFFF releases during testing or accidental release within the hangar typically would have been routed to the trench drains. The trench drains are equipped with a diversion valve which can redirect the discharge to two underground storage tanks or directly discharge to the sanitary sewer system (BB&E, 2016).

2.2.5 Hangar 618 (PRL 5)

The AFFF fire suppression system was installed in 1987 at Hangar 618 and remained until approximately 2001/2002, when the system was retrofitted for use of HEF. It is not known if, or how often, fire suppression systems were tested. No records of accidental AFFF releases exist. Any AFFF releases during testing or accidental release within the Hangar typically would have been routed to the trench drains that lead to an OWS which then discharges into the sanitary sewer system (BB&E, 2016).

2.2.6 Hangar 646 (PRL 6)

The AFFF fire suppression system was installed in 1987 at Hangar 646 and remained until approximately 2001/2002, when the system was retrofitted for use of HEF. It is not known if, or how often, fire suppression systems were tested. No records of accidental AFFF releases exist. Any AFFF releases during testing or accidental release within the hangar typically would have been routed to the trench

drains. The trench drains are equipped with a diversion valve which can redirect the discharge to the underground storage tank or discharge to the sanitary sewer system through an OWS (BB&E, 2016).

2.2.7 Building 620 – Vehicle Maintenance (PRL 8)

Building 620 was constructed in 1958 and consists of five vehicle maintenance bays and a wash rack. The building is equipped with trench drains that lead to the OWS and eventually to the sanitary sewer. Although there are no records or knowledge of known AFFF spills at Building 620, base personnel indicated that spills may have historically occurred if AFFF was removed from FD vehicles during maintenance (BB&E, 2016).

2.2.8 Apron (PRL 9)

Although there are no records or base personnel accounts of AFFF releases, the concrete ramp/apron area located at the northern side of the base and adjacent to the hangars may have been impacted by AFFF, due to the historical presence of aircraft. Drainage from the apron drains as sheet flow into a drainage ditch located on the northern side of the apron which flows to ANG-3 – Outfall 3 - HIA-E (PRL 12) that discharges directly to the North Branch of Ley Creek.

2.2.9 ANG-1 - Outfall 001 (PRL 10)

Outfall 001, also referred to as ANG-1, is located on the southern property line at Molloy Road. Stormwater runoff from the southern-central portion of the airport, the south de-icing collection pad, the Piedmont Hawthorne ramp, and industrial facilities west of the base discharge to Outfall 001. Stormwater runoff from the western-central portion of the base (Basin 001), which includes Base Civil Engineering (Building 645), Storage Igloo (Building 636), Current Fire Station (Building 644, PRL 2), Air Support Operations (Building 800), Recycling Center (Building 787), and parking lots, flows southeast towards Molloy Road and also discharges at Outfall 001.

2.2.10 ANG-2 – Outfall 002 (PRL 11)

Outfall 002, also referred to as ANG-2, is located at the southeastern corner of the base near the petroleum, oils and lubricants (POL) facility. Stormwater runoff from the eastern-central portion of the base (Basin 002), which includes the paved aircraft flightline, the northeastern portion of the Main Hangar (Building 610, PRL 4), Maintenance Dock Fuel Systems (Building 618, PRL 5), the north portion of the Aerospace Ground Equipment (AGE) Maintenance (Building 611), paved lot 40001, the POL Facility (Buildings 106 to 109), OMS #5 (Building 101), and parking lots, flows southeast towards Thompson Road and discharges at Outfall 002. Stormwater runoff from the vehicle storage areas at the OMS and Armory also discharges directly to Outfall 002.

2.2.11 ANG-3 - Outfall 003 – HIA-E (PRL 12)

Outfall 003 also referred to as ANG-3 or HIA-E, is located at the northeast boundary between the airport and the base, north of the Armory. Stormwater runoff from Basin E, which includes drainage from the southeastern portion of the airport (runways and taxiways), the Apron (PRL 9), Aircraft Maintenance Hangar (Building 646, PRL 6), and Hush House (Building 40024), flows south or east and discharges at Outfall 003/HIA-E.

2.2.12 ANG-4 - Outfall 004 (PRL 13)

Outfall 004, also referred to as ANG-4, is located at the southeastern corner of the base near the old POL facility. Stormwater runoff from the central portion of the base (Basin 004), which includes the old POL Facility, Site of Former Building 607, the south and west portions of the Main Hangar (Building 610, PRL 10), the south portion of AGE Maintenance (Building 611), Vehicle Maintenance Facility Area (Building 627 and Building 620 PRL 8), Engine/I&R Shop (Building 648), RPA Schoolhouse (Building 641) and personally owned vehicle parking areas, flows southeast towards Outfall 004.

2.3 Regulatory Framework

PFAS are not currently regulated at the federal level and are not regulated in soil or groundwater by the State of New York; however, the United States Environmental Protection Agency (US EPA) has established lifetime health advisory (HA) levels for PFOS and PFOA to protect against potential risk from exposure to these compounds via drinking water; additionally, US EPA tapwater regional screening level (RSL) has been established for Perfluorobutanesulfonate (PFBS). US EPA residential soil RSLs were calculated for PFOS, PFOA, and PFBS to address direct contact with soils. Effective 3 March 2017, the New York State Department of Environmental Conservation (NYSDEC) added PFOA and PFOS to the New York State 6 New York Codes, Rules and Regulations Part 597 list of hazardous substances. While the Final Rule lists PFOS and PFOA as hazardous substances, it does not include any screening or clean-up criteria. These values were considered in establishing project action levels (PAL) that were provided in Appendix C, Laboratory Quality Assurance Project Plan in the Final SI WP (AECOM, 2017). There are no PALs for Perfluoroheptanoic acid (PFHpA), Perfluorohexanesulfonate (PFHxS), and Perfluorononanoic acid (PFNA) due to a lack of toxicity data.

The PALs for PFOS, PFOA, and PFBS for groundwater and soil are as follows:

- Groundwater:
    - PFOS and PFOA: A PAL of 70 nanograms per liter (ng/L) was selected for PFOS and PFOA; it is the US EPA drinking water HA level for screening the individual and combined PFOS + PFOA groundwater concentrations (USEPA, 2016a,b,c).
    - PFBS: A PAL of 400,000 ng/L was selected for PFBS; it is the May 2018 US EPA generic tapwater RSL that was derived using a target hazard quotient (THQ) equal to 1.0 and is protective of a residential receptor drinking the water (US EPA, 2018).
- Soil:
    - PFOS and PFOA: PALs of 1,260 nanograms per gram (ng/g) for both PFOS and PFOA were conservatively calculated using the US EPA RSL calculator (May 2018 version). The calculated PALs were derived using a THQ equal to 1.0 and are protective of a residential receptor coming into direct contact with soil (i.e., incidental ingestion of soil, dermal contact and outdoor inhalation of particulates) (US EPA, 2018).
    - PFBS: A PAL of 1.26×10^6 ng/g for PFBS was conservatively calculated using the US EPA RSL calculator (May 2018 version). The calculated PAL was derived using a THQ equal to 1.0 and is protective of a residential receptor coming into direct contact with soil (i.e., incidental ingestion of soil, dermal contact and outdoor inhalation of particulates) (US EPA, 2018). US EPA does provide a generic residential direct contact soil RSL of 1.30×10^6 ng/g dated May 2018 (US EPA 2018). However, the ANG bases around the country have chosen to use the more stringent, calculated RSL for screening PFBS.

PALs were not specifically defined for surface water and sediment in the SI WP (AECOM, 2017), for purposes of this SI Report, they are defined as follows:

- Surface Water: There are no surface water specific screening criteria due to the absence of state or federal guidance levels; therefore, surface water PALs are equivalent to groundwater PALs, defined above.
- Sediment: There are no sediment specific screening criteria due to the absence of state or federal guidance levels; therefore, sediment PALs are equivalent to the soil PALs, defined above.

Where multiple criteria exist, the more conservative screening value is used. The PAL for each COPC by media and analytical method are presented below.

Analyte	**Groundwater and Surface Water** (ng/L)	**Soil and Sediment** (ng/g)
PFOS	70	1,260
PFOA	70	1,260
PFBS	400,000	1.26×10^6
PFOS + PFOA	70	Not Applicable

Analytical data are summarized in tables and compared to these PALs in **Appendix B.** Analytical reports are included in **Appendix D**.

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3. Environmental Setting

This section describes the topography and site conditions found at Hancock Field ANGB.

3.1 Site Topography and Drainage

Hancock Field ANGB is located at Hancock Field in central New York State approximately five miles north of Syracuse in Onondaga County. The NYANG leases the approximately 259-acre Tract 3 parcel from the USAF. The property is generally flat with no dominant hills present. Surface elevations range from approximately 425 ft above mean sea level (amsl) in the northwest corner of the property to 385 ft amsl in the southeast corner of the base. Surface drainage flow is generally towards the southeast (Parsons, 2001). Five drainage basins contain the activities of Tract 3 and generally slope from northwest to southeast. Stormwater from these basins is discharged through a network of in-ground conveyances and grass-lined ditches to the North Branch of Ley Creek.

3.2 Site Geology/Hydrogeology

The surficial geology of Hancock Field consists of glacial fluvial sediments deposited by glacial meltwaters and overlying poorly-sorted till deposited directly by the glaciers. Geology at Tract 3 consist of three units: 1) the upper silty clay unit to approximately 12 ft below ground surface (bgs); 2) the middle fine to medium silty sand unit from approximately 15 to 29 ft bgs and; 3) the lower silty, clayey fine and at depths greater than 29 ft bgs. The underlying till consists of gravel, cobbles, and boulders entrained in a silty clay matrix and ranges from 30 to 100 ft in thickness. Bedrock is encountered at depths ranging from 75 to109 ft bgs and is one of the Upper Silurian Vernon Formation shales (Parsons, 2001).

Numerous soil types at Hancock Field ANGB have been mapped by the United States Department of Agriculture, Natural Resources Conservation Service (USDA NRCS, 2013). The soil types primarily present at the areas of the base include:

- Urban land (Ur) – More than 80 percent covered by building and pavement (originally occurring soils, which have been altered by digging, mixing, and moving are likely)
- Collamer silt loam (Ch) – 0 to 2 percent slopes, moderately well drained.
- Niagara silt loam (NgA) – 0 to 4 percent slopes, somewhat poorly drained.

Hancock Field ANGB lies within the Great Lakes Region groundwater basin. The principal aquifers at Hancock Field include the surficial aquifer consisting of well-sorted, homogeneous sand and gravel deposits (unconsolidated) and the underlying bedrock aquifer of highly fractured and jointed Vernon Formation shales (consolidated). The confining layer separating the two aquifers is the glacial till, which, by nature, has low effective porosity, low hydraulic conductivity, and low specific yields. Groundwater base flows south/southeast towards Ley Creek, primarily in the middle unit, at a rate between 1 and 10 ft/year. The hydraulic conductivity in the upper unit is approximately 4×10^{-7} centimeters per second (cm/s), or three orders of magnitude lower than the middle unit. The middle unit is under confined conditions – and in some cases artesian (e.g., off-base areas near Ley Creek). Historically, groundwater elevations on base have varied from 7 ft bgs to 12 ft bgs.

3.3 Critical Habitat and Threatened/Endangered Species

The following mammals is federally endangered, threatened, proposed, and/or is listed as candidate species in the vicinity of Hancock Field ANGB, Onondaga County, New York (United States Fish and Wildlife Service, 2017):

- Indiana Bat (Endangered)
- Northern Long-Eared Bat (Threatened)
- Eastern Massasauga Rattlesnake (Threatened)
- Bog Turtle (Threatened)

These species are not known to have critical habitat identified on the base.

3.4 Potential Receptors

3.4.1 Groundwater

Potential human exposure pathways related to groundwater are the use of any drinking water and irrigation wells used for public or private water supply or irrigation purposes, respectively. There are no known public water supply wells on the base and the shallow groundwater system in the area of the base is not used as a source of drinking water. There are no public water supply wells within one mile of the base. The Onondaga County Water Authority provides water service to the area surrounding the ANGB and obtains water from Skaneateles Lake and Lake Ontario (AECOM, 2014).

Depth to groundwater was measured at eighteen monitoring wells as part of the SI. Groundwater was encountered between approximately one to nine ft bgs (see **Table 3-1**); the flow direction varied, dependent on the location on the base, but generally to the east and southeast direction (see **Figure 3-1**).

3.4.2 Surface Water and Sediment

Wong's Pond is located south of the Base Headquarters (Building 174). Richter's Pond is located east of the Hush House (Building 40024) (see **Figure 2-1**). Five drainage basins receive the surface water runoff of the base and generally slope from northwest to southeast. The conveyances and ditches direct drainage to four stormwater outfalls: ANG-1 - Outfall 001 (PRL 10), ANG-2 - Outfall 002 (PRL 11), ANG-3 - Outfall 003 (PRL 12), and ANG-4 - Outfall 004 (PRL 13). ANG-3 - Outfall 003 (PRL 12) discharges directly to the North Branch of Ley Creek. The remaining outfalls discharge to tributaries to the North Branch of Ley Creek. Located east of the base, the North Branch of Ley Creek flows in a southwesterly direction and eventually discharges to Onondaga Lake, which is located approximately five miles southwest of the base (Parsons, 2001). Because much of the base is paved, infiltration and evapotranspiration of surface water are negligible.

The surface water from the base is not a primary source of drinking water, so there is currently not an exposure pathway for human and ecological receptors on-base; however, there is a potential for a complete exposure pathway off-base as a result surface water from the base discharging to nearby surface water bodies (e.g., tributaries of the North Branch of Ley Creek, Ley Creek, and eventually Onondaga Lake). As noted above, although much of the base is paved, two surface water bodies exist: Wong's Pond and Ritcher's Pond, where there is natural habitat for ecological receptors; therefore, potential ecological exposures to impacted surface water are expected to exist.

Ecological receptors may also be exposed to sediment associated with the surface water outfalls if sufficient habitat is present to support or attract terrestrial flora and fauna including burrowing animals. Sediments associated with Wong's Pond and Richter's Pond could support or attract terrestrial flora and fauna, and as such, should be evaluated during the Expanded SI or RI.

3.4.3 Soil

Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. Ecological receptors may also be exposed to soils if sufficient habitat is present to support or attract terrestrial flora and fauna including burrowing animals.

Hancock Field ANGB has mixed use and the surrounding area includes zoning for residential, industrial, agricultural, recreational, public uses, and commercial uses. Hancock Field ANGB includes paved and landscaped areas and as such, there are limited pathways to soil and air migration from disturbed soils under normal operating conditions; however, during excavation, a worker could be exposed to soil and dust from soil.

4. Investigation Activities

Field activities were completed to achieve the field objectives, which were to determine the presence or absence of PFAS at Hancock Field ANGB in various media and to determine if PFAS have the potential to migrate off-base, and to determine if PFAS concentrations at each PRL warrant further action. The field activities were completed between April 2018 and May 2018 in accordance with the SI WP except as noted in **Section 4.10**.

4.1 Pre-Investigation Activities

4.1.1 Public and Hancock Field ANGB Utility Clearance

Proper clearance was obtained prior to completing subsurface disturbance activities. On 1 April 2018, information was provided to Jason Preston, State Environmental Officer, to facilitate the base utility clearance process. The base utility clearance process included a public utility clearance process via New York State DIGSAFE one-call system on 1 April 2018. The drilling subcontractor (Cascade Technical Services) requested a public utility clearance via DIGSAFE on 3 April 2018 per state regulations.

4.1.2 Source Water

City of Syracuse potable water was used to decontaminate large equipment (drilling tools) throughout the SI. A potable water sample was collected 12 December 2017 prior to starting drilling activities to confirm that the water was PFAS-free. The sample was analyzed for the six UCMR-3 PFAS and all results were lower than the limit of quantitation (LOQ). The potable water was deemed PFAS-free to use for large equipment decontamination. The analytical results are provided in **Appendix D**. All other equipment and sampling tools were decontaminated by certified PFAS-free water supplied by the analytical laboratory, Eurofins Lancaster Laboratory Environmental, LLC.

4.2 Environmental Investigation and Sampling

The SI sampling locations were based on historical data, potential source areas, and site conditions as observed during the PA site visit. Following utility clearance and Accident Prevention Plan review and documentation, subsurface drilling and sampling commenced on 9 April 2018. Field activities occurred through 10 May 2018.

All samples were collected into laboratory-supplied containers and submitted to the analytical laboratory for analysis of selected parameters. Samples were packaged on ice and transported daily via overnight commercial carrier under standard chain-of-custody procedures to the laboratory.

Quality control (QC) samples collected as part of the SI included field duplicates, matrix spike and matrix spike duplicate (MS/MSD) samples, equipment blanks and trip blanks. Field duplicates were collected at a rate of 10% with MS/MSD samples collected at the rate of 5%. QC samples were analyzed for the same parameters as the accompanying parent samples. Field reagent blanks accompanied each cooler containing samples for PFAS analysis. A temperature blank was also placed in each cooler to check that samples were preserved at or below four degrees Celsius during shipment. All samples were analyzed for PFAS via US EPA Method 537 rev 1.1 modified.

The following samples were collected at Hancock Field ANGB and analyzed for PFAS via US EPA Method 537 rev 1.1 modified to support the project objectives:

- Collection of 54 soil samples (plus 6 additional duplicate samples) from 27 soil boring locations;
- Collection of 18 groundwater samples (plus 2 duplicate samples) from seventeen new monitoring wells and one existing monitoring well downgradient from the PRLs and at the base boundary;
- Collection of six surface water samples; and

- Collection of six sediment samples.

Figure 4-1 provides the sample locations for all media across the entire base.

4.3 Soil Borings

Soil samples were collected via direct-push technology (DPT). The soil cores were screened for volatile organic compounds (VOC) with a photoionization detector (PID) immediately upon opening the liner. Lithology for each soil core was recorded on a soil boring log (see **Appendix C-1**). Recorded information included depth interval, recovery thickness, PID concentrations, moisture, relative density, color, texture, lithological descriptions, odors, groundwater or perched water depth, organic material, cultural debris, or color changes indicating staining. It should be noted that PFAS do not volatilize similar to VOCs or other gases; therefore, PID results are not necessarily indicative of the presence of PFAS. However, PID readings can be used to evaluate the presence of other potential contaminants which may have been released with PFAS. Additionally, other contaminants (e.g., VOCs) can impact the fate and transport of PFAS in soil and groundwater.

Two soil samples were collected from each boring, with the first sample collected from the surface (0.0 to 1.0 ft bgs) and the second from the subsurface (4.0 to 5.0 ft bgs). Where soil samples were collected from borings separate from monitoring well locations, those soil boring locations were strategically positioned to maximize the potential for identifying “source” level releases of PFAS. Standalone monitoring well locations were positioned to evaluate groundwater downgradient of the PRLs (and at the base boundary).

Following collection of the soil and groundwater samples, all boreholes not associated with a monitoring well were abandoned by filling the borehole with bentonite and completed at ground surface with like-materials (concrete/asphalt) to match the existing surface.

4.4 Monitoring Well Installation/Groundwater Sampling

Permanent wells were installed using DPT and constructed of 10-ft sections of riser, 10-ft of 0.010-inch slotted well screen of 2-inch diameter Schedule 40 polyvinyl chloride with a threaded bottom cap. Monitoring wells were installed in accordance with US EPA guidance, as specified by the New York Water Well Construction Commission: Resource Conservation and Recovery Act Groundwater Monitoring Technical Enforcement Guidance Document (US EPA, 1986). The well screens were installed such that they “straddled” the water table. A filter pack of 20/40 silica sand was installed in the annulus around the well screen to a minimum of 2-ft above the well screen. A 2-ft thick bentonite seal was placed above the filter sand and hydrated with distilled water. Bentonite grout was placed in the well annulus from the top of the bentonite seal to ground surface. The bentonite grout was allowed to set for a period of 24-hours prior to well completion. Any soil generated during the sampling event was containerized in 55-gallon drums as investigation-derived waste (IDW) (discussed in **Section 4.9**).

Newly installed groundwater monitoring wells were developed no sooner than 24-hours after installation and prior to collecting groundwater samples in order to remove fine soils from the bottom of each well and from the surrounding sand pack. Well development was completed in accordance with the SI WP and AECOM standard operating procedure (SOP) 3-13 “Monitoring Well Development”. **Appendix C-2** includes well development logs including water level, turbidity and flow rates. Water obtained during development was containerized in 55-gallon drums as IDW.

Following development, monitoring wells were sampled using low-flow sampling methods using a peristaltic pump in accordance with the SI WP and AECOM SOP 3-14 “Monitoring Well Sampling”. Groundwater samples were obtained from seventeen new and one existing monitoring wells. Purge water was containerized in 55-gallon drums as IDW. New dedicated high-density polyethylene tubing was used at each well. Non-dedicated equipment was decontaminated in accordance with the SI WP. Equipment blanks were collected to monitor the potential for cross-contamination between wells. Field parameters including flow rate, depth to water, turbidity, temperature, specific conductivity, pH, dissolved oxygen, and oxidation-reduction potential were collected to ensure that the groundwater was stabilized prior to sample collection. **Table 4-1** provides a summary of the monitoring well construction details for the eighteen wells

that were included in this SI. **Appendix C-1** includes boring logs and well construction diagrams for the new wells. Groundwater sampling logs are provided in **Appendix C-2**.

4.5 Surface Water and Sediment Sampling

Surface water samples were collected at the Apron (PRL 9), ANG-1 – Outfall 001 (PRL 10), ANG-2 – Outfall 002 (PRL 11), ANG-3 – Outfall 003 – HIA-E (PRL 12), and ANG-4 – Outfall 004 (PRL 13). The samples were collected at the closest point downstream to where the surface water leaves the base. Per the SI WP, the sample was collected within the base property boundary and in accordance with AECOM SOPs 3-10 “Stormwater Sampling”. The sample was collected utilizing PFAS free collection devices. For the samples collected on 10 April 2018, relevant meteorological data consisted of 0.05 inches of precipitation during sample collection and 0.12 inches of rain within 24 hours, and another 0.07 inches of rain within 72 hours prior to sampling. Surface water and sediment sampling details and notes are provided in **Appendix C-3**.

4.6 Potential Release Location Activities

The following sections describe the field activities at each PRL as well as groundwater monitoring activities at the base boundary wells.

4.6.1 IRP Site 1 Fire Training Area (PRL 1)

Three soil borings (FTA-SB01, FTA-SB02, and FTA-SB03) and associated soil sampling were completed on 17 April 2018 using DPT. PID readings ranged from 0.3 parts per million (ppm) to 30 ppm. Soil boring FTA-SB01 was advanced to 14 ft bgs and converted to monitoring well FTA-MW01 on 17 April 2018. Soil boring FTA-SB02 was advanced to 16 ft bgs and converted to monitoring well FTA-MW02. Soil boring FTA-SB03 was advanced to 15 ft bgs and converted to monitoring well FTA-MW03. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. Three groundwater samples were collected from FTA-MW01, FTA-MW02, and FTA-MW03 on 09 May 2018.

4.6.2 Building 644 – Current Fire Station (PRL 2)

Three soil borings (644-SB01, 644-SB02, and 644-SB03) and associated soil sampling were completed on 18 April 2018 using DPT. PID readings were 0.0 ppm. Soil boring 644-SB01 was advanced to 14 ft bgs and converted to monitoring well 644-MW01 on 18 April 2018. Soil borings 644-SB02 and 644-SB03 were advanced to 5 ft bgs on 18 April 2018. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from 644-MW01 on 10 May 2018.

4.6.3 Former Building 608 – Former Fire Station (PRL 3)

Two soil borings (608-SB01 and 608-SB02) and associated soil sampling were completed on 12 April 2018 using DPT. PID readings were greater than 100 ppm, likely due to humidity (rain conditions). Soil boring 608-SB01 was advanced to 13 ft bgs and converted to monitoring well 608-MW01. Soil boring 608-SB02 was advanced to 5 ft bgs. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from 608-MW01 on 10 May 2018.

4.6.4 Hangar 610 (PRL 4)

Three soil borings (610-SB01, 610-SB02, and 610-SB03) and associated soil sampling were completed on 13 April 2018 using DPT. PID readings ranged from 0 ppm to greater than 100 ppm, likely due to the humidity (rain conditions). Soil boring 610-SB01 was advanced u to 15 ft bgs and converted to monitoring well 610-MW01. Soil borings 610-SB02 and 610-SB03 were advanced to 5 ft bgs. In accordance with the

SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from 610-MW01 on 09 May 2018.

4.6.5 Hangar 618 (PRL 5)

Two soil borings (618-SB01 and 618-SB02) and associated soil sampling were completed on 12 April 2018 using DPT. PID readings ranged from 9.6 ppm to greater than 100 ppm, likely due to the humidity (rain conditions). Soil boring 618-SB01 was advanced to 13 ft bgs and converted to monitoring well 618-MW01 on 12 April 2018. Soil boring 618-SB02 was advanced to 5 ft bgs. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from 618-MW01 on 10 May 2018.

4.6.6 Hangar 646 (PRL 6)

Three soil borings (646-SB01, 646-SB02, and 646-SB03) and associated soil sampling were completed on 17 April 2018 using DPT. PID readings ranged from 0 ppm to 0.7 ppm. Soil boring 646-SB01 was advanced to 13 ft bgs and converted to monitoring well 646-MW01 on 11 April 2018. Soil borings 646-SB02 and 646-SB03 were advanced to 5 ft bgs. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from 646-MW01 on 9 May 2018.

4.6.7 Building 620 – Vehicle Maintenance (PRL 8)

Three soil borings (620-SB01, 620-SB02, and 620-SB03) and associated soil sampling were completed on 17 April 2018 using DPT. Soil boring 620-SB01 was advanced to 13 ft bgs and converted to monitoring well 620-MW01. Soil borings 620-SB02 and 620-SB03 were advanced to 5 ft bgs. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from 620-MW01 on 10 May 2018.

4.6.8 Apron (PRL 9)

Four soil borings (APN-SB01, APN-SB02, APN-SB03 and APN-SB04) and associated soil sampling were completed on 11 through 18 April 2018 using DPT. PID readings ranged from 0.0 ppm to 8.0 ppm. Soil boring APN-SB01 was advanced to 13 ft bgs and converted to monitoring well APN-MW01 on 11 April 2018. Soil boring APN-SB02 was advanced to 13 ft bgs and converted to monitoring well APN-MW02 on 12 April 2018. Soil boring APN-SB03 was advanced to 13 ft bgs and converted to monitoring well APN-MW03 on 12 April 2018. Soil boring APN-SB04 was advanced to 14 ft bgs and converted to monitoring well APN-MW04 on 18 April 2018. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from each monitoring well between 9 May and 10 May 2018. Two surface water samples (HC-APN-SW01 and HC-APN-SW02) and two sediment samples (HC-APN-SD01 and HC-APN-SD02) were collected on 10 April 2018.

4.6.9 ANG-1 - Outfall 001 (PRL 10)

One soil boring (OF1-SB01) and associated soil sampling was completed 18 April 2018. Soil boring OF1-SB01 was advanced to 13 ft bgs using DPT and converted to monitoring well OF1-MW01 on 18 April 2018. In accordance with the SI WP, soil samples were collected from each of the soil borings from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from OF1-MW01 on 10 May 2018. One surface water sample, HC-OF1-SW01, was collected at the Outfall on 10 April 2018. One sediment sample, HC-OF1-SD01, was collected at the Outfall on 10 April 2018.

4.6.10 ANG-2 – Outfall 002 (PRL 11)

One surface water sample, HC-OF2-SW01, was collected at the Outfall on 10 April 2018. One sediment sample, HC-OF2-SD01, was collected at the Outfall on 10 April 2018.

4.6.11 ANG-3 - Outfall 003 – HIA-E (PRL 12)

One soil boring (OF3-SB01) and associated soil sampling was completed 17 April 2018. Soil boring OF3-SB01 was advanced to 15.5 ft bgs using DPT and converted to monitoring well OF3-MW01 on 17 April 2018. In accordance with the SI WP, soil samples were collected from the soil boring from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from OF3-MW01 on 9 May 2018. One surface water sample, HC-OF3-SW01, was collected at the Outfall on 10 April 2018. One sediment sample, HC-OF3-SD01, was collected at the Outfall on 10 April 2018.

4.6.12 ANG-4 - Outfall 004 (PRL 13)

One soil boring (OF4-SB01) and associated soil sampling was completed 18 April 2018. Soil boring OF4-SB01 was advanced to 13 ft bgs using DPT and converted to monitoring well OF4-MW01 on 18 April 2018. In accordance with the SI WP, soil samples were collected from the soil boring from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from OF4-MW01 on 10 May 2018. One surface water sample, HC-OF4-SW01, was collected at the Outfall on 10 April 2018. One sediment sample, HC-OF4-SD01, was collected at the Outfall on 10 April 2018.

4.6.13 Base Boundary Well

One soil boring (OF4-SB01) and associated soil sampling was completed 11 April 2018. Soil boring BBW-SB01 was advanced to 13 ft bgs using DPT and converted to monitoring well BBW-MW01 on 11 April 2018. In accordance with the SI WP, soil samples were collected from the soil boring from 0.0 – 1.0 ft bgs and 4.0 – 5.0 ft bgs. One groundwater sample was collected from BBW-MW01 on 9 May 2018. In accordance with the Final SI WP (AECOM, 2017), four new wells installed at PRLs as part of this SI were to also serve as base boundary wells; OF1-MW01, OF3-MW01, OF4-MW01 were installed to evaluate the outfalls (ANG-1 – Outfall 001 [PRL 10], ANG-3 – Outfall 003 HIA-E [PRL 11], and ANG-4 – Outfall 004 [PRL 13], respectively) as well as the base boundary, and APN-MW01 were installed to evaluate the Apron (PRL 9), as well as the base boundary. Groundwater samples were collected from each monitoring well as detailed in the PRL-specific discussion above.

4.7 Groundwater Level Measurements

Water levels were obtained from the 18 monitoring wells, 17 new wells and one existing well, that were included in this SI between 9 May and 10 May 2018. Screened intervals and water level measurements are provided in **Table 4-1** and **Table 3-1**, respectively. A potentiometric contour map is provided as **Figure 3-1,** which shows that groundwater flow direction varies, dependent on the location on the base, but generally towards the east and southeast direction.

4.8 Surveying

All of the monitoring wells installed as a part of the SI were surveyed by C.T. Male Associates, a licensed surveyor in the State of New York. Survey data collected from each well included a latitude and longitude measurement and top of casing elevation. Surveying measurements were collected according to the North American Datum of 1983 Central Zone of the New York State Plane Coordinate System using North American Datum of 1983, and were measured to an accuracy of 0.1 ft. Elevation measurements are based on the National Geodetic Vertical Datum of 1988, and measured to an accuracy of 0.01 ft. Survey results are provided in **Appendix C-4**.

4.9 Investigation-Derived Waste

Four drums of drilling soil cuttings and three drums of decontamination water, development water and purge water were containerized in new 55-gallon steel drums for storage pending disposal, and staged on-base at a base-designated area. The IDW is currently awaiting approval for disposal as non-hazardous, non-regulated material. The disposal contractor used the basewide PFAS SI soil

and groundwater analytical data to characterize the waste and prepare the waste profile. IDW-associated documentation is located in **Appendix E.**

4.10 Deviations from the SI Work Plan

Deviations from the SI WP occurred based on field conditions (e.g., due to the presence of utilities) and are noted below:

- FTA-SB01/MW01 was shifted approximately 10 ft to the south into a grassy area, as the proposed location was under 5” of standing water.
- 646-SB01/MW01 was moved 15’ to the southeast as the proposed location had recently been developed into an underground storm water retention system.

5. Site Inspection Results

Analytical results were evaluated to determine the presence or absence of PFAS in groundwater, soil, surface water, and sediment (if present) at each PRL and in groundwater downgradient of PRLs, and assess if PFAS from the base are migrating off-base. The six PFAS that were sampled and analyzed during the PFAS investigations were:

- PFBS
- PFHpA
- PFHxS
- PFNA
- PFOS
- PFOA

Analytical results for PFOS, PFOA and PFBS were compared against the PALs described in **Section 2.3**. As described in **Section 2.3**, there are no PALs for PFHpA, PFHxS, or PFNA.

5.1 Data Usability

The laboratory analytical data generated during the SI were reviewed for conformance with the project DQOs specified in the SI WP and to ensure that the precision and accuracy of the data were adequate for their intended use. All analytical data were found to be useable (as qualified). **Appendix D** contains the data validation report, which details the scope, quality assurance/QC sample collection and analysis, and results of the analytical data review and validation.

Detected concentrations below the LOQ are reported with a 'J' flag. The LOQ is the lowest concentration of a substance that produces a quantitative result within specified limits of precision and bias. During data validation, the J flag was further qualified. Validation flag "J+" means the analyte is present; however, the reported value may not be accurate or precise, and the result may be biased high. Alternatively, "J-" means the analyte is present; however, the reported value may not be accurate or precise, and the result may be biased low. Measurements between the detection limit and the LOQ assure the presence of the analyte with confidence, but their numeric values are estimates (Department of Defense [DoD], 2009).

Non-detections are reported as the limit of detection (LOD) followed by a 'U' flag. The LOD is the smallest amount or concentration of a substance that must be present in a sample to be detected at a 99% confidence level. The failure to obtain a detection is reported as "<LOD" because the false-negative rate at the LOD is 1% (DoD, 2009). In the instances where a result was qualified due to a blank detection, the non-detections are reported as the LOD followed by a 'U*' flag to indicate the flag was changed during data validation.

The data review and validation performed on the entire data set indicates overall high quality of the definitive-level data collected for this base. None of the data were qualified as rejected and completeness for this data set is 100 percent. Results qualified as estimated are generally for marginal QC exceedances and blank-qualified results below or near the LOQs, and the qualifications do not significantly affect project objectives.

5.2 IRP Site 1 Fire Training Area (PRL 1)

Table 5-1 summarizes the analytical results and **Figures 5-1 and 5-5** show PFAS detections in the groundwater and soil samples collected at IRP Site 1 Fire Training Area (PRL 1). PFAS were detected in all of the groundwater and soil samples.

All six PFAS were detected in the groundwater samples collected from PRL 1. PFOS and PFOA were detected at a maximum concentration of 130,000 ng/L and 9,500 ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a maximum concentration of 4,100 ng/L, PFHxS was detected at a maximum

concentration of 42,000 ng/L, and PFNA was detected at a concentration of 8,500 ng/L; however, there are no PALs for these compounds.

All six PFAS were detected in the soil samples collected from PRL 1. PFOS and PFOA were detected below the PAL of 1,260 ng/g and PFBS was detected below the PAL of 1.26×10^6 ng/g. PFHpA was detected at a maximum concentration of 1.4 ng/g, PFHxS was detected at a maximum concentration of 23 ng/g, and PFNA was detected at a maximum concentration of 8.9 J ng/g; however, there are no PALs for these compounds.

5.3 Building 644 (Current Fire Station) (PRL 2)

Table 5-2 summarizes the analytical results and **Figures 5-2 and 5-5** show PFAS detections in the groundwater and soil samples collected at Building 644 (Current Fire Station (PRL 2). PFAS were detected in the groundwater and soil samples.

All six PFAS were detected in the groundwater sample collected from monitoring well HC-644-MW01. PFOS and PFOA were detected at a concentration of 2,000 J- ng/L and 100 ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 150 J- ng/L, PFHxS was detected at a concentration of 380 J- ng/L, and PFNA was detected at a concentration of 27 ng/L; however, there are no PALs for these compounds.

PFHpA, PFHxS, PFNA, PFOS, and PFOA were detected in the soil samples collected from PRL 2. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHpA was detected at a maximum concentration of 0.67 J ng/g, PFHxS was detected at a maximum concentration of 4.4 ng/g, and PFNA was detected at a maximum concentration of 0.91 ng/g; however, there are no PALs for these compounds.

5.4 Former Building 608 (Former Fire Station) (PRL 3)

Table 5-3 summarizes the analytical results and **Figures 5-2 and 5-5** show PFAS detection in the groundwater and soil samples collected at Former Building 608 (Former Fire Station) (PRL 3). PFAS were detected in the groundwater and soil samples.

All six PFAS were detected in the groundwater sample collected from monitoring well HC-608-MW01. PFOS and PFOA were detected at a concentration of 470 ng/L and 330 ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 170 ng/L, PFHxS was detected at a concentration of 1,100 ng/L, and PFNA was detected at a concentration of 31 ng/L; however, there are no PALs for these compounds.

PFHxS, PFNA, PFOS, and PFOA were detected in the soil samples collected from PRL 3. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 2.4 ng/g and PFNA was detected at a maximum concentration of 5.4 J ng/g; however, there are no PALs for these compounds.

Soil boring 610-SB03 was also included in the sampling program to evaluate PFAS in soil from operations at Former Building 608 (PRL 3). PFHxS and PFOS were detected in the soil boring samples collected from 610-SB03. See **Section 5.5** for discussion of the analytical results.

5.5 Hangar 610 (PRL 4)

Table 5-4 summarizes the analytical results and **Figures 5-2 and 5-5** show PFAS detection in the groundwater and soil samples collected at Hangar 610 (PRL 4). PFAS were detected in the groundwater and soil samples.

PFBS, PFHpA, PFHxS, PFOS, and PFOA were detected in the groundwater sample collected from monitoring well 610-MW01. PFOS and PFOA were detected at a concentration of 3,000 ng/L and 350

ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 48 ng/L and PFHxS was detected at a concentration of 2,100 ng/L; however, there are no PALs for these compounds.

PFHxS, PFOS, and PFOA were detected in the soil samples collected from PRL 4. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 0.97 ng/g; however, there is no PAL for this compound.

5.6 Hangar 618 (PRL 5)

Table 5-5 summarizes the analytical results and **Figures 5-2 and 5-5** show PFAS detection in the groundwater and soil samples collected at Hangar 618 (PRL 5). PFAS were detected in the groundwater and soil samples.

PFBS, PFHpA, PFHxS, PFOS, and PFOA were detected in the groundwater sample collected from monitoring well 618-MW01. PFOS and PFOA were detected below the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 3.5 ng/L and PFHxS was detected at a concentration of 200 ng/L; however, there are no PALs for these compounds.

PFHxS, PFOS, and PFOA were detected in the soil samples collected from PRL 5. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 0.73 ng/g; however, there is no PAL for this compound.

Soil boring 608-SB02 was also included in the sampling program to evaluate PFAS in soil from Hangar 618 (PRL 5) operations. PFHxS, PFNA, PFOS, and PFOA were detected in the soil boring samples collected from HC-608-SB02. See **Section 5.4** for discussion of the analytical results.

5.7 Hangar 646 (PRL 6)

Table 5-6 summarizes the analytical results and **Figures 5-3 and 5-5** show PFAS detection in the groundwater and soil samples collected at Hangar 646 (PRL 6). PFAS were detected in all of the groundwater and soil samples.

All six PFAS were detected in the groundwater samples collected from PRL 6. PFOS and PFOA were detected at a maximum concentration of 1,100 ng/L and 2,800 ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a maximum concentration of 1,000 ng/L, PFHxS was detected at a maximum concentration of 6,300 ng/L, and PFNA was detected at a maximum concentration of 28 J- ng/L; however, there are no PALs for these compounds.

All six PFAS were detected in the soil samples collected from PRL 6. PFOS and PFOA were detected below the PAL of 1,260 ng/g and PFBS was detected below the PAL of 1.26×10^6 ng/g. PFHpA was detected at a maximum concentration of 0.54 J ng/g, PFHxS was detected at a maximum concentration of 7.3 ng/g, and PFNA was detected at a maximum concentration of 0.45 J ng/g; however, there are no PALs for these compounds.

5.8 Building 620 (Vehicle Maintenance) (PRL 8)

Table 5-7 summarizes the analytical results and **Figures 5-2 and 5-5** show PFAS detection in the groundwater and soil samples collected at Building 620 (Vehicle Maintenance) (PRL 8). PFAS were detected in the groundwater and soil samples.

All six PFAS were detected in the groundwater sample collected from monitoring well 620-MW01. PFOS and PFOA were detected at a concentration of 1,300 J- ng/L and 120 ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 80 J- ng/L, PFHxS was detected at a concentration of

670 J- ng/L, and PFNA was detected at a concentration of 15 ng/L; however, there are no PALs for these compounds.

PFHxS, PFOS, and PFOA were detected in the soil samples collected from PRL 8. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 1.9 ng/g; however, there is no PAL for this compound.

5.9 Apron (PRL 9)

Table 5-8 summarizes the analytical results and **Figures 5-3, 5-4 and 5-5** show PFAS detection in the groundwater, soil, surface water, and sediment samples collected at Apron (PRL 9). PFAS were detected in the groundwater, soil, surface water, and sediment samples.

All six PFAS were detected in the groundwater samples collected from PRL 9. PFOS and PFOA were detected at a maximum concentration of 230 ng/L and 77 ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a maximum concentration of 56 ng/L, PFHxS was detected at a maximum concentration of 390 ng/L, and PFNA was detected at a maximum concentration of 17 J ng/L; however, there are no PALs for these compounds.

Monitoring wells 644-MW01, 608-MW01, 610-MW01, 618-MW01, and 646-MW01 were also included in the sampling program to evaluate potential PFAS in groundwater from the Apron (PRL 9). All six PFAS were detected in the groundwater samples collected. See **Sections 5.3** to **5.7** for discussions of the analytical results.

All six PFAS were detected in the surface water samples collected from PRL 9 with the maximum concentrations in HC-APN-SW02. PFAS and PFOA were detected at a maximum concentration of 440 ng/L and 74 J ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a maximum concentration of 18 ng/L, PFHxS was detected at a maximum concentration of 350 ng/L, and PFNA was detected at a maximum concentration of 1.4 J ng/L; however, there are no PALs for these compounds.

PFHpA, PFHxS, PFNA, PFOS, and PFOA were detected in the soil samples collected from PRL 9 with the maximum concentrations located at soil boring sample HC-APN-SB02-01. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHpA was detected at a maximum concentration of 0.25 J ng/g, PFHxS was detected at a maximum concentration of 3.7 ng/g, and PFNA was detected at a maximum concentration of 1.5 ng/g; however, there are no PALs for these compounds.

Soil borings 608-SB02, 610-SB01, 618-SB02, 646-SB02, and 646-SB03 were also included in the sampling program to evaluate potential PFAS in soil from the Apron (PRL 9). All six PFAS were detected in the soil samples collected. See **Sections 5.4** to **5.7** for discussions of the analytical results.

PFHpA, PFHxS, PFNA, PFOS, and PFOA were detected in the sediment samples collected from PRL 9. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHpA was detected at a maximum concentration of 0.41 J ng/g, PFHxS was detected at a maximum concentration of 2.8 ng/g, and PFNA was detected at a maximum concentration of 0.40 J ng/g; however, there are no PALs for these compounds.

5.10 ANG-1 (Outfall 001) (PRL 10)

Table 5-9 summarizes the analytical results and **Figures 5-1, 5-4 and 5-5** show PFAS detection in the groundwater, surface water, soil, and sediment samples collected at ANG-1 (Outfall 001) (PRL 10). PFAS were detected in the groundwater, surface water, soil, and sediment samples.

PFBS, PFHpA, PFHxS, PFNA, and PFOA were detected in the groundwater sample collected from monitoring well OF1-MW01. PFOA was detected below the individual PAL of 70 ng/L and PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 3.9 ng/L, PFHxS was

detected at a concentration of 21 ng/L, and PFNA was detected at a concentration of 4.4 ng/L; however, there are no PALs for these compounds.

All six PFAS were detected in the surface water sample collected from PRL 10. PFOA was detected below the individual PAL of 70 ng/L and PFOS was detected above the individual PAL of 70 ng/L at a concentration of 80 ng/L. The combined PFOS+PFOA concentration of 108 ng/L exceeded the combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 8.5 ng/L, PFHxS was detected at a concentration of 96 ng/L, and PFNA was detected at a concentration of 2.3 ng/L; however, there are no PALs for these compounds.

PFHxS, PFNA, and PFOS were detected in the soil samples collected from PRL 10. PFOS was detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 0.26 J ng/g and PFNA was detected at a maximum concentration of 0.24 J ng/g; however, there are no PALs for these compounds.

PFHpA, PFHxS, PFNA, PFOS, and PFOA were detected in the sediment sample collected from PRL 10. PFOS and PFOA were detected below the PAL of 1,260 ng/g and PFBS was detected below the PAL of 1.26×10^6 ng/g. PFHpA was detected at a concentration of 1.0 J ng/g, PFHxS was detected at a concentration of 2.3 ng/g, and PFNA was detected at a concentration of 0.84 J ng/g; however, there are no PALs for these compounds.

5.11 ANG-2 (Outfall 002) (PRL 11)

Table 5-10 summarizes the analytical results and **Figure 5-4** shows PFAS detection in the surface water and sediment samples collected at ANG-2 (Outfall 002) (PRL 11). PFAS were detected in the surface water and sediment samples.

All six PFAS were detected in the surface water samples collected from PRL 11. PFOS and PFOA were detected at a concentration of 1,700 ng/L and 92 J ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 110 ng/L, PFHxS was detected at a concentration of 640 ng/L, and PFNA was detected at a concentration of 32 ng/L; however, there are no PALs for these compounds.

PFHpA, PFHxS, PFNA, PFOS, and PFOA were detected in the sediment samples collected from PRL 11. PFOS and PFOA were detected below the PAL of 1,260 ng/. PFHpA was detected at a concentration of 0.34 J ng/g, PFHxS was detected at a concentration of 1.4 ng/g, and PFNA was detected at a concentration of 0.38 J ng/g; however, there are no PALs for these compounds.

5.12 ANG-3 (Outfall 003 or HIA-E) (PRL 12)

Table 5-11 summarizes the analytical results and **Figure 5-1, 5-4 and 5-5** show PFAS detection in the groundwater, surface water, soil, and sediment samples collected at ANG-3 (Outfall 003 or HIA-E) (PRL 12). PFAS were not detected in the groundwater sample but were detected in the surface water, soil, and sediment samples.

All six PFAS were detected in the surface water sample collected from PRL 12. PFOS and PFOA were detected at a concentration of 460 ng/L and 190 J ng/L, respectively, above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 61 ng/L, PFHxS was detected at a concentration of 600 ng/L, and PFNA was detected at a concentration of 58 ng/L; however, there are no PALs for these compounds.

PFHxS, PFOS, and PFOA were detected in the soil samples collected from PRL 12. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 0.33 J ng/g; however, there is no PAL for this compound.

PFHxS and PFOS were detected in the sediment sample collected from PRL 12. PFOS was detected below the PAL of 1,260 ng/g. PFHxS was detected at a concentration of 1 ng/g; however, there is no PAL for this compound.

5.13 ANG-4 (Outfall 004) (PRL 13)

Table 5-12 summarizes the analytical results and **Figures 5-1, 5-4 and 5-5** show PFAS detection in the groundwater, surface water, soil, and sediment samples collected at ANG-4 (Outfall 004) (PRL 13). PFAS were detected in the groundwater, surface water, soil, and sediment samples.

PFBS, PFHpA, PFHxS, PFNA, and PFOA were detected in the groundwater sample collected from monitoring well OF4-MW01. PFOA was detected below the individual PAL of 70 ng/L and PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 3.5 ng/L, PFHxS was detected at a concentration of 42 ng/L, and PFNA was detected at a concentration of 1.1 J ng/L; however, there are no PALs for these compounds.

All six PFAS were detected in the surface water sample collected from PRL 13. PFOS and PFOA were detected at a concentration of 920 ng/L and 93 J ng/L, respectively above the individual and combined PFOS+PFOA PAL of 70 ng/L. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 52 ng/L, PFHxS was detected at a concentration of 690 ng/L, and PFNA was detected at a concentration of 59 ng/L; however, there are no PALs for these compounds.

PFHpA, PFHxS, PFNA, PFOS, and PFOA were detected in the soil sample collected from PRL 13. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHpA was detected at a maximum concentration of 0.26 J ng/g, PFHxS was detected at a maximum concentration of 2.0 J- ng/g, and PFNA was detected at a maximum concentration of 0.41 J ng/g; however, there are no PALs for these compounds.

PFHxS, PFOS, and PFOA were detected in the sediment sample collected from PRL 13. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected a concentration of 1.4 ng/g; however, there is no PAL for this compound.

5.14 Base Boundary Wells

Table 5-13 summarizes the analytical results and **Figure 5-5** shows PFAS detection in the groundwater and soil samples collected at the base boundary. PFAS were detected in the groundwater and soil samples.

PFBS, PFHpA, and PFHxS were detected in the groundwater samples collected from monitoring well BBW-01. PFBS was detected below the PAL of 400,000 ng/L. PFHpA was detected at a concentration of 1.4 J ng/L and PFHxS was detected at a concentration of 8.1 J+ ng/L; however, there are no PALs for these compounds.

Monitoring wells APN-MW01, OF1-MW01, OF3-MW01, and OF4-MW01 were also included in the sampling program to characterize PFAS in groundwater at the base boundary. All six PFAS were detected in the groundwater samples collected. See **Sections 5.9, 5.10, 5.12**, and **5.13** for discussions of the analytical results.

PFHxS, PFOS, and PFOA were detected in the soil samples collected from the base boundary. PFOS and PFOA were detected below the PAL of 1,260 ng/g. PFHxS was detected at a maximum concentration of 0.87 ng/g; however, there is no PAL for this compound.

6. Analysis of Results

6.1 Soil

PFAS were detected in 56 of the 60 samples collected as part of this SI. For PFOS, PFOA, and PFBS, the three compounds with PALs, none were detected above the PAL in any sample. PFHpA, PFHxS, and PFNA were detected in soil samples; however, there are no PALs for these compounds.

6.2 Groundwater

PFAS were detected in groundwater samples at ten of the eleven PRLs where groundwater was sampled (See **Figure 5-5**), there were no PFAS detected at ANG-3 – Outfall 003 (PRL 12). The PFAS levels in groundwater samples exceeded the PALs for at least one compound in seven out of ten PRLs where PFAS were detected in a groundwater sample; groundwater PALs were not exceeded at Hangar 618 (PRL 5), ANG-1 – Outfall 001 (PRL 10), and ANG-4 – Outfall 004 (PRL 13). The highest concentrations of PFAS were detected in groundwater samples collected at IRP Site1 Fire Training Area (PRL 1), with maximum concentrations of PFOS and PFOA at 130,000 ng/L and 9,500 ng/L, respectively.

As discussed in **Section 5.14**, four PRL-specific wells (APN-MW01, OF1-MW01, OF3-MW01, and OF4-MW01) plus the base boundary well (BBW-MW01) were used to evaluate off-base migration. PFAS were detected above the combined PAL for PFOS+PFOA in APN-MW01 at 78 ng/L.

6.3 Surface Water and Sediment

All six UCMR-3 PFAS were detected in all six surface water samples collected. PFOS, PFOA, PFBS, PFHpA, PFHxS, and PFNA were detected in all surface water samples at: the Apron (PRL 9); ANG-1 - Outfall 001 (PRL 10); ANG-2 - Outfall 002 (PRL 11); ANG-3 - Outfall 003/HIA-E (PRL 12); and ANG-4 – Outfall 004 (PRL13). PFOS was detected exceeding the PAL, individual and combined, in all six surface water samples. PFOA was detected exceeding the individual PAL at ANG-2 – Outfall 002 (PRL 11), ANG-3 –Outfall 003/HIA-E (PRL 12), and ANG-4 – Outfall 004 (PRL 13). PFBS did not exceed the PAL at any surface water sample.

PFAS were detected in all six sediment samples, but none exceeding any PALs. PFOS and PFHxS were detected in all sediment samples. PFOA was detected in sediment samples at Apron (PRL 9), ANG-1 - Outfall 001 (PRL 10), ANG-2 - Outfall 002 (PRL 11) and ANG-4 – Outfall 004 (PRL 13). PFBS was not detected in any sediment sample. PFHpA was only detected in samples from the Apron (PRL 9) and ANG-2 - Outfall 002 (PRL 11). PFNA was detected in sediment samples from the Apron (PRL 9), ANG-1 - Outfall 001 (PRL 10) and ANG-2 - Outfall 002 (PRL 11).

6.4 Updated Conceptual Site Model

Section 3 of this report provided the known elements of the conceptual site model (CSM) for Hancock Field ANGB. The subsections below provide an update of the geological/hydrogeological and surface water elements and the relationship between the surface/subsurface conditions as they relate to the PFAS results.

6.4.1 Geology/Hydrogeology

The information obtained from the seventeen new shallow monitoring wells and one existing shallow monitoring well as part of this SI did not significantly change the Hancock Field ANGB CSM. Based on the soil boring results, the water bearing zone was confirmed to exist within upper silty clay unit. The subsurface investigation conducted as part of this SI indicates that groundwater is generally encountered in unconsolidated deposits at depths ranging from approximately 1.0 – 9.0 ft bgs. The potentiometric contour map (**Figure 3-1**) that was produced from groundwater level measurements collected as part of this SI confirmed the assumed generally southeast groundwater flow direction, with slight variations in

direction based on location. Specific analysis of how groundwater flows in the deeper portion of the aquifer remains theoretical since this SI did not include evaluation of deeper wells.

6.4.2 Surface Water

The Hancock Field ANGB CSM, as it pertains to surface water flow, remains as described in **Section 3.1**. The majority of surface water runoff from the base flows southeast: from the drainage basins, surface water is discharged through a network of in-ground conveyances and grass-lined ditches to the North Branch of Ley Creek.

6.4.3 Contaminant Distribution and Impacts to Potential Receptors

Soil samples were collected at 27 locations and analyzed for PFAS. PFAS were detected in the vadose zone at all PRLs, but did not exceed any PALs for PFOS, PFOA, and PFBS. PFHpA, PFHxS, and PFNA were detected at all PRLs; however, there are no PALs for these compounds. There are many different factors that affect the fate and transport of PFAS in soil, resulting in a complex CSM. This includes the soil type, length of time since a potential release occurred, formulation of AFFF or other PFAS containing constituents that were released, and presence of other contaminants. The presence of relatively low levels of the six UCMR-3 PFAS compounds in soil at some PRLs could be due to the length of time since a release occurred, the soil sample locations missing a potential source area, or the presence of other PFAS compounds, such as precursors. Thus, the potential exposure to human and ecological receptors is significantly limited based on the SI soil results since the current levels in soil are below the applicable human exposure RSLs and there is not any critical habitat at Hancock Field ANGB.

PFAS were detected in groundwater samples collected at each PRL. The distribution of PFAS in groundwater throughout Hancock Field ANGB is consistent with the greatest occurrence of AFFF use and potential to be released through historical and current activities. Thus, the highest levels of PFAS in groundwater were identified at IRP Site 1 Fire Training Area (PRL 1). PFAS were detected in groundwater samples at four of the five wells located along the base boundary, which indicate that PFAS may be migrating off-base. Exposure to human receptors is possible based on current information.

Surface water sample results from this SI indicate that PFAS were detected in all six surface water samples at the Apron (PRL 9) and all four sampled outfalls (ANG-1 – Outfall 001 [PRL 10], ANG-2 – Outfall 002 [PRL 11], ANG-3 – Outfall 003/HIA-E [PRL 12], and ANG-4 – Outfall 004 [PRL 13]). These outfalls drain the majority of the base, including all of the above discussed PRLs. Human receptors are limited to construction workers and recreational users, which would be minimal at Hancock Field ANGB. As noted in **Section 3.4.2**, impacts to receptors on-base as a result of surface water exposures exist at Wong's Pond and Ritcher's Pond; these, along with other potential exposure pathways downstream, should be evaluated further in the Expanded SI.

Sediment sample results from this SI indicated that PFAS were detected in all six sediment samples at the Apron (PRL 9) and all four sampled outfalls (ANG-1 – Outfall 001 [PRL 10], ANG-2 – Outfall 002 [PRL 11], ANG-3 – Outfall 003/HIA-E [PRL 12], and ANG-4 – Outfall 004 [PRL 13]). Although sediment sample results do not indicate impacts to human or ecological receptors due to the relatively low concentrations of PFAS detected, the sediments associated with the existing ponds on-base, along with other potential exposure pathways downstream, should still be evaluated further in the Expanded SI or RI/Feasibility Study.

6.5 Environmental Sequence Stratigraphy

The following sections present an overview of the geologic environment and using environmental sequence stratigraphy (ESS) to further characterize the subsurface environment.

6.5.1 General Overview of ESS

ESS is an US EPA-endorsed, state-of–the-art inspection approach that provides a detailed understanding of the subsurface geology in order to better predict the fate and transport of contaminants at complex

sites. Although originally developed in the petroleum industry to find oil and natural gas reservoirs, AECOM has successfully adapted this technology to refine CSMs. In contrast to the traditional method of subsurface correlation, which involves matching sand with sand and clay with clay, ESS depicts a detailed cross-section of sediment layering that is consistent with known depositional patterns. These cross-sections are then utilized to identify and map formations with high fluid transmissive properties.

ESS leverages all pre-existing basewide and regional subsurface geologic data to better understand the site data within the context of the broader depositional environment. Generally, lithologic data are reformatted to grain size logs to extract the vertical grain-size trends (coarsening-up/fining-up) of bore-hole materials. This lithologic information is then compared with established models to reveal depositional trends in the subsurface. And finally, this information is used to provide a more accurate characterization of subsurface conditions for the evaluation of potential PFAS migration pathways.

6.5.2 Hancock Field ANGB Preliminary ESS Evaluation

The Hancock Field ANGB falls within the Great Lakes groundwater basin in the Syracuse area of New York (**Figure 6-1**). Syracuse is located in the border zone between two major physiographic provinces. North of the city, undulating plains of the Ontario Lowland stretch away to Lake Ontario. Streamlined ridges of glacial till give much of the lake plain its distinctive topographic texture. South of Syracuse, the land rises more than a thousand feet within a few miles, forming the north-facing margin of the Appalachian Uplands. Present day geomorphology from the northeast from a position approximately over Oneida Lake provides a good view of the Valley Heads moraines (formed ~13,000 - 14,000 years ago) south of Syracuse, as well as east-west trending channels at and west of Syracuse (**Figure 6-2**). When the continental ice cap withdrew north of the northern end of the modern Finger Lakes around 12,000 - 12,500 years ago, the high level pro-glacial lakes (e.g., glacial Lakes Ithaca, Watkins, Newberry, etc.) drained rapidly and flooded down with Mohawk Valley. In the process, they cut these broad deep east-west trending valleys that today have only minor streams in them.

Stratigraphically, the base is located on unconsolidated glacial deposits (well-sorted sand and gravel) related to the retreating phase of the Wisconsinan Glaciation. These glacial deposits consist of various tills, moraines, drumlins, and lacustrine units overlying the Upper Silurian Vernon Shale of marine origin (**Figure 6-3**). The uppermost aquifer is encountered in the shallow unconsolidated sand and gravel. Fractures and joints in the Vernon Shale provide the deeper aquifer for the Site. A unit of low-permeability till deposits separates the upper aquifer from the lower.

While traditional sequence stratigraphy of glacial deposits is complicated, understanding the subsurface lithology in terms of the different phases of glacial retreat can reveal distinctive and predictive patterns of deposition. Application of ESS will therefore be helpful in understanding the spatial distribution of clay and sand underneath the base and permit us to develop appropriate remedial strategies. The deeper aquifer of fractured shale (Vernon Shale) will need to be investigated with a different strategy for fractured rocks using borehole observation made by Tele-viewer or/and dip-meter data.

Based on a preliminary ESS review of available subsurface information, a high-resolution CSM could be created by considering the change of accommodation controlled by the different phases of glaciation-deglaciation, with enough confidence to predict more refined groundwater flow pathways. Recommended actions related to the refined CSM are provided in **Section 7.2**.

6.5.3 Data Quality Objectives

Additional investigation is required to further define the extent of PFAS contamination. The DQOs, by media, are outlined in **Table 6-1**.

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7. Conclusions and Recommendations

7.1 Conclusions

According to the PA Report, twelve of the thirteen PRLs identified at Hancock Field ANGB warranted further investigation as part of the SI. The SI field activities for the twelve PRLs were completed between April and May 2018 culminating in the collection of 54 soil samples, 18 groundwater samples, six surface water samples, and six sediment samples that were analyzed for six PFAS consistent with UCMR-3 (US EPA, 2012). A summary of the maximum sampling results exceeding PALs for each PRL is provided in **Table 7-1**.

PFAS were present in all media sampled at each PRL. PFAS were detected in all eleven PRLs where groundwater was sampled, and PFAS exceeding PALs in groundwater occurred at seven of those PRLs. The highest concentrations of PFAS in groundwater were recorded at IRP Site 1 Fire Training Area (PRL 1). PFAS were detected in all eleven PRLs were soil was sampled and PFAS exceeding PALs in soil did not occur at any PRL. PFAS were detected at concentrations that exceeded PALs in four of the five base boundary wells and could be migrating off-base based on a groundwater flow direction to the south/southeast. There are currently no known public water supply wells at the base and the shallow groundwater system in the area of the base is not used as a source of drinking water. There are no public water supply wells within one mile of the base. The Onondaga County Water Authority provides water service to the area surrounding the ANGB and obtains water from Skaneateles Lake, Otisco Lake, and Lake Ontario (AECOM, 2014).

PFAS were detected in all six surface water samples and all six sediment samples. PFAS concentrations exceeded PALs in all six surface water samples. PFAS concentrations did not exceed the PALs in any sediment samples. Stormwater that drains to these outfalls is not exclusively from the ANGB, therefore, additional sources of PFAS are possible.

7.2 Recommendations

The following recommendations are provided for consideration based on the SI results:

- Further investigation at all 12 PRLs is necessary to determine the nature and extent of PFAS contamination due to detectable levels at all PRLs.
- Expand the CSM that considers localized groundwater and surface water flow paths to select future sampling locations. To refine the CSM for Hancock Field ANGB, an ESS analysis could be performed to generate new cross sections. This information could:
    - Identify and map (the composition, shape, and interconnectivity of) potentially undefined fluvial channels and other geologic features at the plume scale.
    - Construct a geologically defensible framework of the subsurface that better defines subsurface heterogeneity, accurately predicts preferential pathways, and reduces data gaps.
    - Achieve a greater understanding of groundwater and dissolved contaminate flow preferential pathways and thus target areas for active remedial implementation.
    - Reduce the number of future wells for plume measurements through stratigraphic guidance.
- Complete the delineation of PFAS as part of an Expanded SI or a Remedial Investigation that could consist of:
    - Expanding the monitoring well network and the groundwater sampling program to complete the horizontal and vertical delineation of PFAS. Further groundwater evaluation is recommended at the base boundary and at all PRLs where the presence of PFAS in groundwater exceeded the PALs.

  - Installing and sampling downgradient monitoring wells to better define the PFAS that may have migrated off-base, and installation of upgradient monitoring wells to better define the PFAS that may have migrated on-base (from off-base sources).
  - Conducting additional surface water and sediment sampling both on-base and off-base to determine the nature and extent of PFAS in these media. Potential locations include the five drainage basins, grass-lined ditches, and the North Branch of Ley Creek.
  - Performing additional soil sampling and analysis of an expanded list of PFAS (in addition to the six UCMR-3 compounds) and precursor analysis to determine if significant source areas related to precursor substances are present. Precursor substances have been demonstrated to oxidize into PFOS and PFOA via biological and abiotic processes and thus could provide a lingering source of PFOS and PFOA in soil and groundwater.

- Conduct preliminary site-specific risk assessment calculations in order to identify chemicals of potential concern in every media and establish preliminary remedial goals for screening.

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Appendix A: Figures

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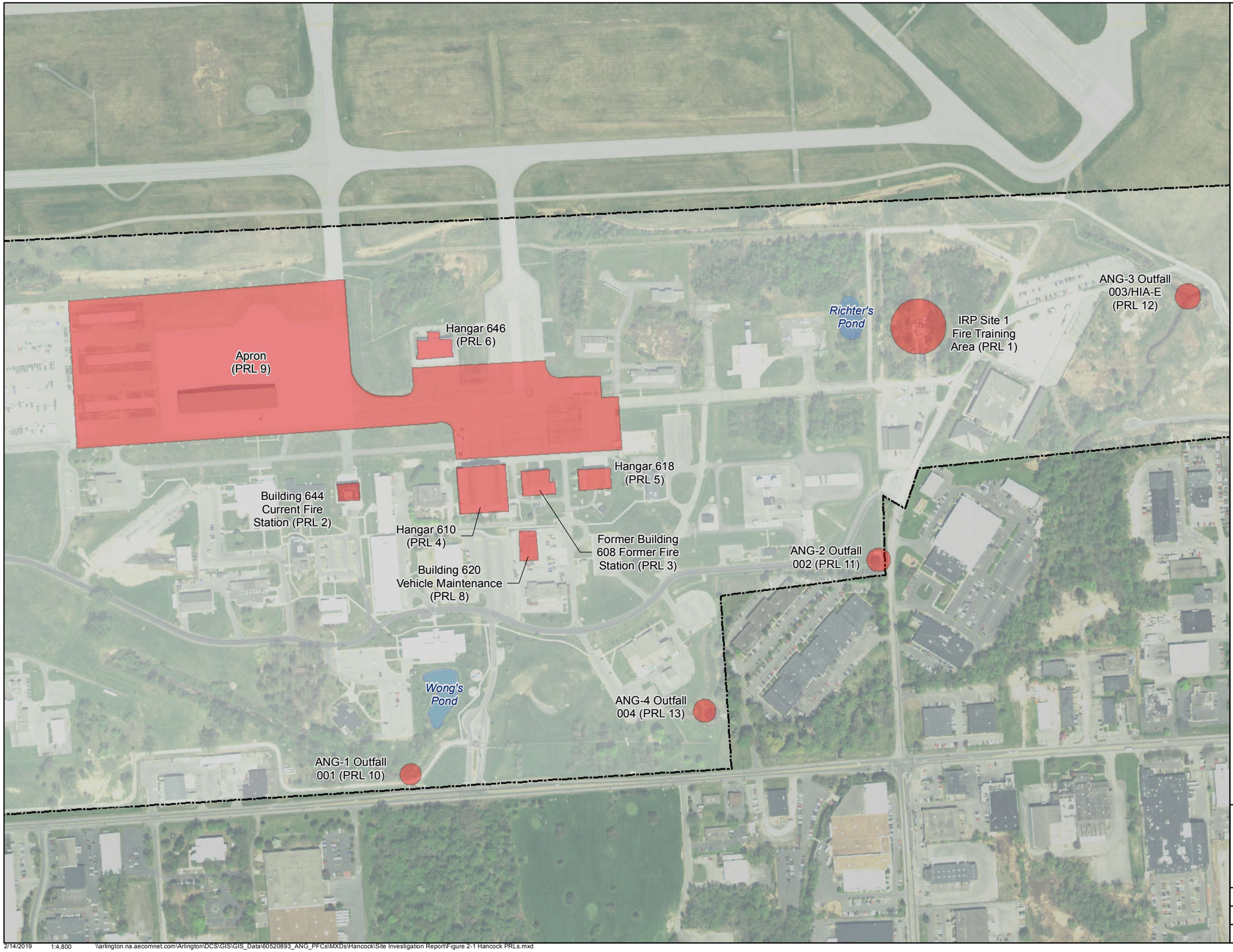
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Figure 1-1

Hancock Field ANGB Location

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York

9/20/2018 1:21,000 \\arlington.na.aecomnet.com\Arlington\DCS\GIS\GIS_Data\60520893_ANG_PFCs\MXDs\Hancock\Site Investigation Report\Figure 1-1 Hancock Location temp.mxd



Surface water

Approximate potential release location (PRL)

Approximate base boundary

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0 400 Feet

1 inch = 400 feet

Figure 2-1

Potential Release Locations

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard
Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York

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2/14/2019 1:4,800 \\arlington.na.aecomnet.com\Arlington\DCS\GIS\GIS_Data\60520893_ANG_PFCs\MXDs\Hancock\Site Investigation Report\Figure 2-1 Hancock PRLs.mxd

Base Boundary Well
Monitoring well - existing
Monitoring well/soil boring
Potentiometric surface (1-foot contour interval) *elevations gauged May 2018
Approximate groundwater flow direction
Approximate potential release location (PRL)
Approximate base boundary

Potentiometric surface elevation is shown in feet above mean sea level

N
W E
S

0 400
Feet

1 inch = 400 feet

Apron (PRL 9)
Hangar 646 (PRL 6)
Hangar 618 (PRL 5)
Building 644 Current Fire Station (PRL 2)
Hangar 610 (PRL 4)
Building 620 Vehicle Maintenance (PRL 8)
Former Building 608 Former Fire Station (PRL 3)
IRP Site 1 Fire Training Area (PRL 1)
ANG-3 Outfall 003/HIA-E (PRL 12)
ANG-2 Outfall 002 (PRL 11)
ANG-4 Outfall 004 (PRL 13)
ANG-1 Outfall 001 (PRL 10)

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Figure 3-1

Potentiometric Groundwater Surface

Hancock Field Air National Guard Base (ANGB)
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10/12/2018 1:4,800 L:\DCS\GIS\GIS_Data\60520893_ANG_PFCs\MXDs\Hancock\Site Investigation Report\Figure 3-1 Potentiometric Surface.mxd



- Monitoring well - background
- Monitoring well - existing
- Monitoring well/soil boring
- Soil boring
- Surface water/sediment
- Approximate potential release location (PRL)
- Approximate base boundary

N
W E
S

0 500 Feet

1 inch = 500 feet

Figure 4-1

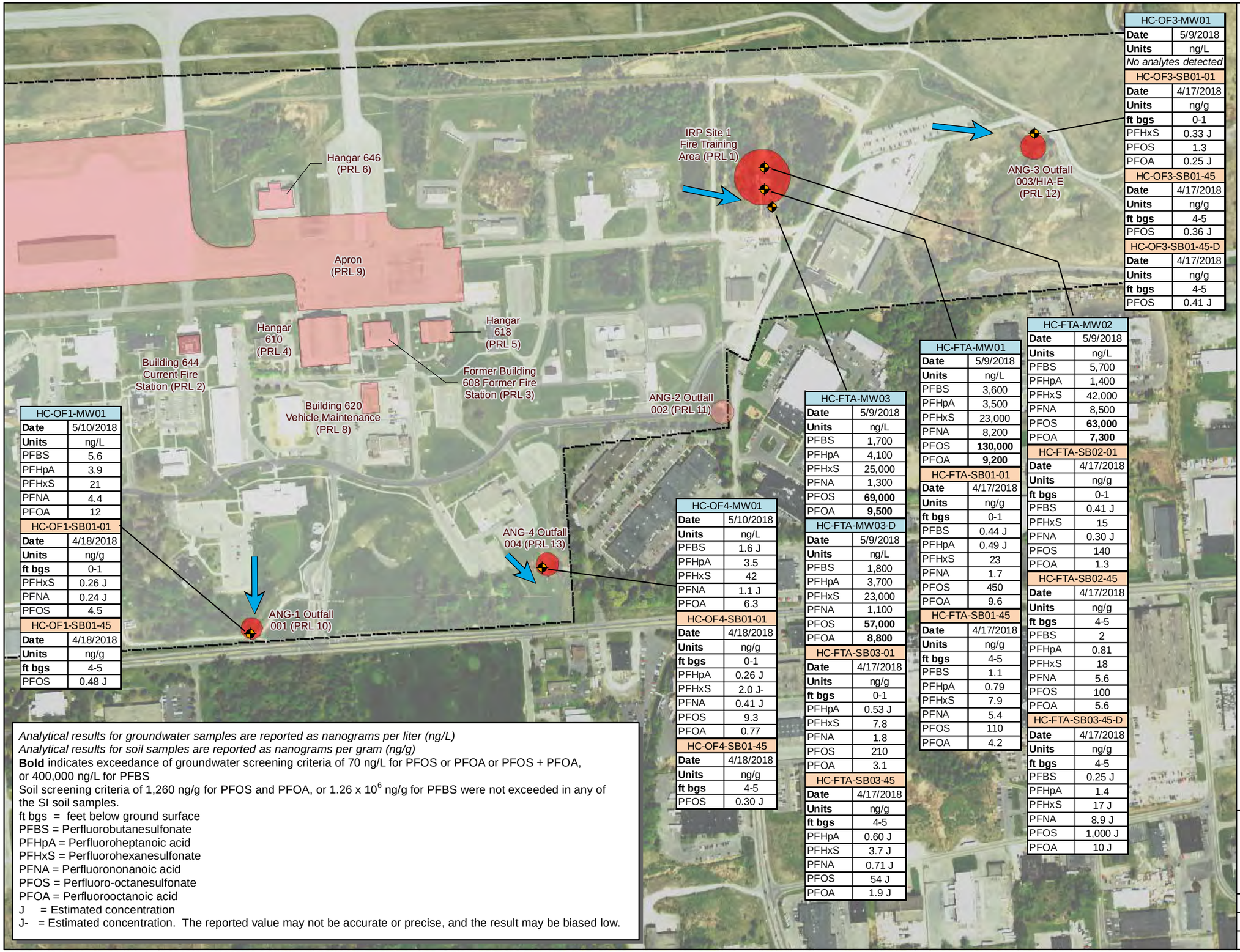
Basewide Sample Locations

Hancock Field Air National Guard Base (ANGB)
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9/20/2018 1:6,000 \\arlington.na.aecomnet.com\Arlington\DCS\GIS\GIS_Data\60520893_ANG_PFCs\MXDs\Hancock\Site Investigation Report\Figure 4-1 Basewide Sample Locations.mxd



HC-OF1-MW01	
Date	5/10/2018
Units	ng/L
PFBS	5.6
PFHpA	3.9
PFHxS	21
PFNA	4.4
PFOA	12
HC-OF1-SB01-01	
Date	4/18/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.26 J
PFNA	0.24 J
PFOS	4.5
HC-OF1-SB01-45	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
PFOS	0.48 J

HC-OF4-MW01	
Date	5/10/2018
Units	ng/L
PFBS	1.6 J
PFHpA	3.5
PFHxS	42
PFNA	1.1 J
PFOA	6.3
HC-OF4-SB01-01	
Date	4/18/2018
Units	ng/g
ft bgs	0-1
PFHpA	0.26 J
PFHxS	2.0 J-
PFNA	0.41 J
PFOS	9.3
PFOA	0.77
HC-OF4-SB01-45	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
PFOS	0.30 J

HC-FTA-MW03	
Date	5/9/2018
Units	ng/L
PFBS	1,700
PFHpA	4,100
PFHxS	25,000
PFNA	1,300
PFOS	**69,000**
PFOA	**9,500**
HC-FTA-MW03-D	
Date	5/9/2018
Units	ng/L
PFBS	1,800
PFHpA	3,700
PFHxS	23,000
PFNA	1,100
PFOS	**57,000**
PFOA	**8,800**
HC-FTA-SB03-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFHpA	0.53 J
PFHxS	7.8
PFNA	1.8
PFOS	210
PFOA	3.1
HC-FTA-SB03-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFHpA	0.60 J
PFHxS	3.7 J
PFNA	0.71 J
PFOS	54 J
PFOA	1.9 J

HC-FTA-MW01	
Date	5/9/2018
Units	ng/L
PFBS	3,600
PFHpA	3,500
PFHxS	23,000
PFNA	8,200
PFOS	**130,000**
PFOA	**9,200**
HC-FTA-SB01-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFBS	0.44 J
PFHpA	0.49 J
PFHxS	23
PFNA	1.7
PFOS	450
PFOA	9.6
HC-FTA-SB01-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFBS	1.1
PFHpA	0.79
PFHxS	7.9
PFNA	5.4
PFOS	110
PFOA	4.2

HC-FTA-MW02	
Date	5/9/2018
Units	ng/L
PFBS	5,700
PFHpA	1,400
PFHxS	42,000
PFNA	8,500
PFOS	**63,000**
PFOA	**7,300**
HC-FTA-SB02-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFBS	0.41 J
PFHxS	15
PFNA	0.30 J
PFOS	140
PFOA	1.3
HC-FTA-SB02-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFBS	2
PFHpA	0.81
PFHxS	18
PFNA	5.6
PFOS	100
PFOA	5.6
HC-FTA-SB03-45-D	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFBS	0.25 J
PFHpA	1.4
PFHxS	17 J
PFNA	8.9 J
PFOS	1,000 J
PFOA	10 J

HC-OF3-MW01	
Date	5/9/2018
Units	ng/L
No analytes detected	
HC-OF3-SB01-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.33 J
PFOS	1.3
PFOA	0.25 J
HC-OF3-SB01-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFOS	0.36 J
HC-OF3-SB01-45-D	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFOS	0.41 J

Analytical results for groundwater samples are reported as nanograms per liter (ng/L)
Analytical results for soil samples are reported as nanograms per gram (ng/g)
Bold indicates exceedance of groundwater screening criteria of 70 ng/L for PFOS or PFOA or PFOS + PFOA, or 400,000 ng/L for PFBS
Soil screening criteria of 1,260 ng/g for PFOS and PFOA, or 1.26 x 10^6 ng/g for PFBS were not exceeded in any of the SI soil samples.
ft bgs = feet below ground surface
PFBS = Perfluorobutanesulfonate
PFHpA = Perfluoroheptanoic acid
PFHxS = Perfluorohexanesulfonate
PFNA = Perfluorononanoic acid
PFOS = Perfluoro-octanesulfonate
PFOA = Perfluorooctanoic acid
J = Estimated concentration
J- = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased low.

Monitoring well/soil boring
Approximate groundwater flow direction
Approximate potential release location (PRL)
Approximate base boundary

Groundwater sample
Soil sample

N W E S

0 400 Feet

1 inch = 400 feet

Figure 5-1

Detected Soil and Groundwater Sample Results PRLs 1, 10, 12 & 13: IRP Site 1 Fire Training Area and Outfalls 001, 003, and 004

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard
Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York



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Drawn: DS 9/20/2018
Approved: MD 9/20/2018
Project No.: 60520893

HC-644-MW01	
Date	5/10/2018
Units	ng/L
PFBS	19
PFHpA	150 J-
PFHxS	380 J-
PFNA	27
PFOS	**2,000 J-**
PFOA	**100**

HC-644-SB01-01	
Date	4/18/2018
Units	ng/g
ft bgs	0-1
PFHpA	0.67 J
PFHxS	1.9
PFNA	0.67 J
PFOS	48
PFOA	0.81

HC-644-SB01-45	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.58 J
PFNA	0.29 J
PFOS	70

HC-644-SB02-01	
Date	4/18/2018
Units	ng/g
ft bgs	0-1
PFHxS	4.4
PFOS	74
PFOA	0.29 J

HC-644-SB02-45	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
PFHxS	4.2
PFOS	130

HC-644-SB02-45-D	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
PFHpA	0.60 J
PFHxS	3
PFNA	0.91
PFOS	110
PFOA	0.99

HC-644-SB03-01	
Date	4/18/2018
Units	ng/g
ft bgs	0-1
PFOS	3.8

HC-644-SB03-45	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
No analytes detected	

HC-610-MW01	
Date	5/9/2018
Units	ng/L
PFBS	130
PFHpA	48
PFHxS	2,100
PFOS	**3,000**
PFOA	**350**

HC-610-SB01-12	
Date	4/13/2018
Units	ng/g
ft bgs	1-2
No analytes detected	

HC-610-SB01-1415	
Date	4/13/2018
Units	ng/g
ft bgs	14-15
PFHxS	0.63 J
PFOS	4.4

HC-610-SB02-01	
Date	4/13/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.97
PFOS	4.7
PFOA	0.27 J

HC-610-SB02-45	
Date	4/13/2018
Units	ng/g
ft bgs	4-5
No analytes detected	

HC-610-SB03-01	
Date	4/13/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.75
PFOS	8.3

HC-610-SB03-45	
Date	4/13/2018
Units	ng/g
ft bgs	4-5
PFOS	0.48 J

HC-608-SB02-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.58 J
PFNA	0.38 J
PFOS	5.4

HC-608-SB02-D	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.94
PFNA	0.50 J
PFOS	9.3 J

HC-608-SB02-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	2.4
PFNA	5.4 J
PFOS	4.3 J
PFOA	0.60 J

HC-608-MW01	
Date	5/10/2018
Units	ng/L
PFBS	76
PFHpA	170
PFHxS	1,100
PFNA	31
PFOS	**470**
PFOA	**330**

HC-608-SB01-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	2.2
PFNA	0.43 J
PFOS	23
PFOA	0.47 J

HC-608-SB01-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.73 J
PFOS	2.2

HC-618-SB02-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.73
PFOS	8.9
PFOA	0.65 J

HC-618-SB02-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.31 J
PFOS	1.1

HC-618-MW01	
Date	5/10/2018
Units	ng/L
PFBS	13
PFHpA	3.5
PFHxS	200
PFOS	24
PFOA	12

HC-618-SB01-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFOS	1

HC-618-SB01-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFOS	0.34 J

HC-620-SB02-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFHxS	1.9
PFOS	13

HC-620-SB02-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.40 J
PFOA	0.27 J

HC-620-MW01	
Date	5/10/2018
Units	ng/L
PFBS	62
PFHpA	80 J-
PFHxS	670 J-
PFNA	15
PFOS	**1,300 J-**
PFOA	**120**

HC-620-SB01-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.20 J
PFOS	0.73 J+

HC-620-SB01-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFOS	2

HC-620-SB03-01	
Date	4/17/2018
Units	ng/g
ft bgs	0-1
PFOS	4.7
PFOA	0.28 J

HC-620-SB03-45	
Date	4/17/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.33 J
PFOS	2.5

Apron (PRL 9)

Building 644 Current Fire Station (PRL 2)

Hangar 610 (PRL 4)

Hangar 618 (PRL 5)

Former Building 608 Former Fire Station (PRL 3)

Building 620 Vehicle Maintenance (PRL 8)

ANG-4 Outfall 004 (PRL 13)

Analytical results for groundwater samples are reported as nanograms per liter (ng/L)
Analytical results for soil samples are reported as nanograms per gram (ng/g)
Bold indicates exceedance of groundwater screening criteria of 70 ng/L for PFOS or PFOA or PFOS + PFOA, or 400,000 ng/L for PFBS
Soil screening criteria of 1,260 ng/g for PFOS and PFOA, or 1.26 x 10^6 ng/g for PFBS were not exceeded in any SI soil samples.
ft bgs = feet below ground surface
PFBS = Perfluorobutanesulfonate
PFHpA = Perfluoroheptanoic acid
PFHxS = Perfluorohexanesulfonate
PFNA = Perfluorononanoic acid
PFOS = Perfluoro-octanesulfonate
PFOA = Perfluorooctanoic acid
J = Estimated concentration
J- = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased low
J+ = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased high

Monitoring well/soil boring

Soil boring

Approximate groundwater flow direction

Approximate potential release location (PRL)

Approximate base boundary

Groundwater sample

Soil sample

N W E S

0 200 Feet

1 inch = 200 feet

Figure 5-2

Detected Soil and Groundwater Sample Results PRLs 2, 3, 4, 5 & 8: Building 644 (Current Fire Station), Former Building 608 (Former Fire Station), Hangars 610 and 618, and Building 620 (Vehicle Maintenance)

Hancock Field Air National Guard Base (ANGB)
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Project No.:	60520893

HC-APN-MW04	
Date	5/10/2018
Units	ng/L
PFBS	3.9 J
PFHpA	3.7 J
PFHxS	140 J
PFNA	1.8 J
PFOS	**220**
PFOA	18

HC-APN-MW04-D	
Date	5/10/2018
Units	ng/L
PFBS	4.5
PFHpA	4.2
PFHxS	230 J
PFNA	1.5 J
PFOS	**230**
PFOA	21

HC-APN-SB04-01	
Date	4/18/2018
Units	ng/g
ft bgs	0-1
PFOS	2.5

HC-APN-SB04-45	
Date	4/18/2018
Units	ng/g
ft bgs	4-5
PFOS	0.48 J
PFOA	0.37 J

HC-APN-MW03	
Date	5/10/2018
Units	ng/L
PFBS	8.7
PFHpA	3.3 J
PFHxS	130
PFNA	13
PFOA	8.6

HC-APN-SB03-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	1.1
PFNA	0.47 J
PFOS	4.7
PFOA	0.52 J

HC-APN-SB03-01-D	
Date	4/12/2018
Units	ng/g
ft bgs	NA
PFHxS	0.82
PFNA	0.38 J
PFOS	4.9
PFOA	0.42 J

HC-APN-SB03-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.43 J
PFOS	0.37 J

HC-APN-MW01	
Date	5/10/2018
Units	ng/L
PFBS	5.8
PFHpA	3
PFHxS	110
PFNA	0.82 J
PFOS	47
PFOA	31

HC-APN-SB01-01	
Date	4/11/2018
Units	ng/g
ft bgs	0-1
PFHxS	2.6
PFNA	0.27 J
PFOS	16
PFOA	0.35 J

HC-APN-SB01-45	
Date	4/11/2018
Units	ng/g
ft bgs	4-5
No analytes detected	

HC-646-SB03-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFBS	0.57 J
PFHpA	0.54 J
PFHxS	7.3
PFNA	0.45 J
PFOS	29
PFOA	1.3

HC-646-SB03-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.27 J
PFOS	1

HC-BBW-01	
Date	5/9/2018
Units	ng/L
PFBS	13 J+
PFHpA	1.4 J
PFHxS	8.1 J+

HC-BBW-SB01-01	
Date	4/11/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.87
PFOS	1.8
PFOA	0.29 J

HC-BBW-SB01-45	
Date	4/11/2018
Units	ng/g
ft bgs	4-5
No analytes detected	

HC-646-MW01	
Date	5/9/2018
Units	ng/L
PFBS	21 J-
PFHpA	29
PFHxS	130
PFNA	28 J-
PFOS	**530**
PFOA	**95 J-**

HC-646-SB01-01	
Date	4/11/2018
Units	ng/g
ft bgs	0-1
PFOS	3.2

HC-646-SB01-1314	
Date	4/11/2018
Units	ng/g
ft bgs	13-14
PFHxS	3.5
PFOS	3.6
PFOA	0.63 J

HC-TU019-MW001	
Date	5/9/2018
Units	ng/L
PFBS	860
PFHpA	1,000
PFHxS	6,300
PFNA	19 J
PFOS	**1,100**
PFOA	**2,800**

HC-646-SB02-01	
Date	4/9/2018
Units	ng/g
ft bgs	0-1
PFBS	0.23 J
PFHpA	0.34 J
PFHxS	1.6
PFNA	0.33 J
PFOS	34
PFOA	1

HC-646-SB02-45	
Date	4/9/2018
Units	ng/g
ft bgs	4-5
PFHxS	1
PFOS	12
PFOA	2.5

HC-646-SB02-45-D	
Date	4/9/2018
Units	ng/g
ft bgs	4-5
PFHpA	0.24 J
PFHxS	1.3
PFOS	11
PFOA	3

HC-APN-MW02	
Date	5/9/2018
Units	ng/L
PFBS	29
PFHpA	56
PFHxS	390
PFNA	17 J
PFOA	**77**

HC-APN-SB02-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHpA	0.25 J
PFHxS	3.7
PFNA	1.5
PFOS	20
PFOA	0.73

HC-APN-SB02-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.70 J
PFOS	0.95
PFOA	0.30 J

HC-618-SB02-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.73
PFOS	8.9
PFOA	0.65 J

HC-618-SB02-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	0.31 J
PFOS	1.1

HC-644-MW01	
Date	5/10/2018
Units	ng/L
PFBS	19
PFHpA	150 J-
PFHxS	380 J-
PFNA	27
PFOS	**2,000 J-**
PFOA	**100**

HC-610-MW01	
Date	5/9/2018
Units	ng/L
PFBS	130
PFHpA	48
PFHxS	2,100
PFOS	**3,000**
PFOA	**350**

HC-610-SB01-12	
Date	4/13/2018
Units	ng/g
ft bgs	1-2
No analytes detected	

HC-610-SB01-1415	
Date	4/13/2018
Units	ng/g
ft bgs	14-15
PFHxS	0.63 J
PFOS	4.4

HC-608-SB02-01	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.58 J
PFNA	0.38 J
PFOS	5.4

HC-608-SB02-D	
Date	4/12/2018
Units	ng/g
ft bgs	0-1
PFHxS	0.94
PFNA	0.50 J
PFOS	9.3 J

HC-608-SB02-45	
Date	4/12/2018
Units	ng/g
ft bgs	4-5
PFHxS	2.4
PFNA	5.4 J
PFOS	4.3 J
PFOA	0.60 J

HC-608-MW01	
Date	5/10/2018
Units	ng/L
PFBS	76
PFHpA	170
PFHxS	1,100
PFNA	31
PFOS	**470**
PFOA	**330**

HC-618-MW01	
Date	5/10/2018
Units	ng/L
PFBS	13
PFHpA	3.5
PFHxS	200
PFOS	24
PFOA	12

Hangar 646 (PRL 6)

Apron (PRL 9)

Former Building 608 Former Fire Station (PRL 3)

Hangar 618 (PRL 5)

Building 644 Current Fire Station (PRL 2)

Hangar 610 (PRL 4)

Building 620 Vehicle Maintenance (PRL 8)

ANG-4 Outfall 004 (PRL 13)

Analytical results for groundwater samples are reported as nanograms per liter (ng/L)
Analytical results for soil samples are reported as nanograms per gram (ng/g)
Bold indicates exceedance of groundwater screening criteria of 70 ng/L for PFOS or PFOA or PFOS + PFOA, or 400,000 ng/L for PFBS
Soil screening criteria of 1,260 ng/g for PFOS and PFOA, or 1.26 x 10^6 ng/g for PFBS were not exceeded in any of the SI soil samples
ft bgs = feet below ground surface
PFBS = Perfluorobutanesulfonate
PFHpA = Perfluoroheptanoic acid
PFHxS = Perfluorohexanesulfonate
PFNA = Perfluorononanoic acid
PFOS = Perfluoro-octanesulfonate
PFOA = Perfluorooctanoic acid
J = Estimated concentration
J- = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased low
J+ = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased high

- Monitoring well - background
- Monitoring well - existing
- Monitoring well/soil boring
- Soil boring
- Approximate groundwater flow direction
- Approximate potential release location (PRL)
- Approximate base boundary

Groundwater sample

Soil sample

N W E S

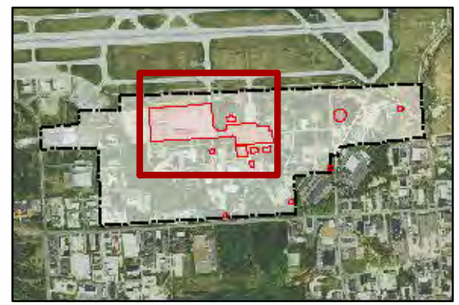
0 300 Feet

1 inch = 300 feet

Figure 5-3

Detected Soil and Groundwater Sample Results PRLs 6 & 9 (Hangar 646 & Apron) and Adjacent Areas

Hancock Field Air National Guard Base (ANGB)
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Drawn:	DS 9/20/2018
Approved:	MD 9/20/2018
Project No.:	60520893

HC-APN-SW02	
Date	4/10/2018
Units	ng/L
PFBS	75
PFHpA	18
PFHxS	350
PFNA	1.4 J
PFOS	**440**
PFOA	**74 J**
HC-APN-SD02	
Date	4/10/2018
Units	ng/g
PFHxS	2.8
PFOS	47
PFOA	1.2

HC-APN-SW01	
Date	4/10/2018
Units	ng/L
PFBS	45
PFHpA	11
PFHxS	270
PFNA	0.89 J
PFOS	**310**
PFOA	44 J
HC-APN-SD01	
Date	4/10/2018
Units	ng/g
PFHpA	0.41 J
PFHxS	1.1
PFNA	0.40 J
PFOS	8.4
PFOA	1.1

HC-OF1-SW01	
Date	4/10/2018
Units	ng/L
PFBS	4.9
PFHpA	8.5
PFHxS	96
PFNA	2.3
PFOS	**80**
PFOA	28
HC-OF1-SD01	
Date	4/10/2018
Units	ng/g
PFHpA	1.0 J
PFHxS	2.3
PFNA	0.84 J
PFOS	7
PFOA	2.1

HC-OF3-SW01	
Date	4/10/2018
Units	ng/L
PFBS	38
PFHpA	61
PFHxS	600
PFNA	58
PFOS	**460**
PFOA	**190 J**
HC-OF3-SD01	
Date	4/10/2018
Units	ng/g
PFHxS	1
PFOS	21

HC-OF2-SW01	
Date	4/10/2018
Units	ng/L
PFBS	81
PFHpA	110
PFHxS	640
PFNA	32
PFOS	**1,700**
PFOA	**92 J**
HC-OF2-SD01	
Date	4/10/2018
Units	ng/g
PFHpA	0.34 J
PFHxS	1.4
PFNA	0.38 J
PFOS	14
PFOA	0.59 J

HC-OF4-SW01	
Date	4/10/2018
Units	ng/L
PFBS	20
PFHpA	52
PFHxS	690
PFNA	59
PFOS	**920**
PFOA	**93 J**
HC-OF4-SD01	
Date	4/10/2018
Units	ng/g
PFHxS	1.4
PFOS	14
PFOA	0.44 J

Hangar 646 (PRL 6)
Apron (PRL 9)
IRP Site 1 Fire Training Area (PRL 1)
ANG-3 Outfall 003/HIA-E (PRL 12)
Building 644 Current Fire Station (PRL 2)
Hangar 610 (PRL 4)
Hangar 618 (PRL 5)
Former Building 608 Former Fire Station (PRL 3)
Building 620 Vehicle Maintenance (PRL 8)
ANG-2 Outfall 002 (PRL 11)
ANG-4 Outfall 004 (PRL 13)
ANG-1 Outfall 001 (PRL 10)

Analytical results for surface water samples are reported as nanograms per liter (ng/L)
Analytical results for sediment samples are reported as nanograms per gram (ng/g)
Bold indicates exceedance of surface water screening criteria of 70 ng/L for PFOS or PFOA or PFOS + PFOA, or 400,000 ng/L for PFBS
Sediment screening criteria of 1,260 ng/g for PFOS and PFOA, or 1.26 x 10^6 ng/g for PFBS were not exceeded in any of the SI sediment samples.
PFBS = Perfluorobutanesulfonate
PFHpA = Perfluoroheptanoic acid
PFHxS = Perfluorohexanesulfonate
PFNA = Perfluorononanoic acid
PFOS = Perfluoro-octanesulfonate
PFOA = Perfluorooctanoic acid
J = Estimated concentration

Surface water/sediment sample
Approximate potential release location (PRL)
Approximate base boundary

Surface water sample
Sediment sample

N
W E
S

0 500
Feet

1 inch = 500 feet

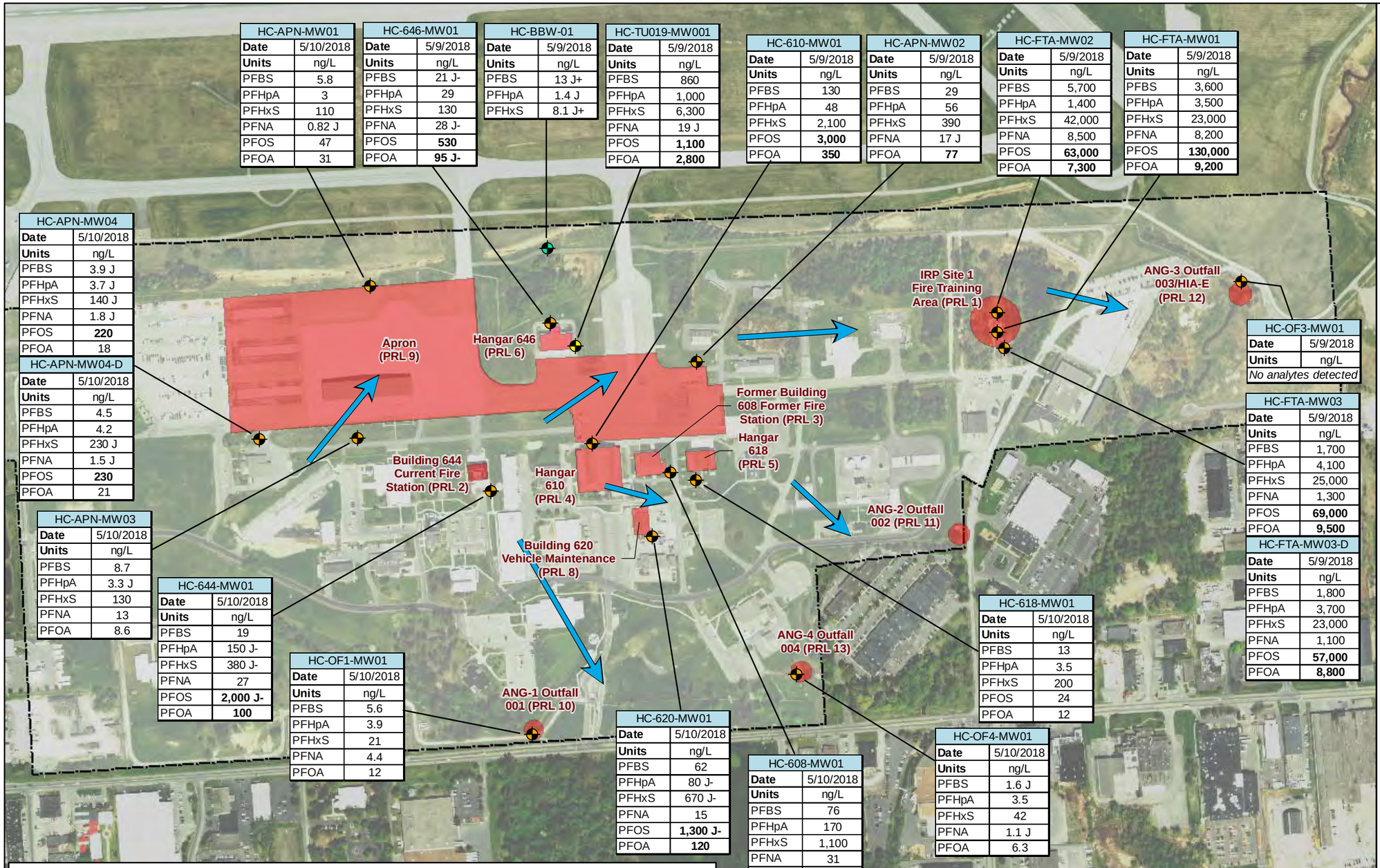
Figure 5-4

Detected Basewide Surface Water and Sediment Sample Results

Hancock Field Air National Guard Base (ANGB)
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Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
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Drawn: DS 8/22/2018
Approved: MD 8/22/2018
Project No.: 60520893



Analytical results for groundwater samples are reported as nanograms per liter (ng/L)
Bold indicates exceedance of groundwater screening criteria of 70 ng/L for PFOS or PFOA or PFOS + PFOA, or 400,000 ng/L for PFBS
PFBS = Perfluorobutanesulfonate
PFHpA = Perfluoroheptanoic acid
PFHxS = Perfluorohexanesulfonate
PFNA = Perfluorononanoic acid
PFOS = Perfluoro-octanesulfonate
PFOA = Perfluorooctanoic acid
J = Estimated concentration
J+ = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased high
J- = Estimated concentration. The reported value may not be accurate or precise, and the result may be biased low

- Monitoring well - background
- Monitoring well - existing
- Monitoring well/soil boring
- Approximate groundwater flow direction
- Approximate potential release location (PRL)
- Approximate base boundary

N W E S

0 500 Feet

1 inch = 500 feet

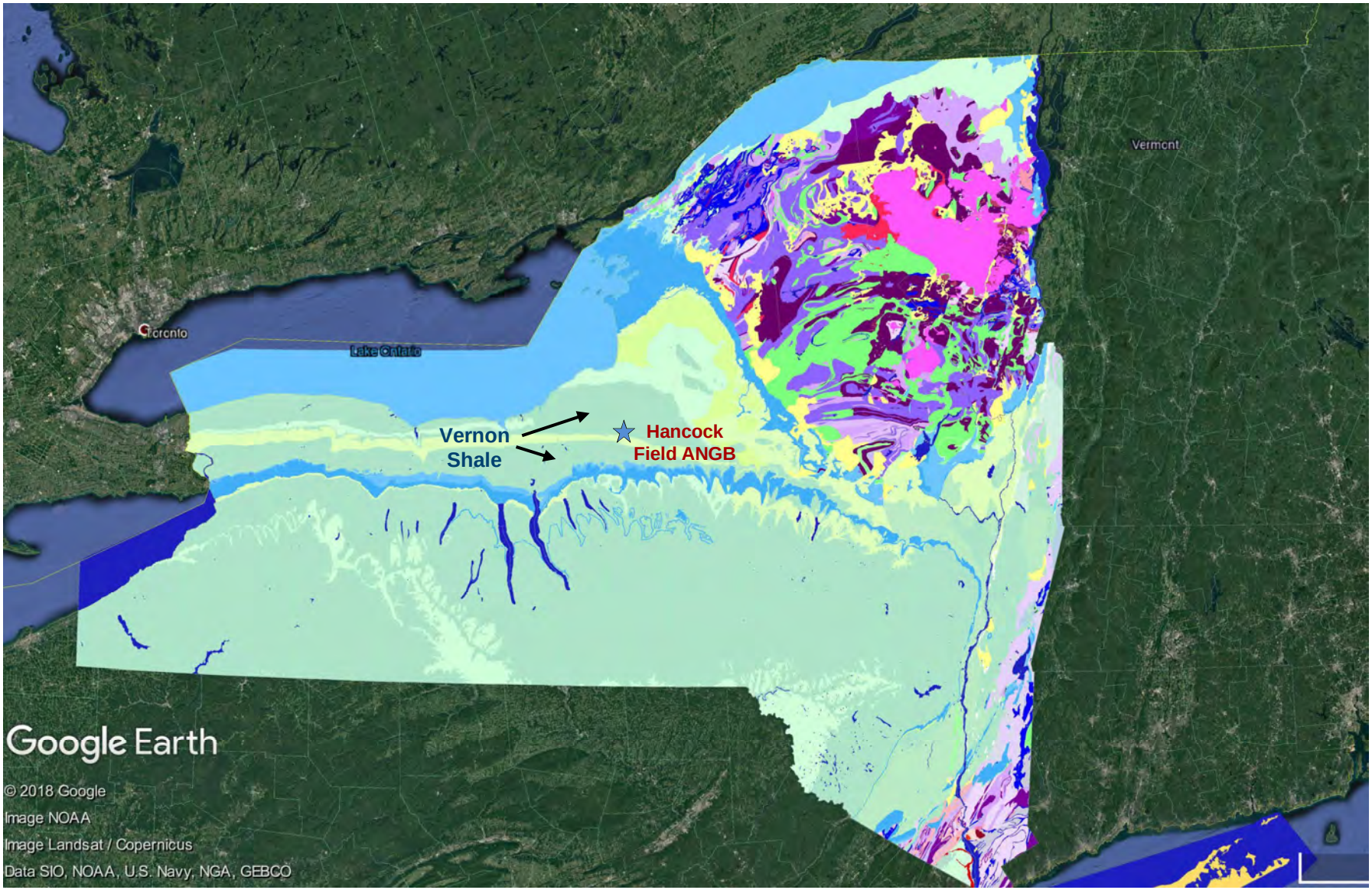
Figure 5-5

Detected Basewide Groundwater Sample Results

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard
Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York

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Location of Hancock ANGB relative to the regional basement geology of New York. The different colors in the geological map (left) represent the different bedrock formations in the region. Note that the Upper Silurian Vernon Shale is the bedrock for the Quaternary glacial deposits at the site.

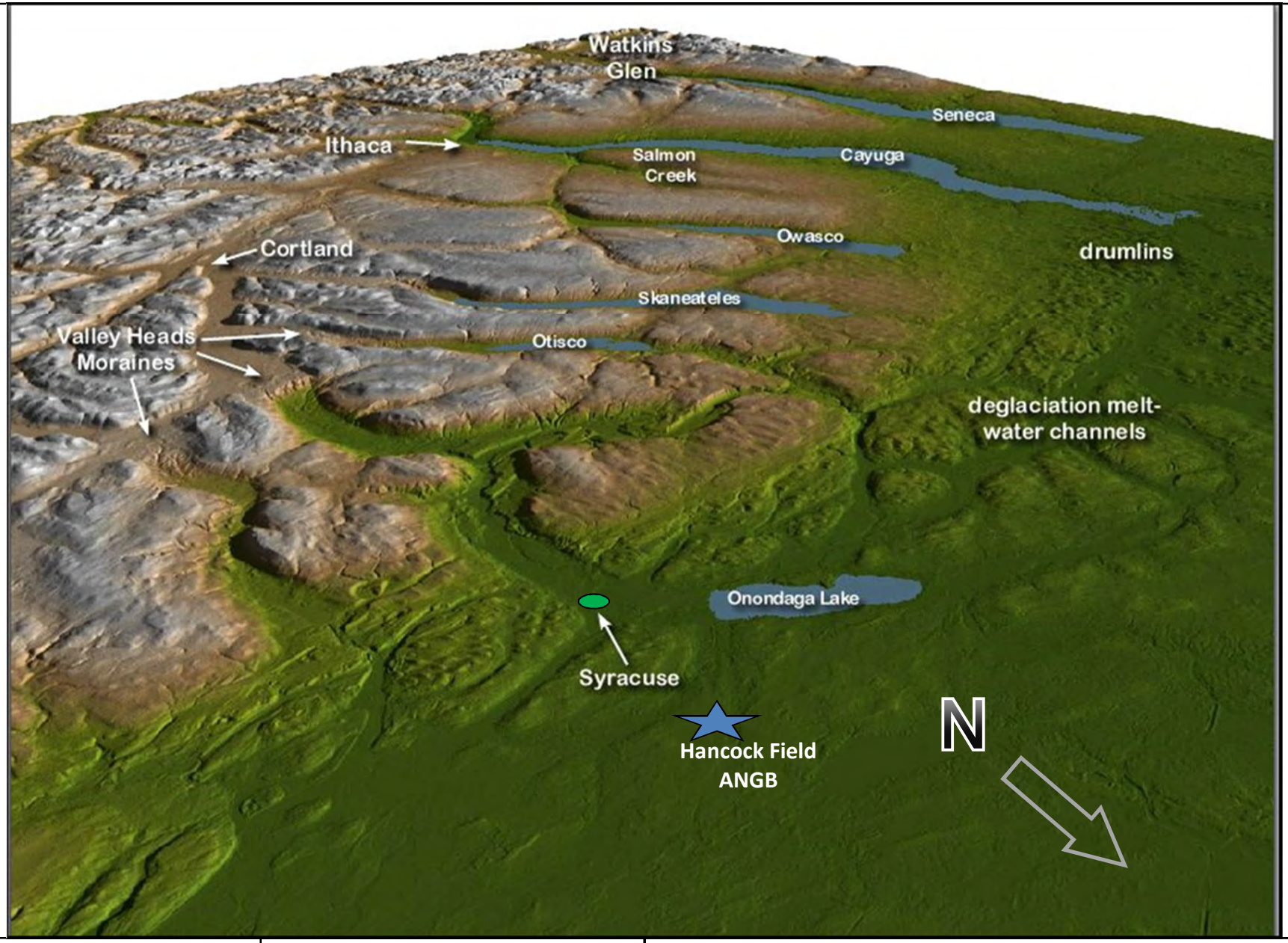
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Project No.:	60520893	

Figure 6-1

Regional Geologic Features Near Hancock ANGB

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York



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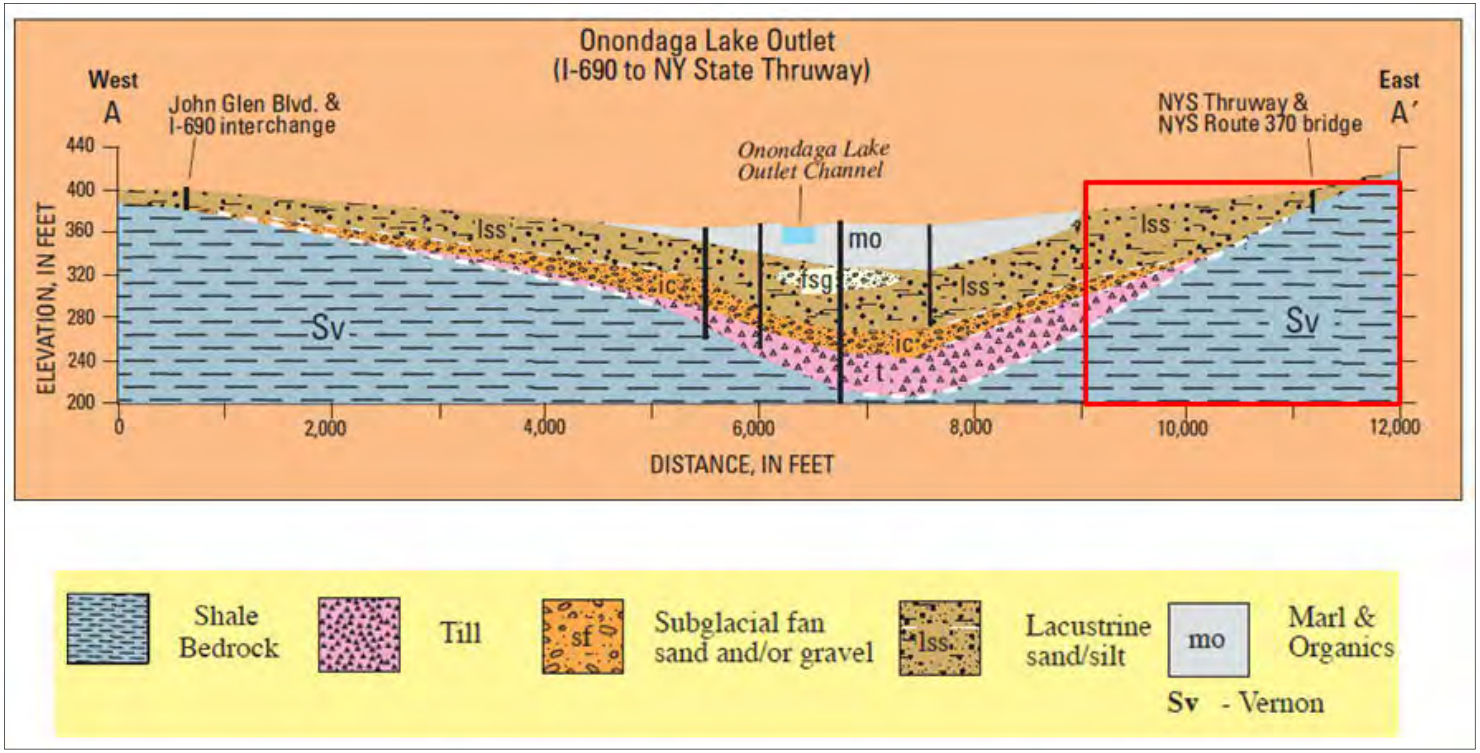
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Project No.:	60520893	

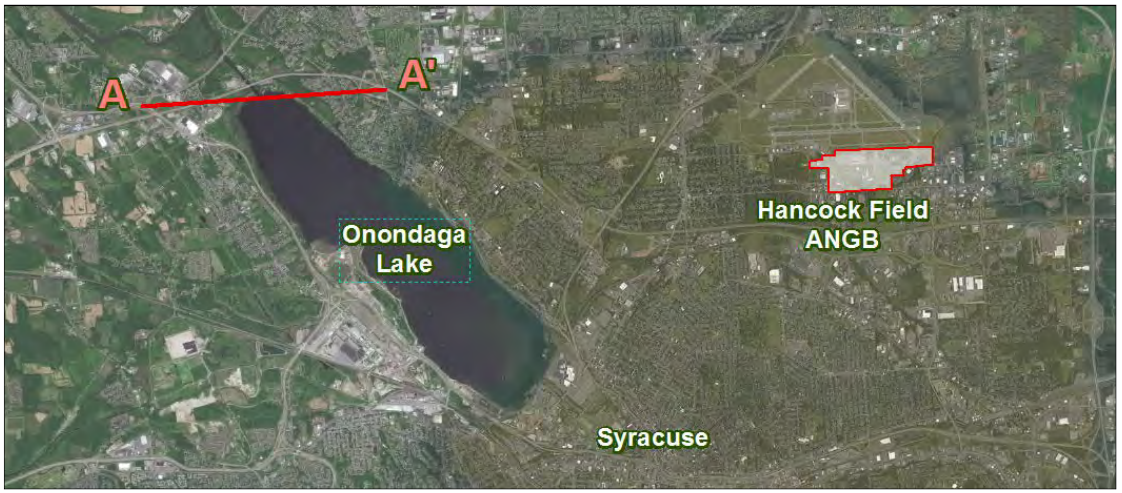
Present day geomorphology looking to the southwest from a position approximately over Oneida Lake (http://www.geo.cornell.edu/geology).

Figure 6-2

Regional Geomorphology Environment Near Hancock ANGB

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York





Stratigraphy of Onondaga County, applicable to the Hancock ANGB east of the Onondaga Lake. Observe that the deposits consist of the Upper Silurian Vernon Shale overlain by glacial till deposits and the unconsolidated glacial lacustrine sand/silt deposits.

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Project No.:	60520893	

Figure 6-3

Stratigraphy of Onondaga County

Hancock Field Air National Guard Base (ANGB)
Site Inspection Report – Air National Guard Phase II Regional Site Inspections for Per- and Polyfluoroalkyl Substances
Syracuse, New York

Appendix B: Tables

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Table 3-1: Water Level Summary

Monitoring Well	Top of Casing (ft amsl)	Water Level (ft btoc)	Water Elevation (ft amsl)
FTA-MW01	397.28	7.65	389.63
FTA-MW02	398.05	7.43	390.62
FTA-MW03	396.46	6.58	389.88
644-MW01	408.79	3.5	405.29
608-MW01	400.58	5.55	395.03
610-MW01	402.71	3.25	399.46
618-MW01	399.82	5.53	394.29
TU019-MW001	401.71	3.25	398.46
620-MW01	400.76	5.15	395.61
APN-MW01	404.23	3.95	400.28
APN-MW02	396.6	1.22	395.38
APN-MW03	409.78	9.12	400.66
APN-MW04	410.51	6.9	403.61
OF1-MW01	393.6	3.12	390.48
OF3-MW01	384.59	3.06	381.53
OF4-MW01	390.9	2.14	388.76
BBW-MW01	398.83	2.25	396.58

Notes:
amsl – above mean sea level
btoc – below top of casing
ft – feet

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Table 4-1: Monitoring Well Construction Summary

Location	Northing	Easting	Well Type	Ground Surface Elevation (amsl)	Well (PVC) Elevation	Screen Interval (ft bgs)	Bottom of Exploration (ft bgs)	Well Diameter (inches)
FTA-MW01	1131501.84	950394.50	New well	397.47	397.28	3.3 – 13.3	15	2
FTA-MW02	1131595.14	950394.36	New well	398.56	398.05	6.35 – 16.35	16.35	2
FTA-MW03	1131426.30	950427.97	New well	396.68	396.46	4.31 – 14.31	15	2
644-MW01	1130745.17	947976.65	New well	409.28	408.79	3.44 – 13.44	15	2
608-MW01	1130831.26	948833.48	New well	400.78	400.58	2.4 – 12.4	15	2
610-MW01	1130969.90	948460.61	New well	403.22	402.71	4.33 – 14.33	15	2
618-MW01	1130794.75	948956.13	New well	400.19	399.82	2.45 – 12.45	15	2
620-MW01	1130528.52	948747.38	New well	401.15	400.76	2.41 – 12.41	15	2
APN-MW01	1131721.72	947398.91	New well	404.63	404.23	2.42 – 12.42	15	2
APN-MW02	1131361.86	948958.69	New well	396.93	396.6	2.5 – 12.5	15	2
APN-MW03	1130996.20	947339.56	New well	410.21	409.78	2.48 – 12.48	15	2
APN-MW04	1130992.37	946870.01	New well	410.96	410.51	3.41 – 13.41	15	2
OF1-MW01	1129585.57	948173.93	New well	394.23	393.6	2.44 – 12.44	15	2
OF3-MW01	1131743.14	951559.58	New well	384.83	384.59	2.38 – 12.38	15	2
OF4-MW01	1129872.74	949435.21	New well	391.32	390.9	2.46 – 12.46	15	2
BBW-MW01	1131902.57	948246.96	New well	399.06	398.83	2.42 - 12.42	15	2
TU019-MW001	1131438.93	948383.26	Existing Well	402.03	401.71	15 - 20	20	2

Notes:
amsl – above mean sea level
ft bgs – feet below ground surface
PVC - polyvinyl chloride

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Table 5-1. IRP Site 1 Fire Training Area Sample Results (PRL 1)

		Groundwater			
Sample ID	PAL[a,b] (ng/L)	HC-FTA-MW03-D	HC-FTA-MW01	HC-FTA-MW02	HC-FTA-MW03
Sample Date		5/9/2018	5/9/2018	5/9/2018	5/9/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified					
Perfluorobutanesulfonate (PFBS)	***400,000***	1,800	3,600	5,700	1,700
Perfluoroheptanoic acid (PFHpA)	NA	3,700	3,500	1,400	4,100
Perfluorohexanesulfonate (PFHxS	NA	23,000	23,000	42,000	25,000
Perfluorononanoic acid (PFNA)	NA	1,100	8,200	8,500	1,300
Perfluoro-octanesulfonate (PFOS)	***70***	**57,000**	**130,000**	**63,000**	**69,000**
Perfluorooctanoic acid (PFOA)	***70***	**8,800**	**9,200**	**7,300**	**9,500**

		Soil						
Sample ID	PAL[b] (ng/g)	HC-FTA-SB01-01	HC-FTA-SB01-45	HC-FTA-SB02-01	HC-FTA-SB02-45	HC-FTA-SB03-01	HC-FTA-SB03-45	HC-FTA-SB03-45-D
Sample Date		4/17/2018	4/17/2018	4/17/2018	4/17/2018	4/17/2018	4/17/2018	4/17/2018
Depth Interval (ft bgs)		0-1	4-5	0-1	4-5	0-1	4-5	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified								
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.44 J	1.1	0.41 J	2	0.70 U	0.76 U	0.25 J
Perfluoroheptanoic acid (PFHpA)	NA	0.49 J	0.79	0.68 U	0.81	0.53 J	0.60 J	1.4
Perfluorohexanesulfonate (PFHxS	NA	23	7.9	15	18	7.8	3.7 J	17 J
Perfluorononanoic acid (PFNA)	NA	1.7	5.4	0.30 J	5.6	1.8	0.71 J	8.9 J
Perfluoro-octanesulfonate (PFOS)	***1,260***	450	110	140	100	210	54 J	1,000 J
Perfluorooctanoic acid (PFOA)	***1,260***	9.6	4.2	1.3	5.6	3.1	1.9 J	10 J

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable D = Duplicate sample

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

Data Qualifiers: J = Estimated concentration
U = Not detected at concentration shown

Table 5-2. Building 644 (Current Fire Station) Sample Results (PRL 2)

		Groundwater
Sample ID	PAL[a,b] (ng/L)	HC-644-MW01
Sample Date		5/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	19
Perfluoroheptanoic acid (PFHpA)	NA	150 J-
Perfluorohexanesulfonate (PFHxS)	NA	380 J-
Perfluorononanoic acid (PFNA)	NA	27
Perfluoro-octanesulfonate (PFOS)	***70***	**2,000 J-**
Perfluorooctanoic acid (PFOA)	***70***	**100**

		Soil						
Sample ID	PAL[b] (ng/g)	HC-644-SB01-01	HC-644-SB01-45	HC-644-SB02-01	HC-644-SB02-45	HC-644-SB03-01	HC-644-SB03-45	HC-644-SB02-45-D
Sample Date		4/18/2018	4/18/2018	4/18/2018	4/18/2018	4/18/2018	4/18/2018	4/18/2018
Depth Interval (ft bgs)		0-1	4-5	0-1	4-5	0-1	4-5	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified								
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.68 U	0.65 U	0.67 U	0.74 U	0.65 U	0.67 U	0.69 U
Perfluoroheptanoic acid (PFHpA)	NA	0.67 J	0.65 U	0.67 U	0.74 U	0.65 U	0.67 U	0.60 J
Perfluorohexanesulfonate (PFHxS)	NA	1.9	0.58 J	4.4	4.2	0.65 U	0.67 U	3
Perfluorononanoic acid (PFNA)	NA	0.67 J	0.29 J	0.67 U	0.74 U	0.65 U	0.67 U	0.91
Perfluoro-octanesulfonate (PFOS)	***1,260***	48	70	74	130	3.8	0.67 U	110
Perfluorooctanoic acid (PFOA)	***1,260***	0.81	0.65 U	0.29 J	0.74 U	0.65 U	0.67 U	0.99

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable D = Duplicate sample

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

Data Qualifiers:
J = Estimated concentration
J- = Reported value may not be accurate or precise, but the result may be biased low.
U = Not detected at concentration shown

Table 5-3. Former Building 608 (Former Fire Station) Sample Results (PRL 3)

		Groundwater
Sample ID	PAL[a,b] (ng/L)	HC-608-MW01
Sample Date		5/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	76
Perfluoroheptanoic acid (PFHpA)	NA	170
Perfluorohexanesulfonate (PFHxS)	NA	1,100
Perfluorononanoic acid (PFNA)	NA	31
Perfluoro-octanesulfonate (PFOS)	***70***	**470**
Perfluorooctanoic acid (PFOA)	***70***	**330**

		Soil[c]				
Sample ID	PAL[b] (ng/g)	HC-608-SB01-01	HC-608-SB01-45	HC-608-SB02-01	HC-608-SB02-D	HC-608-SB02-45
Sample Date		4/12/2018	4/12/2018	4/12/2018	4/12/2018	4/12/2018
Depth Interval (ft bgs)		0-1	4-5	0-1	0-1	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified						
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.67 U	0.79 U	0.65 U	0.62 U	0.71 U
Perfluoroheptanoic acid (PFHpA)	NA	0.67 U	0.79 U	0.65 U	0.62 U	0.71 U
Perfluorohexanesulfonate (PFHxS)	NA	2.2	0.73 J	0.58 J	0.94	2.4
Perfluorononanoic acid (PFNA)	NA	0.43 J	0.79 U	0.38 J	0.50 J	5.4 J
Perfluoro-octanesulfonate (PFOS)	***1,260***	23	2.2	5.4	9.3 J	4.3 J
Perfluorooctanoic acid (PFOA)	***1,260***	0.47 J	0.79 U	0.65 U	0.62 U	0.60 J

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable D = Duplicate sample

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Data from soil boring HC-610-SB03 (see Table 5-4) were also used to evaluate potential impacts from operations at Former Building 608 (PRL 3).

Data Qualifiers: J = Estimated concentration

U = Not detected at concentration shown

Table 5-4. Hangar 610 Sample Results (PRL 4)

		Groundwater
Sample ID	PAL[a,b] (ng/L)	HC-610-MW01
Sample Date		5/9/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	130
Perfluoroheptanoic acid (PFHpA)	NA	48
Perfluorohexanesulfonate (PFHxS)	NA	2,100
Perfluorononanoic acid (PFNA)	NA	11 U
Perfluoro-octanesulfonate (PFOS)	***70***	**3,000**
Perfluorooctanoic acid (PFOA)	***70***	**350**

		Soil					
Sample ID	PAL[b] (ng/g)	HC-610-SB01-12	HC-610-SB01-1415	HC-610-SB02-01	HC-610-SB02-45	HC-610-SB03-01	HC-610-SB03-45
Sample Date		4/13/2018	4/13/2018	4/13/2018	4/13/2018	4/13/2018	4/13/2018
Depth Interval (ft bgs)		1-2	14-15	0-1	4-5	0-1	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified							
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.67 U	0.83 U	0.62 U	0.74 U	0.75 U	0.79 U
Perfluoroheptanoic acid (PFHpA)	NA	0.67 U	0.83 U	0.62 U	0.74 U	0.75 U	0.79 U
Perfluorohexanesulfonate (PFHxS)	NA	0.67 U	0.63 J	0.97	0.74 U	0.75	0.79 U
Perfluorononanoic acid (PFNA)	NA	0.67 U	0.83 U	0.62 U	0.74 U	0.75 U	0.79 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	0.67 U	4.4	4.7	0.74 U	8.3	0.48 J
Perfluorooctanoic acid (PFOA)	***1,260***	0.67 U	0.83 U	0.27 J	0.74 U	0.75 U	0.79 U

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

Data Qualifiers:
J = Estimated concentration
U = Not detected at concentration shown

Table 5-5. Hangar 618 Sample Results (PRL 5)

		Groundwater
Sample ID	PAL[a,b] (ng/L)	HC-618-MW01
Sample Date		5/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	13
Perfluoroheptanoic acid (PFHpA)	NA	3.5
Perfluorohexanesulfonate (PFHxS	NA	200
Perfluorononanoic acid (PFNA)	NA	1.1 U
Perfluoro-octanesulfonate (PFOS)	***70***	24
Perfluorooctanoic acid (PFOA)	***70***	12

		Soil[c]			
Sample ID	PAL[b] (ng/g)	HC-618-SB01-01	HC-618-SB01-45	HC-618-SB02-01	HC-618-SB02-45
Sample Date		4/12/2018	4/12/2018	4/12/2018	4/12/2018
Depth Interval (ft bgs)		0-1	4-5	0-1	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified					
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.69 U	0.84 U	0.71 U	0.68 U
Perfluoroheptanoic acid (PFHpA)	NA	0.69 U	0.84 U	0.71 U	0.68 U
Perfluorohexanesulfonate (PFHxS	NA	0.69 U	0.84 U	0.73	0.31 J
Perfluorononanoic acid (PFNA)	NA	0.69 U	0.84 U	0.71 U	0.68 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	1	0.34 J	8.9	1.1
Perfluorooctanoic acid (PFOA)	***1,260***	0.69 U	0.84 U	0.65 J	0.68 U

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Data from soil boring HC-608-SB02 (see Table 5-3) were also used to evaluate potential impacts to soil from Hangar 618 (PRL 5).

Data Qualifiers: J = Estimated concentration

U = Not detected at concentration shown

Table 5-6. Hangar 646 Sample Results (PRL 6)

		Groundwater	
Sample ID	PAL[a,b] (ng/L)	HC-646-MW01	HC-TU019-MW001*
Sample Date		5/9/2018	5/9/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified			
Perfluorobutanesulfonate (PFBS)	***400,000***	21 J-	860
Perfluoroheptanoic acid (PFHpA)	NA	29	1,000
Perfluorohexanesulfonate (PFHxS)	NA	130	6,300
Perfluorononanoic acid (PFNA)	NA	28 J-	19 J
Perfluoro-octanesulfonate (PFOS)	***70***	**530**	**1,100**
Perfluorooctanoic acid (PFOA)	***70***	**95 J-**	**2,800**

		Soil						
Sample ID	PAL[b] (ng/g)	HC-646-SB01-01	HC-646-SB01-1314	HC-646-SB02-01	HC-646-SB02-45	HC-646-SB02-45-D	HC-646-SB03-01	HC-646-SB03-45
Sample Date		4/11/2018	4/11/2018	4/9/2018	4/9/2018	4/9/2018	4/12/2018	4/12/2018
Depth Interval (ft bgs)		0-1	13-14	0-1	4-5	4-5	0-1	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified								
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.58 U	0.71 U	0.23 J	0.71 U	0.61 U	0.57 J	0.77 U
Perfluoroheptanoic acid (PFHpA)	NA	0.58 U	0.71 U	0.34 J	0.71 U	0.24 J	0.54 J	0.77 U
Perfluorohexanesulfonate (PFHxS)	NA	0.58 U	3.5	1.6	1	1.3	7.3	0.27 J
Perfluorononanoic acid (PFNA)	NA	0.58 U	0.71 U	0.33 J	0.71 U	0.61 U	0.45 J	0.77 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	3.2	3.6	34	12	11	29	1
Perfluorooctanoic acid (PFOA)	***1,260***	0.58 U	0.63 J	1	2.5	3	1.3	0.77 U

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable D = Duplicate sample

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

*Denotes an existing monitoring well

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

Data Qualifiers:

J = Estimated concentration

J- = Reported value may not be accurate or precise, but the result may be biased low.

U = Not detected at concentration shown

Table 5-7. Building 620 (Vehicle Maintenance) Sample Results (PRL 8)

		Groundwater
Sample ID	PAL[a,b] (ng/L)	HC-620-MW01
Sample Date		5/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	62
Perfluoroheptanoic acid (PFHpA)	NA	80 J-
Perfluorohexanesulfonate (PFHxS)	NA	670 J-
Perfluorononanoic acid (PFNA)	NA	15
Perfluoro-octanesulfonate (PFOS)	***70***	**1,300 J-**
Perfluorooctanoic acid (PFOA)	***70***	**120**

		Soil					
Sample ID	PAL[b] (ng/g)	HC-620-SB01-01	HC-620-SB01-45	HC-620-SB02-01	HC-620-SB02-45	HC-620-SB03-01	HC-620-SB03-45
Sample Date		4/17/2018	4/17/2018	4/17/2018	4/17/2018	4/17/2018	4/17/2018
Depth Interval (ft bgs)		0-1	4-5	0-1	4-5	0-1	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified							
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.60 U	0.65 U	0.61 U	0.78 U	0.63 U	0.64 U
Perfluoroheptanoic acid (PFHpA)	NA	0.60 U	0.65 U	0.61 U	0.78 U	0.63 U	0.64 U
Perfluorohexanesulfonate (PFHxS)	NA	0.20 J	0.65 U	1.9	0.40 J	0.63 U	0.33 J
Perfluorononanoic acid (PFNA)	NA	0.60 U	0.65 U	0.61 U	0.78 U	0.63 U	0.64 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	0.73 J+	2	13	0.78 U	4.7	2.5
Perfluorooctanoic acid (PFOA)	***1,260***	0.60 U	0.65 U	0.61 U	0.27 J	0.28 J	0.64 U

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

Data Qualifiers:

J = Estimated concentration

J+ = Reported value may not be accurate or precise, but the result may bebiased high.

J- = Reported value may not be accurate or precise, but the result may be biased low.

U = Not detected at concentration shown

Table 5-8. Apron Sample Results (PRL 9)

		Groundwater[d]					Surface Water[c]	
Sample ID	PAL[a,b] (ng/L)	HC-APN-MW01	HC-APN-MW04-D	HC-APN-MW02	HC-APN-MW03	HC-APN-MW04	HC-APN-SW01	HC-APN-SW02
Sample Date		5/10/2018	5/10/2018	5/9/2018	5/10/2018	5/10/2018	4/10/2018	4/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified								
Perfluorobutanesulfonate (PFBS)	***400,000***	5.8	4.5	29	8.7	3.9 J	45	75
Perfluoroheptanoic acid (PFHpA)	NA	3	4.2	56	3.3 J	3.7 J	11	18
Perfluorohexanesulfonate (PFHxS)	NA	110	230 J	390	130	140 J	270	350
Perfluorononanoic acid (PFNA)	NA	0.82 J	1.5 J	17 J	13	1.8 J	0.89 J	1.4 J
Perfluoro-octanesulfonate (PFOS)	***70***	47	**230**	66 U *	5.0 U *	**220**	**310**	**440**
Perfluorooctanoic acid (PFOA)	***70***	31	21	**77**	8.6	18	44 J	**74 J**

		Soil[e]						
Sample ID	PAL[b] (ng/g)	HC-APN-SB01-01	HC-APN-SB01-45	HC-APN-SB02-01	HC-APN-SB02-45	HC-APN-SB03-01	HC-APN-SB03-45	HC-APN-SB03-01-D
Sample Date		4/11/2018	4/11/2018	4/12/2018	4/12/2018	4/12/2018	4/12/2018	4/12/2018
Depth Interval (ft bgs)		0-1	4-5	0-1	4-5	0-1	4-5	NA
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified								
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.70 U	0.75 U	0.69 U	0.78 U	0.63 U	0.75 U	0.74 U
Perfluoroheptanoic acid (PFHpA)	NA	0.70 U	0.75 U	0.25 J	0.78 U	0.63 U	0.75 U	0.74 U
Perfluorohexanesulfonate (PFHxS)	NA	2.6	0.75 U	3.7	0.70 J	1.1	0.43 J	0.82
Perfluorononanoic acid (PFNA)	NA	0.27 J	0.75 U	1.5	0.78 U	0.47 J	0.75 U	0.38 J
Perfluoro-octanesulfonate (PFOS)	***1,260***	16	0.75 U	20	0.95	4.7	0.37 J	4.9
Perfluorooctanoic acid (PFOA)	***1,260***	0.35 J	0.75 U	0.73	0.30 J	0.52 J	0.75 U	0.42 J

Table 5-8. Apron Sample Results (Continued) (PRL 9)

		Soil[e]		Sediment[c]	
Sample ID	PAL[b] (ng/g)	HC-APN-SB04-01	HC-APN-SB04-45	HC-APN-SD01	HC-APN-SD02
Sample Date		4/18/2018	4/18/2018	4/10/2018	4/10/2018
Depth Interval (ft bgs)		0-1	4-5	NA	NA
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified					
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.66 U	0.62 U	0.75 U	1.1 U
Perfluoroheptanoic acid (PFHpA)	NA	0.66 U	0.62 U	0.41 J	1.1 U
Perfluorohexanesulfonate (PFHxS)	NA	0.66 U	0.62 U	1.1	2.8
Perfluorononanoic acid (PFNA)	NA	0.66 U	0.62 U	0.40 J	1.1 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	2.5	0.48 J	8.4	47
Perfluorooctanoic acid (PFOA)	***1,260***	0.66 U	0.37 J	1.1	1.2

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable D = Duplicate sample

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Since there are no PALs specific to surface water and sediment, those media were evaluated using soil (sediment) and groundwater (surface water) screening criteria.

d. Data from monitoring wells HC-644-MW01, HC-608-MW01, HC-610-MW01, HC-618-MW01, and HC-646-MW01 were also used to evaluate potential impacts to groundwater from the Apron (PRL 9). See Tables 5-2 to 5-6.

e. Data from soil borings HC-608-SB02, HC-610-SB01, HC-618-SB02, HC-646-SB02, and HC-646-SB03 were also used to evaluate potential impacts to soil from the Apron (PRL 9). See Tables 5-3 to 5-6.

Data Qualifiers:

J = Estimated concentration

U = Not detected at concentration shown

U* = Analyte not detected at level significantly greater than the detection found in an associated blank. Laboratory qualifiter changed to "U"

Table 5-9. ANG-1 (Outfall 001) Sample Results (PRL 10)

		Groundwater	Surface Water[c]
Sample ID	PAL[a,b] (ng/L)	HC-OF1-MW01	HC-OF1-SW01
Sample Date		5/10/2018	4/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified			
Perfluorobutanesulfonate (PFBS)	***400,000***	5.6	4.9
Perfluoroheptanoic acid (PFHpA)	NA	3.9	8.5
Perfluorohexanesulfonate (PFHxS)	NA	21	96
Perfluorononanoic acid (PFNA)	NA	4.4	2.3
Perfluoro-octanesulfonate (PFOS)	***70***	2.7 U *	**80**
Perfluorooctanoic acid (PFOA)	***70***	12	28

		Soil		Sediment[c]
Sample ID	PAL[b] (ng/g)	HC-OF1-SB01-01	HC-OF1-SB01-45	HC-OF1-SD01
Sample Date		4/18/2018	4/18/2018	4/10/2018
Depth Interval (ft bgs)		0-1	4-5	NA
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified				
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.63 U	0.70 U	1.1 U
Perfluoroheptanoic acid (PFHpA)	NA	0.63 U	0.70 U	1.0 J
Perfluorohexanesulfonate (PFHxS)	NA	0.26 J	0.70 U	2.3
Perfluorononanoic acid (PFNA)	NA	0.24 J	0.70 U	0.84 J
Perfluoro-octanesulfonate (PFOS)	***1,260***	4.5	0.48 J	7
Perfluorooctanoic acid (PFOA)	***1,260***	0.63 U	0.70 U	2.1

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Since there are no PALs specific to surface water and sediment, those media were evaluated using soil (sediment) and groundwater (surface water) screening criteria.

Data Qualifiers:
J = Estimated concentration
U = Not detected at concentration shown
U* = Analyte not detected at level significantly greater than the detection found in an associated blank. Laboratory qualifiter changed to "U"

Table 5-10. ANG-2 (Outfall 002) Sample Results (PRL 11)

		Surface Water[c]
Sample ID	PAL[a,b] (ng/L)	HC-OF2-SW01
Sample Date		4/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	81
Perfluoroheptanoic acid (PFHpA)	NA	110
Perfluorohexanesulfonate (PFHxS)	NA	640
Perfluorononanoic acid (PFNA)	NA	32
Perfluoro-octanesulfonate (PFOS)	***70***	**1,700**
Perfluorooctanoic acid (PFOA)	***70***	**92 J**

		Sediment[c]
Sample ID	PAL[b] (ng/g)	HC-OF2-SD01
Sample Date		4/10/2018
Depth Interval (ft bgs)		NA
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified		
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.72 U
Perfluoroheptanoic acid (PFHpA)	NA	0.34 J
Perfluorohexanesulfonate (PFHxS)	NA	1.4
Perfluorononanoic acid (PFNA)	NA	0.38 J
Perfluoro-octanesulfonate (PFOS)	***1,260***	14
Perfluorooctanoic acid (PFOA)	***1,260***	0.59 J

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Since there are no PALs specific to surface water and sediment, those media were evaluated using soil (sediment) and groundwater (surface water) screening criteria.

Data Qualifiers: J = Estimated concentration

U = Not detected at concentration shown

Table 5-11. ANG-3 (Outfall 003 or HIA-E) Sample Results (PRL 12)

		Groundwater	Surface Water[c]
Sample ID	PAL[a,b] (ng/L)	HC-OF3-MW01	HC-OF3-SW01
Sample Date		5/9/2018	4/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified			
Perfluorobutanesulfonate (PFBS)	***400,000***	1.1 U	38
Perfluoroheptanoic acid (PFHpA)	NA	1.2 U	61
Perfluorohexanesulfonate (PFHxS	NA	1.1 U	600
Perfluorononanoic acid (PFNA)	NA	1.2 U	58
Perfluoro-octanesulfonate (PFOS)	***70***	2.2 U *	**460**
Perfluorooctanoic acid (PFOA)	***70***	1.2 U	**190 J**

		Soil			Sediment[c]
Sample ID	PAL[b] (ng/g)	HC-OF3-SB01-01	HC-OF3-SB01-45	HC-OF3-SB01-45-D	HC-OF3-SD01
Sample Date		4/17/2018	4/17/2018	4/17/2018	4/10/2018
Depth Interval (ft bgs)		0-1	4-5	4-5	NA
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified					
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.68 U	0.69 U	0.72 U	0.72 U
Perfluoroheptanoic acid (PFHpA)	NA	0.68 U	0.69 U	0.72 U	0.72 U
Perfluorohexanesulfonate (PFHxS	NA	0.33 J	0.69 U	0.72 U	1
Perfluorononanoic acid (PFNA)	NA	0.68 U	0.69 U	0.72 U	0.72 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	1.3	0.36 J	0.41 J	21
Perfluorooctanoic acid (PFOA)	***1,260***	0.25 J	0.69 U	0.72 U	0.72 U

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable D = Duplicate sample

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Since there are no PALs specific to surface water and sediment, those media were evaluated using soil (sediment) and groundwater (surface water) screening criteria.

Data Qualifiers:

J = Estimated concentration

U = Not detected at concentration shown

U* = Analyte not detected at level significantly greater than the detection found in an associated blank. Laboratory qualifiter changed to "U"

Table 5-12. ANG-4 (Outfall 004) Sample Results (PRL 13)

		Groundwater	Surface Water[c]
Sample ID	PAL[a,b] (ng/L)	HC-OF4-MW01	HC-OF4-SW01
Sample Date		5/10/2018	4/10/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified			
Perfluorobutanesulfonate (PFBS)	***400,000***	1.6 J	20
Perfluoroheptanoic acid (PFHpA)	NA	3.5	52
Perfluorohexanesulfonate (PFHxS	NA	42	690
Perfluorononanoic acid (PFNA)	NA	1.1 J	59
Perfluoro-octanesulfonate (PFOS)	***70***	17 U *	**920**
Perfluorooctanoic acid (PFOA)	***70***	6.3	**93 J**

		Soil		Sediment[c]
Sample ID	PAL[b] (ng/g)	HC-OF4-SB01-01	HC-OF4-SB01-45	HC-OF4-SD01
Sample Date		4/18/2018	4/18/2018	4/10/2018
Depth Interval (ft bgs)		0-1	4-5	NA
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified				
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.76 U	0.68 U	0.96 U
Perfluoroheptanoic acid (PFHpA)	NA	0.26 J	0.68 U	0.96 U
Perfluorohexanesulfonate (PFHxS	NA	2.0 J-	0.68 U	1.4
Perfluorononanoic acid (PFNA)	NA	0.41 J	0.68 U	0.96 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	9.3	0.30 J	14
Perfluorooctanoic acid (PFOA)	***1,260***	0.77	0.68 U	0.44 J

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Since there are no PALs specific to surface water and sediment, those media were evaluated using soil (sediment) and groundwater (surface water) screening criteria.

Data Qualifiers:

J = Estimated concentration

J- = Reported value may not be accurate or precise, but the result may be biased low.

U = Not detected at concentration shown

U* = Analyte not detected at level significantly greater than the detection found in an associated blank. Laboratory qualifiter changed to "U"

Table 5-13. Base Boundary Wells Sample Results

		Groundwater[c]
Sample ID	PAL[a,b] (ng/L)	HC-BBW-01
Sample Date		5/9/2018
Perfluorinated Compounds US EPA Method 537 Rev 1.1 modified		
Perfluorobutanesulfonate (PFBS)	***400,000***	13 J+
Perfluoroheptanoic acid (PFHpA)	NA	1.4 J
Perfluorohexanesulfonate (PFHxS)	NA	8.1 J+
Perfluorononanoic acid (PFNA)	NA	1.1 U
Perfluoro-octanesulfonate (PFOS)	***70***	2.4 U *
Perfluorooctanoic acid (PFOA)	***70***	1.1 U *

		Soil	
Sample ID	PAL[b] (ng/g)	HC-BBW-SB01-01	HC-BBW-SB01-45
Sample Date		4/11/2018	4/11/2018
Depth Interval (ft bgs)		0-1	4-5
Perfluorinated Compounds US EPA Method 537 Rev 1.1 Modified			
Perfluorobutanesulfonate (PFBS)	***1.26x10^6***	0.72 U	0.83 U
Perfluoroheptanoic acid (PFHpA)	NA	0.72 U	0.83 U
Perfluorohexanesulfonate (PFHxS)	NA	0.87	0.83 U
Perfluorononanoic acid (PFNA)	NA	0.72 U	0.83 U
Perfluoro-octanesulfonate (PFOS)	***1,260***	1.8	0.83 U
Perfluorooctanoic acid (PFOA)	***1,260***	0.29 J	0.83 U

PAL = project action level ng/L = nanogram per liter ng/g = nanogram per gram NA = Not applicable

ft = feet bgs = below ground surface

Bold value indicates analyte detected above screening level Italicized and bolded value indicates screening criterion used

a. United States Environmental Protection Agency (US EPA), May 2016. Drinking Water Health Advisory for PFOS and PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. EPA Document Number: 822-R-16-004 and 822-R-16-005.

b. US EPA Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on a tap water RSL. Soil PALs were calculated using the RSL calculator. The RSLs are protective of a residential receptor and a target hazard quotient = 1.0.

c. Data from monitoring wells HC-APN-MW01, HC-OF1-MW01, HC-OF3-MW01, and HC-OF4-MW01 were also used to characterize groundwater impacts at the base boundary. See Tables 5-8, 5-9, 5-11, and 5-12.

Data Qualifiers:

J = Estimated concentration

J+ = Reported value may not be accurate or precise, but the result may bebiased high.

U = Not detected at concentration shown

U* = Analyte not detected at level significantly greater than the detection found in an associated blank. Laboratory qualifiter changed to "U"

Table 6-1. Relevant Data Quality Objectives

PRL No.	PRL Description	Compounds Exceeding PALs	Sampling Recommendation(s) and Objectives
1	IRP Site 1 Fire Training Area	Groundwater: PFOS, PFOA	Soil: Although PALs were not exceeded, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Determine the nature and extent both vertically and horizontally through the sampling of existing and additional new monitoring wells.
2	Building 644 - Current Fire Station	Groundwater: PFOS, PFOA	
3	Former Building 608 – Former Fire Station	Groundwater: PFOS, PFOA	
4	Hangar 610	Groundwater: PFOS, PFOA	
5	Hangar 618	None	Soil: Although PALs were not exceeded, PFAS were detected in soil samples. Therefore, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Although PALs were not exceeded, PFAS were detected in collected groundwater samples. Therefore, additional groundwater sampling is proposed to better define potential PFAS in groundwater both vertically and horizontally through the sampling of existing and additional new monitoring wells.
6	Hangar 646	Groundwater: PFOS, PFOA	Soil: Although PALs were not exceeded, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Determine the nature and extent both vertically and horizontally through the sampling of existing and additional new monitoring wells.
8	Building 620 – Vehicle Maintenance	Groundwater: PFOS, PFOA	
9	Apron	Groundwater: PFOS, PFOA Surface Water: PFOS	Soil: Although PALs were not exceeded, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Determine the nature and extent both vertically and horizontally through the sampling of existing and additional new monitoring wells. Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
10	ANG-1 (Outfall 001)	Surface Water: PFOS	Soil: Although PALs were not exceeded, PFAS were detected in soil samples. Therefore, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Although PALs were not exceeded, PFAS were detected in collected groundwater samples. Therefore, additional groundwater sampling is proposed to better define potential PFAS in groundwater both vertically and horizontally through the sampling of existing and additional new monitoring wells. Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
11	ANG-2 (Outfall 002)	Surface Water: PFOS, PFOA	Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in

Table 6-1. Relevant Data Quality Objectives

PRL No.	PRL Description	Compounds Exceeding PALs	Sampling Recommendation(s) and Objectives
			associated surface water runoff drainage features.
12	ANG-3 (Outfall 003 or HIA-E)	Surface Water: PFOS	Soil: Although PALs were not exceeded, PFAS were detected in soil samples. Therefore, additional surface and subsurface soil samples are proposed to determine if an unidentified source exists and if so, to determine the nature and extent in the vertical and horizontal directions given the potential for soil to groundwater migration. Groundwater: Although PALs were not exceeded, PFAS were detected in collected groundwater samples. Therefore, additional groundwater sampling is proposed to better define potential PFAS in groundwater both vertically and horizontally through the sampling of existing and additional new monitoring wells. Surface Water: Conduct additional sampling of surface water in associated surface water runoff drainage features to determine if there is a complete exposure pathway from this PRL to the base outfalls and to evaluate whether there are unacceptable risks to ecological or human health receptors. Sediment: Although PALs were not exceeded, conduct sediment sampling in associated surface water runoff drainage features.
13	ANG-4 (Outfall 004)	Surface Water: PFOS	
General			Groundwater: (1) Collect additional groundwater samples in upgradient locations to quantify potential PFAS from upgradient sources; (2) collect additional groundwater samples off-base from a limited number of new monitoring wells to determine if PFAS is present beyond the base boundary are increasing or decreasing.

Table 7-1. Summary of SI Maximum Sampling Results Exceeding PALs

PRL Number	PRL Name	Media	Result Exceeding PAL[a,b,c]		
			PFOS	PFOA	PFBS
1	IRP Site 1 Fire Training Area	Soil	None above the PALs		
		Groundwater	130,000 ng/L	9,500 ng/L	--
2	Building 644 – Current Fire Station	Soil	None above the PALs		
		Groundwater	2,000 J- ng/L	100 ng/L	--
3	Former Building 608 – Former Fire Station	Soil[1]	None above the PALs		
		Groundwater	470 ng/L	330 ng/L	--
4	Hangar 610	Soil	None above the PALs		
		Groundwater	3,000 ng/L	350 ng/L	--
5	Hangar 618	Soil[2]	None above the PALs		
		Groundwater	None above the PALs		
6	Hangar 646	Soil	None above the PALs		
		Groundwater	1,100 ng/L	2,800 ng/L	
8	Building 620 – Vehicle Maintenance	Soil	None above the PALs		
		Groundwater	1,300 J- ng/L	120 ng/L	--
9	Apron[d]	Soil[3]	None above the PALs		
		Groundwater[4]	230 ng/L	77 ng/L	--
		Surface Water	440 ng/L	74 J ng/L	--
		Sediment	None above the PALs		
10	ANG-1 – Outfall 001[d]	Soil	None above the PALs		
		Groundwater	None above the PALs		
		Surface Water	80 ng/L	--	--
		Sediment	None above the PALs		
11	ANG 2 – Outfall 002	Surface Water	1,700 ng/L	92 J ng/L	--
		Sediment	None above the PALs		
12	ANG 3 – Outfall 003 or HIA-E[d]	Soil	None above the PALs		
		Groundwater	None above the PALs		
		Surface Water	460 ng/L	190 J ng/L	--
		Sediment	None above the PALs		
13	ANG-4 – Outfall 004[d]	Soil	None above the PALs		
		Groundwater	None above the PALs		
		Surface Water	920 ng/L	93 J ng/L	--
		Sediment	None above the PALs		
NA	Base Boundary	Soil	None above the PALs		
		Groundwater[5]	None above the PALs		

PRL Number	PRL Name	Media	Result Exceeding PAL[a,b,c]

Note: PRL 7 (Building 614 - Warehouse) was recommended for no further action during the Preliminary Assessment (BB&E, 2016).

Table ES-1 lists the compounds that exceed the following PALs. Compounds without PALs are included in Tables in **Section 5**.

Compound	Groundwater and Surface Water (ng/L)	Soil and Sediment (ng/g)
PFOS	70	1,260
PFOA	70	1,260
PFOS + PFOA	70	NA
PFBS	400,000	1.26×10^6

a) US EPA, 2016a. Drinking Water Health Advisory for PFOS. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. US EPA Document Number: 822-R-16-005. May 2016.

(b) US EPA, 2016b. Drinking Water Health Advisory for PFOA. Office of Water (4304T). Health and Ecological Criteria Division, Washington, DC 20460. US EPA Document Number: 822-R-16-004. May 2016.

(c) US EPA, 2018. Regional Screening Levels (RSLs), May 2018. PFBS groundwater PAL is based on the RSL for tap water. Soil PALs were calculated for PFOS, PFOA, and PFBS using the RSL calculator. The RSLs are protective of a residential receptor and a THQ = 1.0.

(d) Monitoring wells associated with this PRL served as base boundary wells to characterize potential PFAS in groundwater at the base boundary.

-- indicates compound was not detected above the PAL
ANG = Air National Guard
IRP = Installation Restoration Program
J = Estimated concentration
J- = Estimated concentration, result may be biased low
NA = Not Applicable
ng/g = nanograms per gram
ng/L = nanograms per liter
PAL = project action level
PFAS = per- and polyfluoroalkyl substances
PFBS = Perfluorobutanesulfonate
PFOA = Perfluorooctanoic acid
PFOS = Perfluoro-octanesulfonate
PRL = potential release location
RSL = regional screening level
THQ = target hazard quotient

[1] Includes soil boring 610-SB03 used to evaluate potential PFAS from operations at Former Building 608 and Building 610.
[2] Includes soil boring 608-SB02 used to evaluate potential PFAS in soil from Hangar 618.
[3] Includes soil borings 646-SB02, 646-SB03, 618-SB02, 608-SB02, and 610-SB01 used to evaluate potential PFAS in soil from the Apron.
[4] Includes monitoring wells 646-MW01, 618-MW01, 608-MW01, 610-MW-01, and 644-MW01 used to evaluate potential PFAS in groundwater from the Apron.
[5] Monitoring wells BBW-MW01, OF1-MW01, OF3-MW01, OF4-MW01, and APN-MW01 are located at the base boundary and were used to characterize potential PFAS in groundwater at the base boundary and to evaluate off-base migration. Analytical results for these wells are included in the PRL-specific discussions, and in **Section 5.14**.

Appendix C:
Field Documentation

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Appendix C-1:
Boring Logs and Well Construction Diagrams

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Boring Log

Project Name: ANGB PFAS	Site: IRP Site 1 Fire Training Area	**Hole ID: HC-FTA-MW01**
Project Number: 60520893	*Northing:* 1131501.84	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 950394.50	Date / Time Started: 4/17/2018 / 1000
Driller: R.Buley	Elevation (feet MSL): *Ground:* 397.47	Date / Time Finished: 4/17/2018 / 1005
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 5.0	Date / Time Completed: 4/19/2018 / 1000
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 385 ft NNE of the NE corner of the building located at 6900 Thompson Rd; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium dense, moist, dark brown, with gravel		OL		DP	NA		1000		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	SAND WITH CLAY, medium dense, moist, brown, coarse grained sand, some gravel		SP-SM							Soil sample HC-FTA-SB01-01 was collected from 0 to 1ft bgs @ 1000 and analyzed for PFCs by EPA Method 537
	CLAY, stiff, moist, grayish brown		CL				0.3			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 3.3ft bgs
5	wet	▼			DP	NA				Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 3.3 to 13.3ft bgs
	grading to medium soft						0.6			Soil sample HC-FTA-SB01-45 was collected from 4 to 5ft bgs @ 1005 and analyzed for PFCs by EPA Method 537
10	grading to reddish brown				DP	NA	0.5	1005		Groundwater sample HC-FTA-MW01 was collected @ 1620 and analyzed for PFCs by EPA Method 537, screen interval shown
15	Total Depth 15ft bgs									Insitu backfill from 13.3 to 15ft bgs
20										

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Boring Log

Project Name: ANGB PFAS	Site: IRP Site 1 Fire Training Area	**Hole ID: HC-FTA-MW02**
Project Number: 60520893	*Northing:* 1131595.14	Total Depth (feet): 16.4
Drilling Contractor: Cascade Drilling	*Easting:* 950394.36	Date / Time Started: 4/17/2018 / 1050
Driller: R.Buley	Elevation (feet MSL): *Ground:* 398.56	Date / Time Finished: 4/17/2018 / 1100
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 6.0	Date / Time Completed: 4/19/2018 / 1020
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 475 ft NNE of the NE corner of the building located at 6900 Thompson Rd; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
	TOPSOIL, medium dense, moist, dark brown, sandy, trace gravel		OL		DP	NA		1050		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	SILT, medium stiff, moist, reddish brown		ML							Soil sample HC-FTA-SB02-01 was collected from 0 to 1ft bgs @ 1100 and analyzed for PFCs by EPA Method 537
	CLAYEY SILT, medium stiff, moist, reddish brown, trace gravel, some organic material		ML-CL				0.4			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 6.35ft bgs
	CLAY, stiff, moist, reddish brown		CL							Soil sample HC-FTA-SB02-45 was collected from 4 to 5ft bgs @ 1105 and analyzed for PFCs by EPA Method 537
5					DP	NA	1.0			
	wet, grading to medium soft	▼								
	pocket of dark gray						30			Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 6.35 to 16.35ft bgs
	grading to soft, reddish brown									
10	grading to very soft				DP	NA				Groundwater sample HC-FTA-MW02 was collected @ 1600 and analyzed for PFCs by EPA Method 537, screen interval shown
	grading to medium soft, reddish tan						0.5			
15	not logged				DP	NA		1100		Boring drilled and logged to 15ft bgs, well installed to 16.35ft bgs, no log from 15 to 16.35ft bgs
	Total Depth 16.35ft bgs									
20										

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Boring Log

Project Name: ANGB PFAS	Site: IRP Site 1 Fire Training Area	**Hole ID: HC-FTA-MW03**
Project Number: 60520893	*Northing:* 1131426.30	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 950427.97	Date / Time Started: 4/17/2018 / 0900
Driller: R.Buley	Elevation (feet MSL): *Ground:* 396.68	Date / Time Finished: 4/17/2018 / 0915
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 5.0	Date / Time Completed: 4/19/2018 / 1040
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 320 ft NNE of the NE corner of the building located at 6900 Thompson Rd; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium dense, moist, dark brown, gravel, organic material		OL		DP	NA		0900		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	SANDY GRAVEL, medium dense, moist, reddish brown		GW							Soil samples HC-FTA-SB03-01 and HC-FTA-SB03-01D were collected from 0 to 1ft bgs @ 0915 and analyzed for PFCs by EPA Method 537
	CLAY WITH SILT, stiff, moist, grayish brown, some organic material		CL				0.0			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 4.31ft bgs
	CLAY, stiff, moist, reddish brown with gray mottling		CL							Soil sample HC-FTA-SB03-45 was collected from 4 to 5ft bgs @ 0920 and analyzed for PFCs by EPA Method 537
5	wet, grading to stiff to medium stiff, reddish brown	▼			DP	NA				Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 4.31 to 14.31ft bgs
	grading to medium soft						0.0			
10	grading to soft to very soft				DP	NA				Groundwater samples HC-FTA-MW03 and HC-FTA-MW03D were collected @ 1645 and analyzed for PFCs by EPA Method 537, screen interval shown
							0.0			
15	Total Depth 15ft bgs							0915		Insitu backfill from 14.31 to 15ft bgs
20										

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Boring Log

Project Name: ANGB PFAS	Site: Building 644 (Current Fire Station)	**Hole ID: HC-644-MW01**
Project Number: 60520893	*Northing:* 1130745.17	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 947976.65	Date / Time Started: 4/18/2018 / 1410
Driller: R.Buley	Elevation (feet MSL): *Ground:* 409.28	Date / Time Finished: 4/18/2018 / 1420
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 5.0	Date / Time Completed: 4/19/2018 / 1100
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 73 ft SSE of SE corner of Bldg 644; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium dense, moist, dark brown, sandy		OL		DP	NA		1410		Well completed with a flush mount 8-inch steel manhole in a concrete pad Soil sample HC-644-SB01-01 was collected from 0 to 1ft bgs @ 1420 and analyzed for PFCs by EPA Method 537 Bentonite seal installed below concrete pad to the top of the pre-packed screen at 3.44ft bgs Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 3.44 to 13.44ft bgs Soil sample HC-644-SB01-45 was collected from 4 to 5ft bgs @ 1425 and analyzed for PFCs by EPA Method 537
	SAND, medium dense, moist, reddish brown with layers of dark brown, medium grained sand, trace gravel		SW							
5	wet				DP	NA				
	SAND, medium loose, wet, reddish brown, dark brown and gray layers, medium grained sand		SP							
	SILTY CLAY, medium soft, reddish brown grading to medium stiff		CL-ML							
10	SILTY SAND, loose, wet, reddish brown		SM		DP	NA				Groundwater sample HC-644-MW01 was collected @ 1200 and analyzed for PFCs by EPA Method 537, screen interval shown
										Insitu backfill from 13.44 to 15ft bgs
15	CLAY plug Total Depth 15ft bgs							1420		
20										

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Boring Log

Project Name: ANGB PFAS	Site: Building 644 (Current Fire Station)	**Hole ID: HC-644-SB02**
Project Number: 60520893	*Northing:* 1130811.47	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 947984.32	Date / Time Started: 4/18/2018 / 1340
Driller: R.Buley	Elevation (feet MSL): *Ground:* 408.70	Date / Time Finished: 4/18/2018 / 1350
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 40 ft E of SE corner of Bldg 644; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium dense, moist, brown, sandy		OL		DP	NA		1340	Soil samples HC-644-SB02-01 and HC-644-SB02-01D were collected from 0 to 1ft bgs @ 1350 and analyzed for PFCs by EPA Method 537
	SAND WITH GRAVEL, medium dense, moist, reddish brown, coarse grained gravel		SW						
	CLAYEY SAND, medium dense, moist, reddish brown		SC				0.0		
	grading to dark brown								
	SAND, medium dense, wet, grayish tan, fine grained sand, with very dark brown lens		SP						Soil sample HC-644-SB02-45 was collected from 4 to 5ft bgs @ 1355 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs							1350	
10									

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Boring Log

Project Name: ANGB PFAS	Site: Building 644 (Current Fire Station)	**Hole ID: HC-644-SB03**
Project Number: 60520893	*Northing:* 1130774.95	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 947873.25	Date / Time Started: 4/18/2018 / 1300
Driller: R.Buley	Elevation (feet MSL): *Ground:* 409.44	Date / Time Finished: 4/18/2018 / 1315
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 40 ft SSE of SW corner of Bldg 644; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium dense, moist, dark brown, sandy with gravel and trace clay		OL		DP	NA		1300	Soil sample HC-644-SB03-01 was collected from 0 to 1ft bgs @ 1325 and analyzed for PFCs by EPA Method 537
	SAND WITH GRAVEL, medium dense, moist, reddish brown		SW				0.0		
	SAND WITH GRAVEL and CLAYEY SAND		SW-SC						Soil sample HC-644-SB03-45 was collected from 4 to 5ft bgs @ 1330 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs					NA		1315	

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Boring Log

Project Name: ANGB PFAS	Site: Former Building 608 (Former Fire Station	**Hole ID: HC-608-MW01**
Project Number: 60520893	*Northing:* 1130831.26	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948833.48	Date / Time Started: 4/12/2018 / 1140
Driller: R.Buley	Elevation (feet MSL): *Ground:* 400.78	Date / Time Finished: 4/12/2018 / 1145
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 6.5	Date / Time Completed: 4/13/2018 / 1300
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 32 ft E of SE corner of Bldg 608; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium stiff, moist, brown, silty, with coarse grained gravel, organic material		OL		DP	NA		1140		Well completed with a flush mount 8-inch steel manhole in a concrete pad Soil sample HC-608-SB01-01 was collected from 0 to 1ft bgs @ 1145 and analyzed for PFCs by EPA Method 537 Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.4ft bgs Pre-packed ten slot, 2in 10ft Schedule 40 PVC screens installed from 2.4 to 12.4ft bgs Soil sample HC-608-SB01-45 was collected from 4 to 5ft bgs @ 1150 and analyzed for PFCs by EPA Method 537
	GRAVELLY SAND, medium loose, dry		SW							
	CLAY WITH GRAVEL, stiff, moist, reddish brown, coarse grained gravel		CL							
5	CLAY WITH SILT, medium loose, wet, reddish brown, trace fine grained gravel		CL		DP	NA				
	SILTY CLAY, medium stiff, wet, reddish brown		CL-ML							
10	grading to with trace gravel no gravel				DP	NA		1145		Groundwater sample HC-608-MW01 was collected @ 0825 and analyzed for PFCs by EPA Method 537, screen interval shown Insitu backfill from 12.4 to 15ft bgs
15	Total Depth 15ft bgs									
20										

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Boring Log

Project Name: ANGB PFAS	Site: Former Building 608 (Former Fire Station	**Hole ID: HC-608-SB02**
Project Number: 60520893	*Northing:* 1130958.16	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948823.94	Date / Time Started: 4/12/2018 / 1110
Driller: R.Buley	Elevation (feet MSL): *Ground:* 399.55	Date / Time Finished: 4/12/2018 / 1115
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 57 ft ENE of NE corner of Bldg 608; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	SAND, loose, dry, gray, corase grained sand with gravel, trace organic material at surface		SP		DP	NA		1110	Soil samples HC-608-SB02-01 and HC-608-SB02-01D were collected from 0 to 1ft bgs @ 1115 and analyzed for PFCs by EPA Method 537
	ASPHALT		NA						
	SAND, loose, dry, gray, corase grained sand with gravel		SP						
	CLAY WITH SAND, medium stiff, moist, reddish brown		CL						
	CLAY, medium stiff, moist, dark brownish gray		CL						Soil sample HC-608-SB02-45 was collected from 4 to 5ft bgs @ 1120 and analyzed for PFCs by EPA Method 537
5								1115	
	Total Depth 5ft bgs								

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 610	**Hole ID: HC-610-MW01**
Project Number: 60520893	*Northing:* 1130969.90	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948460.61	Date / Time Started: 4/13/2018 / 0825
Driller: R.Buley	Elevation (feet MSL): *Ground:* 403.22	Date / Time Finished: 4/13/2018 / 0920
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 6.5	Date / Time Completed: 4/13/2018 / 1100
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 100 ft E of NW corner and 15 ft N of N facing side of Hangar (Bldg 610); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	ASPHALT and SUBGRADE		NA		DP	NA		0825		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	GRAVELLY SAND, dense, dry, reddish brown		SP							Soil sample HC-610-SB01-12 was collected from 1 to 2ft bgs @ 0830 and analyzed for PFCs by EPA Method 537
	SILTY SAND, medium dense, moist, dark grayish brown, trace gravel		SM							
	CLAYEY SAND, medium dense, moist, reddish brown, trace gravel		SC						▽	Bentonite seal installed below concrete pad to the top of the pre-packed screen at 4.33ft bgs
5	no gravel				DP	NA				Pre-packed ten slot, 2in 10ft Schedule 40 PVC screens installed from 4.33 to 14.33ft bgs
	CLAY, medium stiff, moist, reddish brown, trace gravel		CL							
	wet									
	grading to medium soft									
	grading to medium stiff									PID readings consistently >100ppm likely due to humidity (raining)
10	SANDY CLAY, soft, wet, reddish brown, with gravel		CL		DP	NA				Groundwater sample HC-610-MW01 was collected @ 1435 and analyzed for PFCs by EPA Method 537, screen interval shown
	SILTY CLAY, medium stiff, wet, reddish brown		CL-ML							
15	Total Depth 15ft bgs							0920		Soil sample HC-610-SB01-1415 was collected from 14 to 15ft bgs @ 0835 and analyzed for PFCs by EPA Method 537; the lower soil sample was collected at this depth due to nearby structure
										Insitu backfill from 14.33 to 15ft bgs
20										

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 610	**Hole ID: HC-610-SB02**
Project Number: 60520893	*Northing:* 1130853.30	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948376.25	Date / Time Started: 4/13/2018 / 1000
Driller: R.Buley	Elevation (feet MSL): *Ground:* 404.16	Date / Time Finished: 4/13/2018 / 1015
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 5 ft W of W facing wall and 88ft S of NW corner of of Hangar (Bldg 610); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium loose, moist, dark brown, clayey, with gravel		OL		DP	NA		1000	Soil sample HC-610-SB02-01 was collected from 0 to 1ft bgs @ 1015 and analyzed for PFCs by EPA Method 537
	GRAVEL, medium dense, moist, dark gray, with coarse grained sand		GW						
	SILTY SAND, medium dense, moist, reddish brown, trace gravel		SM				0.0		
	grading to with clay, no gravel							1015	Soil sample HC-610-SB02-45 was collected from 4 to 5ft bgs @ 1020 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs								
10									

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 610	**Hole ID: HC-610-SB03**
Project Number: 60520893	*Northing:* 1130877.80	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948614.52	Date / Time Started: 4/13/2018 / 0750
Driller: R.Buley	Elevation (feet MSL): *Ground:* 402.75	Date / Time Finished: 4/13/2018 / 0755
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 20 ft E of E facing wall and 78ft S of NEcorner of of Hangar (Bldg 610); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium stiff, moist, dark brown, silty, trace gravel		OL		DP	NA		0750	Soil sample HC-610-SB03-01 was collected from 0 to 1ft bgs @ 0750 and analyzed for PFCs by EPA Method 537
	SAND, medium dense, moist, reddish brown, fine grained sand, trace gravel		SP						
	CLAY, medium stiff, moist, reddish brown		CL						
	SILTY SAND, medium dense, moist, reddish brown		Sm						
	SILTY CLAY, stiff, moist, reddish brown		CL-ML					0755	Soil samples HC-610-SB03-45, HC-610-SB03-45MS and HC-610-SB03-45MSD were collected from 4 to 5ft bgs @ 0800 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs								
10									

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Boring Log

Sheet *1* of *1*

Project Name: ANGB PFAS	Site: Hangar 618	**Hole ID: HC-618-MW01**
Project Number: 60520893	*Northing:* 1130794.75	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948956.13	Date / Time Started: 4/12/2018 / 1300
Driller: R.Buley	Elevation (feet MSL): *Ground:* 400.19	Date / Time Finished: 4/12/2018 / 1315
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: 4/13/2018 / 1215
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 80 ft SE of SW corner of Bldg 618; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium stiff, moist, dark brown, clayey		OL		DP	NA		1300		Well completed with a flush mount 8-inch steel manhole in a concrete pad Soil sample HC-618-SB01-01 was collected from 0 to 1ft bgs @ 1345 and analyzed for PFCs by EPA Method 537 Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.45ft bgs Pre-packed ten slot, 2in 10ft Schedule 40 PVC screens installed from 2.45 to 12.45ft bgs Soil sample HC-618-SB01-45 was collected from 4 to 5ft bgs @ 1355 and analyzed for PFCs by EPA Method 537 PID readings consistently >100ppm likely due to humidity (raining)
	CLAY, medium stiff, moist, reddish brown		CL							
	wet									
5	grading to soft, brown				DP	NA				
	grading to medium stiff									
10	grading to loose				DP	NA				Groundwater sample HC-618-MW01 was collected @ 0850 and analyzed for PFCs by EPA Method 537, screen interval shown
	grading to medium stiff									Insitu backfill from 12.45 to 15ft bgs
15	Total Depth 15ft bgs							1315		
20										

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 618	**Hole ID: HC-618-SB02**
Project Number: 60520893	*Northing:* 1130937.93	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 949060.73	Date / Time Started: 4/12/2018 / 1025
Driller: R.Buley	Elevation (feet MSL): *Ground:* 399.66	Date / Time Finished: 4/12/2018 / 1030
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 28 ft ESE of NE corner of Bldg 618; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium dense, moist, dark brown, clayey, organic material		OL		DP	NA		1025	Soil samples HC-618-SB02-01, HC-618-SB02-01MS and HC-618-SB02-01MS were collected from 0 to 1ft bgs @ 1045 and analyzed for PFCs by EPA Method 537
	CLAYEY SILT, medium stiff, moist, reddish brown, trace sand		ML-CL				9.6		
5	Total Depth 5ft bgs							1030	Soil sample HC-618-SB02-45 was collected from 4 to 5ft bgs @ 1055 and analyzed for PFCs by EPA Method 537
10									

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 646	**Hole ID: HC-646-MW01**
Project Number: 60520893	*Northing:* 1131547.18	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948260.35	Date / Time Started: 4/11/2018 / 0759
Driller: R.Buley	Elevation (feet MSL): *Ground:* 402.33	Date / Time Finished: 4/11/2018 / 0830
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: 4/11/2018 / 1330
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 90 ft NE of the NW corner of the Hangar (Bldg 646); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	ASPHALT		NA		DP	NA		0759		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	SILTY SAND, medium loose, dry, reddish brown, with coarse grained gravel		SM							Soil sample HC-646-SB01-01 was collected from 0 to 1ft bgs @ 0820 and analyzed for PFCs by EPA Method 537
	SILTY CLAY, medium stiff, moist, brown, with trace gravel		CL-ML				0.0			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.45ft bgs
	wet, grading to trace silt, no sand									Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.45 to 12.45ft bgs
5	CLAY, medium soft, wet, brown		CL		DP	NA				
							0.0			
	grading to reddish brown									
10	grading to soft, brown				DP	NA				Groundwater sample HC-646-MW01 was collected @ 0945 and analyzed for PFCs by EPA Method 537, screen interval shown
										Soil sample HC-646-SB01-1314 was collected from 13 to 14ft bgs @ 0830 and analyzed for PFCs by EPA Method 537; the lower soil sample was collected at this depth due to nearby structure
15								0830		Insitu backfill from 12.45 to 15ft bgs
20										

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 646	**Hole ID: HC-646-SB02**
Project Number: 60520893	*Northing:* 1131424.71	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948399.11	Date / Time Started: 4/9/2018 / 1225
Driller: R.Buley	Elevation (feet MSL): *Ground:* 401.23	Date / Time Finished: 4/9/2018 / 1230
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 42 ft E of the SE corner of the Hangar (Bldg 646); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	CLAY, medium stiff, moist, brown, trace medium grained sand, organic material at surface		CL		DP	NA	0.0	1225	Soil sample HC-646-SB02-01 was collected from 0 to 1ft bgs @ 1230 and analyzed for PFCs by EPA Method 537
	wet, grading to trace silt, no sand							1230	Soil samples HC-646-SB02-45 and HC-646-SB02-01D were collected from 4 to 5ft bgs @ 1235 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs								
10									

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Boring Log

Project Name: ANGB PFAS	Site: Hangar 646	**Hole ID: HC-646-SB03**
Project Number: 60520893	*Northing:* 1131416.05	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948180.97	Date / Time Started: 4/12/2018 / 0850
Driller: R.Buley	Elevation (feet MSL): *Ground:* 401.49	Date / Time Finished: 4/12/2018 / 0915
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 10 ft W of the SW corner of the Hangar (Bldg 646); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium loose, moist, brown, trace coarse grained gravel, organic material		OL		DP	NA		0850	Soil sample HC-646-SB03-01 was collected from 0 to 1ft bgs @ 0905 and analyzed for PFCs by EPA Method 537
	CLAY, medium stiff, dry, light brown, trace gravel		CL						
	grading to grayish brown, trace silt, no gravel								petroleum-like odor Background PID 0.7ppm
	wet, grading to light brown								Soil sample HC-646-SB03-45 was collected from 4 to 5ft bgs @ 0910 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs							0915	

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Boring Log

Project Name: ANGB PFAS	Site: Building 620 (Vehicle Maintenance)	**Hole ID: HC-620-MW01**
Project Number: 60520893	*Northing:* 1130528.52	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948747.38	Date / Time Started: 4/17/2018 / 0815
Driller: R.Buley	Elevation (feet MSL): *Ground:* 401.15	Date / Time Finished: 4/17/2018 / 0820
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: 4/19/2018 / 0930
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 32 ft SE of the SE corner of Bldg 620; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
	ASPHALT and SUBGRADE, loose, dry, gray		NA		DP	NA		0815		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	SANDY GRAVEL WITH SILT, medium dense, moist, brown and reddish brown,		GW-GM							Soil sample HC-620-SB01-01 was collected from 0 to 1ft bgs @ 0820 and analyzed for PFCs by EPA Method 537
	SAND WITH SILT, medium dense, wet, reddish brown		SW-SM							Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.41ft bgs
	SILTY CLAY, medium stiff, moist, reddish brown wet		CL-ML							Pre-packed ten slot, 2in 10ft Schedule 40 PVC screens installed from 2.41 to 12.41ft bgs
5	CLAY WITH SAND, medium stiff, wet, reddish brown		CL		DP	NA				Soil sample HC-620-SB01-45 was collected from 4 to 5ft bgs @ 0825 and analyzed for PFCs by EPA Method 537
	CLAY, stiff, wet, reddish brown grading to medium soft grading to soft, brown		CL							
10					DP	NA				Groundwater sample HC-620-MW01 was collected @ 0930 and analyzed for PFCs by EPA Method 537, screen interval shown
										Insitu backfill from 12.41 to 15ft bgs
15	Total Depth 15ft bgs							0820		
20										

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Boring Log

Project Name: ANGB PFAS	Site: Building 620 (Vehicle Maintenance)	**Hole ID: HC-620-SB02**
Project Number: 60520893	*Northing:* 1130601.89	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948766.69	Date / Time Started: 4/17/2018 / 0800
Driller: R.Buley	Elevation (feet MSL): *Ground:* 400.76	Date / Time Finished: 4/17/2018 / 0805
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 68 ft NE of the SE corner of Bldg 620; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	ASPHALT and SUBGRADE, medium loose, dry, gray		NA		DP	NA		0800	Soil sample HC-620-SB02-01 was collected from 0 to 1ft bgs @ 0800 and analyzed for PFCs by EPA Method 537
	GRAVELLY SAND, medium dense, dry, grayish red		SW						
	SANDY CLAY, stiff, moist, reddish brown, trace course grained gravel		CL						Soil sample HC-620-SB02-45 was collected from 4 to 5ft bgs @ 0805 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs							0805	

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Boring Log

Project Name: ANGB PFAS	Site: Building 620 (Vehicle Maintenance)	**Hole ID: HC-620-SB03**
Project Number: 60520893	*Northing:* 1130671.01	Total Depth (feet): 5.0
Drilling Contractor: Cascade Drilling	*Easting:* 948634.06	Date / Time Started: 4/17/2018 / 0745
Driller: R.Buley	Elevation (feet MSL): *Ground:* 401.70	Date / Time Finished: 4/17/2018 / 0755
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): not observed	Date / Time Completed: NA
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 15 ft NW of the NW corner of Bldg 620; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Remarks (list sample numbers here)
	TOPSOIL, medium dense, moist, brown, with gravel, organic material		OL		DP	NA		0745	Soil sample HC-620-SB03-01 was collected from 0 to 1ft bgs @ 0750 and analyzed for PFCs by EPA Method 537
	GRAVEL WITH CLAY, medium dense, moist, grayish brown, coarse grained gravel		GC						
	SAND WITH CLAY, medium dense, moist, reddish brown		SP-SC						Soil sample HC-620-SB03-45 was collected from 4 to 5ft bgs @ 0755 and analyzed for PFCs by EPA Method 537
5	Total Depth 5ft bgs							0755	
10									

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Boring Log

Project Name: ANGB PFAS	Site: Apron	**Hole ID: HC-APN-MW01**
Project Number: 60520893	*Northing:* 1131721.72	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 947398.91	Date / Time Started: 4/11/2018 / 1030
Driller: R.Buley	Elevation (feet MSL): *Ground:* 404.63	Date / Time Finished: 4/11/2018 / 1120
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: 4/11/2018 / 1430
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located on the N side of the APRON, approximately 820 ft WNW of the NW corner of the Hangar (Bldg 646); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium dense, moist, brown, trace gravel, organic material		OL		DP	NA		1030		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	GRAVEL WITH SILT, medium dense, moist, reddish brown, fine to coarse grained gravel		GW-GM							Soil sample HC-APN-SB01-01 was collected from 0 to 1ft bgs @ 1100 and analyzed for PFCs by EPA Method 537
	SILTY CLAY, medium stiff, moist, reddish brown, trace gravel		CL-ML				0.0			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.42ft bgs
	wet	▼								Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.42 to 12.42ft bgs
5	CLAYEY SILT, soft, wet, brown, trace gravel		ML-CL		DP	NA				Soil sample HC-APN-SB01-45 was collected from 4 to 5ft bgs @ 1110 and analyzed for PFCs by EPA Method 537
	SILTY SAND, medium loose, wet, reddish brown, fine grained sand, with clay		SM				0.0			
10					DP	NA				Groundwater sample HC-APN-MW01 was collected @ 0750 and analyzed for PFCs by EPA Method 537, screen interval shown
	grading to brown, no clay						0.0			
15	Total Depth 15ft bgs							1120		Insitu backfill from 12.42 to 15ft bgs
20										

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Boring Log

Project Name: ANGB PFAS	Site: Apron	**Hole ID: HC-APN-MW02**
Project Number: 60520893	*Northing:* 1131361.86	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948958.69	Date / Time Started: 4/12/2018 / 0925
Driller: R.Buley	Elevation (feet MSL): *Ground:* 396.93	Date / Time Finished: 4/12/2018 / 1000
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 5.0	Date / Time Completed: 4/13/2018 / 1325
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 422 ft NE of NE corner of Bldg 618 and 605 ft E of the Hangar (Bldg 646); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
	TOPSOIL, medium stiff, moist, brown, clayey, trace gravel, organic material		OL		DP	NA		0925		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	CLAY WITH SILT, medium soft, dry, brown, trace gravel		CL							Soil sample HC-APN-SB02-01 was collected from 0 to 1ft bgs @ 0930 and analyzed for PFCs by EPA Method 537
	CLAY, medium stiff, moist, reddish brown, trace gravel		CL				1.0			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.5ft bgs
5	wet, grading to soft, brown				DP	NA				Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.5 to 12.5ft bgs
	grading to medium stiff, reddish brown, trace silt						1.1			Soil sample HC-APN-SB02-45 was collected from 4 to 5ft bgs @ 0940 and analyzed for PFCs by EPA Method 537
	SILTY CLAY, medium stiff, wet, reddish brown and gray		CL-ML							
10	no recovery				DP	NA				no recovery
										Groundwater sample HC-APN-MW02 was collected @ 1400 and analyzed for PFCs by EPA Method 537, screen interval shown
										Insitu backfill from 12.5 to 15ft bgs
15	Total Depth 15ft bgs							1000		
20										

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Boring Log

Project Name: ANGB PFAS	Site: Apron	**Hole ID: HC-APN-MW03**
Project Number: 60520893	*Northing:* 1130996.20	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 947339.56	Date / Time Started: 4/12/2018 / 0730
Driller: R.Buley	Elevation (feet MSL): *Ground:* 410.21	Date / Time Finished: 4/12/2018 / 830
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 3.0	Date / Time Completed: 4/13/2018 / 1345
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located on the S side of the APRON, approximately 5200 ft WNW of the NW corner Bldg 644; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
	TOPSOIL, medium dense, moist, brown, sandy, organic material		OL		DP	NA		0730		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	CLAYEY SILT, medium stiff, moist, brownish tan		ML-CL							Soil sample HC-APN-SB03-01 was collected from 0 to 1ft bgs @ 0755 and analyzed for PFCs by EPA Method 537
	SILTY SAND, medium dense, moist, reddish brown		SM							Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.48ft bgs
	SILTY CLAY, medium soft, wet, reddish brown, trace sand		CL-ML							Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.48 to 12.48ft bgs
5	SAND WITH SILT, medium loose, wet, brown, fine to medium grained sand		SW-SM		DP	NA				Soil samples HC-APN-SB03-45 and HC-APN-SB03-01D were collected from 4 to 5ft bgs @ 0805 and analyzed for PFCs by EPA Method 537
	CLAYEY SILT, medium stiff, wet, brown, with sand		ML-CL				4.5			
	SILTY CLAY, medium soft, wet, brown		CL-ML							
10	SANDY CLAY, medium loose, wet, grayish brown		CL		DP	NA				Groundwater sample HC-APN-MW03 was collected @ 0815 and analyzed for PFCs by EPA Method 537, screen interval shown
	SILTY CLAY, soft, wet, light brown, trace sand		CL-ML							
	grading to medium stiff, grayish brown						8.0			
	grading to reddish brown									
								0830		Insitu backfill from 12.48 to 15ft bgs
15	Total Depth 15ft bgs									
20										

Tracking Codes: C:\USERS\LARSENE1\DOCUMENTS\0_PROJECTS\AIR NATIONAL GUARD\ANGB PFAS\0 GINT\ANGB PFAS_ERP\MS.GPJ, 6/22/18, 11:51

AECOM

Boring Log

Project Name: ANGB PFAS	Site: Apron	**Hole ID: HC-APN-MW04**
Project Number: 60520893	*Northing:* 1130992.37	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 946870.01	Date / Time Started: 4/18/2018 / 1045
Driller: R.Buley	Elevation (feet MSL): *Ground:* 410.96	Date / Time Finished: 4/18/2018 / 1100
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 6.0	Date / Time Completed: 4/19/2018 / 1230
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located on the S side of the APRON, approximately 980 ft WNW of the NW corner Bldg 644; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium dense, moist, brown, with gravel, organic material		OL		DP	NA		1045		Well completed with a flush mount 8-inch steel manhole in a concrete pad Soil sample HC-APN-SB04-01 was collected from 0 to 1ft bgs @ 1110 and analyzed for PFCs by EPA Method 537 Bentonite seal installed below concrete pad to the top of the pre-packed screen at 3.41ft bgs Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 3.41 to 13.41ft bgs Soil sample HC-APN-SB04-45 was collected from 4 to 5ft bgs @ 1115 and analyzed for PFCs by EPA Method 537
	SILT WITH SAND, medium stiff, moist, reddish brown, fine grained sand		ML							
	SAND, medium dense, moist, reddish brown, fine grained sand, trace gravel		SP							
5					DP	NA				
	SILTY SAND, medium loose, wet, reddish brown		SM							
10					DP	NA				Groundwater samples HC-APN-MW04 and HC-APN-MW04D were collected @ 1115 and analyzed for PFCs by EPA Method 537, screen interval shown
	SILTY SAND WITH GRAVEL, very loose, wet, reddish brown		SM							
	CLAY, medium soft, wet, reddish brown		CL							
	grading to very soft, reddish gray							1100		Insitu backfill from 13.41 to 15ft bgs
15	Total Depth 15ft bgs									
20										

Tracking Codes: C:\USERS\LARSENE1\DOCUMENTS\0_PROJECTS\AIR NATIONAL GUARD\ANGB PFAS\0 GINT\ANGB PFAS_ERP\MS.GPJ, 6/22/18, 11:51

AECOM

Boring Log

Project Name: ANGB PFAS	Site: ANG-1 (Outfall 001)	**Hole ID: HC-OF1-MW01**
Project Number: 60520893	*Northing:* 1129585.57	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948173.93	Date / Time Started: 4/18/2018 / 0930
Driller: R.Buley	Elevation (feet MSL): *Ground:* 394.23	Date / Time Finished: 4/18/2018 / 1030
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 3.0	Date / Time Completed: 4/19/2018 / 1215
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located on N side of acces road, approximately 305 ft WSW of Installation Entry Gate off E Molloy Rd; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
	TOPSOIL, medium stiff, moist, dark brown, trace coarse grained gravel, organic material		OL		DP	NA		0930		Well completed with a flush mount 8-inch steel manhole in a concrete pad Soil sample HC-OF1-SB01-01 was collected from 0 to 1ft bgs @ 1000 and analyzed for PFCs by EPA Method 537 Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.44ft bgs Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.44 to 12.44ft bgs Soil sample HC-OF1-SB01-45 was collected from 4 to 5ft bgs @ 1005 and analyzed for PFCs by EPA Method 537
	CLAY WITH SILT, medium stiff, moist, light brown		CL							
	SILTY CLAY, medium stiff, wet, light brown		CL-ML							
5	GRAVELLY CLAY, medium stiff, wet, grayish brown, trace organic material		CL		DP	NA				
	CLAY, medium stiff, wet, grayish brown grading to medium soft		CL							
10	GRAVELLY CLAY, soft, wet, reddish brown, with sand		CL		DP	NA				Groundwater sample HC-OF1-MW01 was collected @ 1005 and analyzed for PFCs by EPA Method 537, screen interval shown
	SILTY CLAY, soft, wet, reddish brown		CL-ML							Insitu backfill from 12.44 to 15ft bgs
15	Total Depth 15ft bgs							1030		
20										

Tracking Codes: C:\USERS\LARSENE1\DOCUMENTS\0_PROJECTS\AIR NATIONAL GUARD\ANGB PFAS\0 GINT\ANGB PFAS_ERP\MS.GPJ, 6/22/18, 11:51

AECOM

Boring Log

Project Name: ANGB PFAS	Site: ANG-3 (Outfall 003)	**Hole ID: HC-OF3-MW01**
Project Number: 60520893	*Northing:* 1131743.14	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 951559.58	Date / Time Started: 4/17/2018 / 1330
Driller: R.Buley	Elevation (feet MSL): *Ground:* 384.83	Date / Time Finished: 4/17/2018 / 1340
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 6.0	Date / Time Completed: 4/19/2018 / 1144
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located adjacent to culvert on south side of Thompson Rd approximately 790 ft SSW of the end of the ## Runway; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
	CLAYEY SILT, medium stiff, moist, brown, trace organic material		ML-CL		DP	NA		1330		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	grading to reddish brown, with coarse grained gravel						0.3			Soil samples HC-OF3-SB01-01 and HC-OF3-SB01-01D were collected from 0 to 1ft bgs @ 1340 and analyzed for PFCs by EPA Method 537
	CLAYEY SAND, medium dense, moist, dark gray, fine grained sand, trace organic material		SC							Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.38ft bgs
5	SILTY SAND, medium loose, moist, dark brown, fine grained sand		SM		DP	NA				Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.38 to 12.38ft bgs
	wet, grading to brown									Soil sample HC-OF3-SB01-45 was collected from 4 to 5ft bgs @ 1345 and analyzed for PFCs by EPA Method 537
	SAND, medium dense, wet, dark brown, fine grained sand		SP							
	CLAY, stiff, wet, tan, trace fine grained sand		CL							
10	SAND, medium loose, wet, dark brown, fine grained sand		SP		DP	NA	2.9			Groundwater sample HC-OF3-MW01 was collected @ 1715 and analyzed for PFCs by EPA Method 537, screen interval shown
	CLAY WITH SILT, medium stiff, wet, tan		CL							Insitu backfill from 12.38 to 15ft bgs
15	Total Depth 15ft bgs							1340		
20										

Tracking Codes: C:\USERS\LARSENE1\DOCUMENTS\0_PROJECTS\AIR NATIONAL GUARD\ANGB PFAS\0 GINT\ANGB PFAS_ERP\MS.GPJ, 6/22/18, 11:51

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Boring Log

Project Name: ANGB PFAS	Site: ANG-4 (Outfall 004)	**Hole ID: HC-OF4-MW01**
Project Number: 60520893	*Northing:* 1129872.74	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 949435.21	Date / Time Started: 4/18/2018 / 0850
Driller: R.Buley	Elevation (feet MSL): *Ground:* 391.32	Date / Time Finished: 4/18/2018 / 0900
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 4.0	Date / Time Completed: 4/19/2018 / 1200
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 265 ft NNE of the intersection of E Molloy Rd and fairway Drive; Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium stiff, moist, dark brown, clayey with sand, organic material		OL		DP	NA		0850		Well completed with a flush mount 8-inch steel manhole in a concrete pad Soil samples HC-OF4-SB01-01, HC-OF4-SB01-01MS and HC-OF4-SB01-01MSD were collected from 0 to 1ft bgs @ 0850 and analyzed for PFCs by EPA Method 537 Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.46ft bgs Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.46 to 12.46ft bgs Soil sample HC-OF4-SB01-45 was collected from 4 to 5ft bgs @ 0855 and analyzed for PFCs by EPA Method 537
	SILTY CLAY, medium stiff, moist, reddish brown, trace organic material wet, no organic material		CL-ML							
	SAND, medium loose, wet, reddish brown, fine grained sand, trace silt		SP							
5	grading to loose, no silt				DP	NA				
10	grading to medium loose				DP	NA				Groundwater sample HC-OF4-MW01 was collected @ 1035 and analyzed for PFCs by EPA Method 537, screen interval shown
								0900		Insitu backfill from 12.46 to 15ft bgs
15	Total Depth 15ft bgs									
20										

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Boring Log

Project Name: ANGB PFAS	Site: Base Boundary Wells	**Hole ID: HC-BBW-01**
Project Number: 60520893	*Northing:* 1131902.57	Total Depth (feet): 15.0
Drilling Contractor: Cascade Drilling	*Easting:* 948246.96	Date / Time Started: 4/11/2018 / 0945
Driller: R.Buley	Elevation (feet MSL): *Ground:* 399.06	Date / Time Finished: 4/11/2018 / 1000
Drilling Equipment: Geoprobe 7720	▼ Water Depth During Drilling (ft bgs): 3.0	Date / Time Completed: 4/11/2018 / 1400
Drilling Method: Direct Push	Logged By: M.Oneill	Checked By: E.Larsen 5/14/2018
Borehole Diameter (inches): 2	Weather/Comments: Located approximately 400 ft NNW of the NE corner of the Hangar (Bldg 646); Vertical Datum based on NAVD 1988	

Depth (feet)	USCS Description	Log: Graphic	Log: USCS or Rock Type	Samples: Attempted Recovered	Samples: Method	Samples: Blow Count	Samples: PID (ppm)	Samples: Time	Well Diagram	Remarks (list sample numbers here)
0	TOPSOIL, medium dense, moist, brownish orange, with silty clay and organic material		OL		DP	NA		0945		Well completed with a flush mount 8-inch steel manhole in a concrete pad
	grading to medium loose, dark brown									Soil sample HC-BBW-SB01-01 was collected from 0 to 1ft bgs @ 0940 and analyzed for PFCs by EPA Method 537
	SILTY SAND, medium dense, moist, reddish brown, fine grained sand, trace gravel		SM				0.0			Bentonite seal installed below concrete pad to the top of the pre-packed screen at 2.42ft bgs
	SILTY CLAY, soft, wet, brown, trace sand		CL-ML							Pre-packed, ten slot, 2in, 10ft, Schedule 40 PVC screens installed from 2.42 to 12.42ft bgs
5	grading to medium soft				DP	NA				Soil sample HC-BBW-SB01-45 was collected from 4 to 5ft bgs @ 1000 and analyzed for PFCs by EPA Method 537
	grading to medium stiff									
	CLAY, stiff, wet, grayish brown, trace silt		CL				0.			
10	no recovery				DP	NA				no recovery from 10 - 15ft bgs, assume same lithology
										Groundwater samples HC-BBW-01, HC-BBW-01 MS and HC-BBW-01 MSD were collected @ 1105 and analyzed for PFCs by EPA Method 537, screen interval shown
										Insitu backfill from 12.42 to 15ft bgs
15	Total Depth 15ft bgs							1000		
20										

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Appendix C-2: Well Development Records and Sampling Forms

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: FTA-MW01

Client: Hancock ANGB

Project No: _____ Date: 4/24/18 Developer: RM

Site Location: Syracuse NY

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description - Geology at Screen Interval (if known) N/A

Depth to Top of Screen (ft.) 3.30

Depth to Bottom of Screen (ft.) 13.30 Time of Water Level Measurement 1055

Total Well Depth (ft.) 13.30 Calculate Purge Volume (gal.) 1.15

Depth to Static Water Level (ft.) 6.22 Disposal Method Drum

Headspace -

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24

DEVELOPMENT METHOD waterra

PURGE METHOD

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. Cond
1100	0	-	230	clear	6.87	7.71	-4.1	0.577
1115	1.6	-	Limit	BR	7.54	8.11	18.2	0.567

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required 3.45 gallons

Maximum Turbidity Allowed _____ NTUs

Stabilization of parameters _____ %

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Has parameters stabilized	☐	☐	☐

If no or N/A explain below:

purged dry after 1.2 gallons, 1.3, 1.4, 5.1 liters

Signature _____ Date: 4/24/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: FTA-MW02

Client: Haucock

Project No: _____ Date: 4/24/18 Developer: RM

Site Location: Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description		Geology at Screen Interval (if known)	
Depth to Top of Screen (ft.)	6.34		
Depth to Bottom of Screen (ft.)	16.34	Time of Water Level Measurement	1035
Total Well Depth (ft.)	16.34	Calculate Purge Volume (gal.)	1.56
Depth to Static Water Level (ft.)	6.80	Disposal Method	Drum
		Headspace	-

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. cond
1046	0	-	Limit	BR	6.65	9.36	-42.7	0.646
1055	3	-	Limit	BR	6.77	9.34	-14.5	0.575

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 4.6 gallons
Maximum Turbidity Allowed 10 NTUs
Stabilization of parameters ____%

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☐	☐
Has parameters stabilized	☐	☐	☑

If no or N/A explain below:
purged dry after 2 gallons. 2.1, 2.2, 2.3, 3.0

Signature _____ Date: 4/24/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: FTA-MW03

Client: Hover

Project No: _____ Date: 4/24/18 Developer: RM

Site Location: Syracuse NY

Well/Piezometer Data

Well ☐ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description - Geology at Screen Interval (if known) _____

Depth to Top of Screen (ft.) 4.30

Depth to Bottom of Screen (ft.) 14.30 Time of Water Level Measurement 1010

Total Well Depth (ft.) 14.30 Calculate Purge Volume (gal.) 1.38

Depth to Static Water Level (ft.) 5.85 Disposal Method _____

Headspace _____

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24/18

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other sp. cond
1012	0	-	Limit	Tan	6.81	9.51	-14.9	0.650

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 4.13 gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____ %

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☑	☐

If no or N/A explain below:
well purged dry 6 times, slow recharge

Signature _____ Date: 4/24/18

Purged dry after 1.5 gallons, let well recharge

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: 644-MW01

Client: Hancock

Project No: _____ Date: 4/24 Developer: RM

Site Location: Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description – Geology at Screen Interval (if known) N/A

Depth to Top of Screen (ft.) 3.44

Depth to Bottom of Screen (ft.) 13.44 Time of Water Level Measurement 1223

Total Well Depth (ft.) 13.44 Calculate Purge Volume (gal.) 1.6

Depth to Static Water Level (ft.) 3.48 Disposal Method Drum

Headspace –

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24/14

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other sp cond
1230	0	–	Limit	BR	7.27	7.91	-131.2	1.375
1245	2.4	–	Limit	BR	7.44	7.60	-17.4	1.881
1300	2.4	–	Limit	BR				

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required 5.0 gallons

Maximum Turbidity Allowed 10 NTUs

Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Has parameters stabilized	☐	☐	☐

If no or N/A explain below:

purged dry after 2 gal, 2.1, 2.2, 2.2 gal (3rd time)

Signature _____ Date: 4/24

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: 608-MW01

Client: Haucock

Project No: _____ Date: 4/23/18 Developer: RM

Site Location: Haucock ANG Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description	_____	Geology at Screen Interval (if known)	_____
Depth to Top of Screen (ft.)	2.40		
Depth to Bottom of Screen (ft.)	12.40	Time of Water Level Measurement	1230
Total Well Depth (ft.)	12.40	Calculate Purge Volume (gal.)	1.19
Depth to Static Water Level (ft.)	5.07 7.33	Disposal Method	Drum
		Headspace	-

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/23

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other sp. cond
1253	0	-	6062	LBR	7.23	11.49	104.7	0.379
1258	2.0	-	Limit	LBR	7.80	9.39	72.9	0.370
1306	2.2	-	Limit	LBR	7.90	10.50	94.4	0.376

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 3.6 gallons
Maximum Turbidity Allowed 10 NTUs
Stabilization of parameters ____%

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☐	☑
Has parameters stabilized	☐	☐	☑

If no or N/A explain below:
Well purged dry 6 times, slow recharge.

Purged dry after ~2 gallons, 2.1 gallons, 2.3 gallons, 2.35, slow recharge

Signature _____ Date: 4/23/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: 610-MW01

Client: Hancock

Project No: _____ Date: 4/23/15 Developer: RM

Site Location: Syracuse, NY

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description _____ Geology at Screen Interval (if known) N/A

Depth to Top of Screen (ft.) 4.30

Depth to Bottom of Screen (ft.) 14.30 Time of Water Level Measurement 1230

Total Well Depth (ft.) 14.30 Calculate Purge Volume (gal.) 1.80

Depth to Static Water Level (ft.) 3.23 / 11.07 Disposal Method Drum

Headspace –

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/27

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. cond
1334	0	–	Limit	Brn	7.11	8.69	40.5	0.429
1352	2	–	Limit	Brn	7.74	8.79	87.7	0.591
1410	2.2	–	Limit	Brn	7.23	8.22	71.1	0.392

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required 5.4 gallons

Maximum Turbidity Allowed 10 NTUs

Stabilization of parameters ____%

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☐	☐
Has parameters stabilized	☐	☑	☐

Purged dry after 1 gallon

If no or N/A explain below:

Well purged dry 6 times. No sampling.

Signature _____ Date: 4/27/15

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: 618-MW01

Client: Hancock

Project No: _____ Date: 4/24/18 Developer: RM

Site Location: Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material pvc

Measuring Point Description	-	Geology at Screen Interval (if known)	
Depth to Top of Screen (ft.)	2.40		
Depth to Bottom of Screen (ft.)	12.40	Time of Water Level Measurement	800
Total Well Depth (ft.)	12.40	Calculate Purge Volume (gal.)	1.28
Depth to Static Water Level (ft.)	4.55 / 7.25	Disposal Method	Drum
		Headspace	-

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24/18

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. cond
804	0	-	Limit	BR	7.76	7.85	211.5	0.314
810	1.5	-	Limit	BR	7.64	7.85	176.5	0.325

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 3.8 gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____ %

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☑	☐

If no or N/A explain below:
well purged dry several times

Signature _____ Date: 4/24/18

Purged dry after 1.5 gallons, 1.6, 1.8, 2 gallons

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: 646-MW61

Client: Hancock

Project No: _____ Date: 4/23/18 Developer: RM

Site Location: Hancock ANG

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description		Geology at Screen Interval (if known)	
Depth to Top of Screen (ft.)			
Depth to Bottom of Screen (ft.)	12.40	Time of Water Level Measurement	
Total Well Depth (ft.)	12.40	Calculate Purge Volume (gal.)	1.64
Depth to Static Water Level (ft.)	2.35 10.05	Disposal Method	On-Site Drum
		Headspace	-

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/23

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	Other
9:33	1	-	limit	B	7.16	8.69	Purged dry after ~2.5 gal, 2.70, 2.90, 3.0
9:38	2.5	-	Limit	BR	7.59	8.18	
9:48	3.0	-	Limit	BR	7.46	7.66	
10:10	3.2	-	Limit	BR	8.99	7.53	

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required _____ gallons
Maximum Turbidity Allowed 10 NTUs
Stabilization of parameters _____ %

	Yes	No	N/A
Has required volume been removed	☑	☐	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☑	☐

If no or N/A explain below:
Well purged dry, purged dry 6 times, still not clear

Signature _____ Date: 4/23/18

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AECOM

Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: 620-MW01

Client: Hancock

Project No: _____ Date: 4/24/18 Developer: ZM

Site Location: Syracuse, NY

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description _____ Geology at Screen Interval (if known) N/A

Depth to Top of Screen (ft.) 2.39

Depth to Bottom of Screen (ft.) 12.39 Time of Water Level Measurement 828

Total Well Depth (ft.) 12.38 Calculate Purge Volume (gal.) 1.24

Depth to Static Water Level (ft.) 4.86 / 7.58 Disposal Method Drum

Headspace _____

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24/18

DEVELOPMENT METHOD waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. cond
830	0	-	Limit	BR	7.21	9.12	66.9	1.776
835	1.5	-	Limit	BR	7.17	9.41	60.1	1.800
845	1.7	-	Limit	L.BR	7.24	9.62	57.3	2.058

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required 3.2 gallons

Maximum Turbidity Allowed 10 NTUs

Stabilization of parameters ____%

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☐	☐

If no or N/A explain below:

well purged dry after 1.5 gal, purged dry 6 times

Signature _____ Date: 4/24/18

purged dry after 1.5 gal

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: APN-MW01

Client: Hancock

Project No: _____ Date: 4/23/18 Developer: RM

Site Location: Hancock ANGS

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description _____ Geology at Screen Interval (if known) n/a

Depth to Top of Screen (ft.) 2.42

Depth to Bottom of Screen (ft.) 12.42 Time of Water Level Measurement _____

Total Well Depth (ft.) 12.42 Calculate Purge Volume (gal.) 1.4

Depth to Static Water Level (ft.) 3.80 / 8.62 Disposal Method Drum

Headspace -

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/23/18

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. cond
1040	0	-	Limit	BR	7.47	12.39	3.1	0.384
1045	2.5	-	Limit	BR	7.37	7.63	-22.4	0.351
1050	3.5	-	Limit	BR	7.27	7.12	-55.5	0.314
1055	6.0	-	508	Cl	7.26	7.50	-67.1	0.282
1100	8.0	-	250	Cl	7.29	7.00	-66.3	0.290
1105	10.0	-	174	Cl	7.23	7.11	-63.2	0.271
1110	11.5	-	160	Cl	7.22	7.08	-62.1	0.268

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required 4.2 gallons
Maximum Turbidity Allowed 10 NTUs
Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	☑	☐	☐
Has required turbidity been reached	☑	☐	☐
Has parameters stabilized	☑	☐	☐

If no or N/A explain below: _____

Signature _____ Date: 4/23/18

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AECOM

Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: APNSB02

Client: Hancock

Project No: _____ Date: 4/23/18 Developer: Josh Cesario

Site Location: Hancock ~~National~~ Air National Guard

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2 in Material PVC

Measuring Point Description		Geology at Screen Interval (if known)	
Depth to Top of Screen (ft.)	2.50		
Depth to Bottom of Screen (ft.)	12.50	Time of Water Level Measurement	
Total Well Depth (ft.)	12.50	Calculate Purge Volume (gal.)	2 gal
Depth to Static Water Level (ft.)	0.2	Disposal Method	
		Headspace	

Original Well Development ☑ Redevelopment ☐ Date of Original Development _____

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	~~Other~~ ORP
13:24	2		limit	B	8.07	13.43	40.5
13:41	3.5			— DRY —			
14:07	4		limit	B	8.26	13.33	110.6
14:20	4.5			— DRY —			

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required _____ gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____ %

	Yes	No	N/A
Has required volume been removed	☐	☑	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☑	☐

If no or N/A explain below: Purged dry

Signature _____ Date: 4/23/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: APN-MW03

Client: Hancock

Project No: _____ Date: 4/23/18 Developer: RM

Site Location: Hancock ANG Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description		Geology at Screen Interval (if known)	
Depth to Top of Screen (ft.)	2.44		
Depth to Bottom of Screen (ft.)	12.44	Time of Water Level Measurement	1115
Total Well Depth (ft.)	12.44	Calculate Purge Volume (gal.)	0.60
Depth to Static Water Level (ft.)	8.74 3.7	Disposal Method	Drum
		Headspace	-

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/23/18

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other sp. cond
1125	0	-	Limit	BR	7.42	10.03	39.2	0.273
1200	2	-	Limit	BR	7.53	10.08	91.4	0.301

Purged dry after ~1.5 gal, 2 gal

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 1.8 gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____ %

	Yes	No	N/A
Has required volume been removed	☑	☐	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☑	☐

If no or N/A explain below:
Well purged dry ~6 times

Signature _____ Date: 4/23/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: APN-MW04

Client: Hancock

Project No: _____ Date: 4/24/13 Developer: RM

Site Location: Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description	–	Geology at Screen Interval (if known)	–
Depth to Top of Screen (ft.)	3.40		
Depth to Bottom of Screen (ft.)	13.40	Time of Water Level Measurement	1200
Total Well Depth (ft.)	13.40	Calculate Purge Volume (gal.)	1.1
Depth to Static Water Level (ft.)	6.60	Disposal Method	DRUM
		Headspace	–

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24

DEVELOPMENT METHOD waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. cond
1203	0	–	680	Tan	7.66	8.14	-95.5	0.405
1220	2.0	–	Limit	Tan	7.78	9.16	-10.2	0.368

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 3.3 gallons
Maximum Turbidity Allowed 14 NTUs
Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	☐	☐	☐
Has required turbidity been reached	☐	☐	☐
Has parameters stabilized	☐	☐	☐

If no or N/A explain below:
Purged dry after 1.5 gal, 1.6, 1.8, 2.0

Signature _____ Date: 4/24/13

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: OF1-MW01

Client: Honeoye

Project No: _____ Date: 4/24/18 Developer: RM

Site Location: Syracuse

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description		Geology at Screen Interval (if known)	—
Depth to Top of Screen (ft.)	2.40		
Depth to Bottom of Screen (ft.)	12.40	Time of Water Level Measurement	1130
Total Well Depth (ft.)	12.40	Calculate Purge Volume (gal.)	1.67
Depth to Static Water Level (ft.)	2.14	Disposal Method	
		Headspace	

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24/

DEVELOPMENT METHOD Variable

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp Cond
1130	0	-	Limit	BR	7.26	9.05	0.05	0.850
1133	2.5	-	Limit	BR	7.12	7.22	-46.3	0.792
1136	5.0	-	Limit	BR	7.14	6.51	-46.6	0.783
1140	7.5	-	Limit	BR	7.08	6.40	-57.4	0.738
1145	10.0	-	Limit	BR	7.07	6.54	-70.3	0.816
1150	12.5	-	Limit	BR	7.15	6.36	-61.4	0.802
1155	15	-	Limit	BR	7.14	6.32	-66.3	0.802

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 98 gallons
Maximum Turbidity Allowed 10 NTUs
Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	☑	☐	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☑	☐	☐

If no or N/A explain below:
Still Turbid after Max 10 WVs

Signature _____ Date: 4/24/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: OF3-MW01

Client: Hancock

Project No: _____ Date: 4/24 Developer: RCM

Site Location: Syracuse, NY

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description - Geology at Screen Interval (if known) _____

Depth to Top of Screen (ft.) 2.34

Depth to Bottom of Screen (ft.) 12.34 Time of Water Level Measurement 935

Total Well Depth (ft.) 12.34 Calculate Purge Volume (gal.) 1.54

Depth to Static Water Level (ft.) 2.85 Disposal Method Drum

Headspace -

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp. Cond
938	0	-	Limit	DK BR	7.54	8.93	-85.1	0.680
943	2.5	-	Limit	BR	7.44	8.27	-23.0	0.588
948	5.0	-	Limit	BR	7.56	8.12	-1.0	0.545
955	10.0	-	Limit	BR	7.60	8.09	11.7	0.550
1005	15.0	-	Limit	BR	7.60	8.04	11.4	0.549

ACCEPTANCE CRITERIA (from workplan)
Minimum Purge Volume Required 4.6 gallons
Maximum Turbidity Allowed _____NTUs
Stabilization of parameters _____%

	Yes	No	N/A
Has required volume been removed	☑	☐	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☑	☐	☐

If no or N/A explain below:
Turbidity remained high even after 10 well volumes

Signature _____ Date: 4/24/18

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Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: OF4-MW01

Client: Hancock

Project No: _____ Date: 4/24/18 Developer: RM

Site Location: Syracuse NY

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2" Material PVC

Measuring Point Description _____ Geology at Screen Interval (if known) _____

Depth to Top of Screen (ft.) 2.48

Depth to Bottom of Screen (ft.) 12.40 Time of Water Level Measurement 855

Total Well Depth (ft.) 12.40 Calculate Purge Volume (gal.) 1.7

Depth to Static Water Level (ft.) 1.80 Disposal Method Drum

Headspace -

Original Well Development ☑ Redevelopment ☐ Date of Original Development 4/24

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	ORP	Other Sp.cond
900	0	-	Limit	BR	7.33	7.76	101.1	1.242
905	1.5	-	Limit	BR	7.18	7.00	113.2	1.823
910	5.0	-	~~1000~~ 823	L. BR	7.22	6.72	129.3	1.993
915	8.0	-	538	L BR	7.22	6.70	121.3	1.997
920	10.0	-	424	L BR	7.20	6.69	115.2	1.999
925	13.0	-	329	clear	7.13	6.76	117.1	2.103
930	17.0	-	290	clear	7.10	6.71	113.9	2.115

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required 5.2 gallons ✓
Maximum Turbidity Allowed 10 NTUs
Stabilization of parameters 10 % ✓

	Yes	No	N/A
Has required volume been removed	☑	☐	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☑	☐	☐

If no or N/A explain below:
Reached Max 10 well volumes, clear, but still above 10 NTU. parameters stable

Signature _____ Date: 4/24/18

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AECOM

Attachment 1
Well Development Record

Well/Piezometer Development Record

Well ID: BBW-01

Client: Hancock

Project No: _____ Date: 4/23/18 Developer: Josh Casano

Site Location: Hancock Air National Guard

Well/Piezometer Data

Well ☑ Piezometer ☐ Diameter 2in Material PVC

Measuring Point Description	_____	Geology at Screen Interval (if known)	_____
Depth to Top of Screen (ft.)	2.40		
Depth to Bottom of Screen (ft.)	12.40	Time of Water Level Measurement	_____
Total Well Depth (ft.)	12.40	Calculate Purge Volume (gal.)	1.67gal
Depth to Static Water Level (ft.)	2.15 / 10.25	Disposal Method	_____
		Headspace	_____

Original Well Development ☑ Redevelopment ☐ Date of Original Development _____

DEVELOPMENT METHOD Waterra

PURGE METHOD _____

Time	Total Volume Purged (gal.)	Flow Rate (gpm)	Turbidity (NTU)	Color	pH	Temp	Other
10:28	1.7		limit	B	7.79	11.15	~~DRY @ 10:30 3gal~~
10:50	3.7		limit	B	7.58	8.75	
11:08	5.7		limit	B	7.26	9.34	
11:16	7.7		limit	B	7.36	8.92	
11:31	9.7		limit	B	7.26	9.57	
11:54	12		limit	B	7.31	8.80	
12:01	14		limit	B	7.11	9.05	

ACCEPTANCE CRITERIA (from workplan)

Minimum Purge Volume Required _____ gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____%

	Yes	No	N/A
Has required volume been removed	☐	☒	☐
Has required turbidity been reached	☐	☑	☐
Has parameters stabilized	☐	☑	☐

If no or N/A explain below:
Purged dry

Signature _____ Date: 4/23/18

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Project: Hancock ANGB 60520893				Date: 5/9/18	
Location: Syracuse, New York				Weather: Sunny, 75°	
Field Personnel: Ross McCredy					
Well ID	**Sample ID**	**DTW**	**DTB**	**QA/QC**	**Notes**
APN-MW01	Hc-APN-MW01	3.95	12.42	~~EB~~ EB/FB	5/9/18 750 Hc-FB-050918 Hc-EB-050918 *
APN-MW02	Hc-APN-MW02	1.22	12.50	Hc-FB-050918 Hc-EB-050918	FB/EB 5/9/18 1400 *
APN-MW03	Hc-APN-MW03	9.12	12.48	NO	5/10/18 815
APN-MW04	Hc-APN-MW04	6.90	13.41	Hc-APN-D	5/10/18 1115 DUP *
OF1-MW01	HC-OF1-MW01	3.12	12.44	No	5/10/18 1005
OF3-MW01	Hc-OF3-MW01	3.06	12.38	NO	5/9/18 1715
OF4-MW01	Hc-OF4-MW01	~~3.66~~ 2.14	12.46	NO	5/10/18 1035
FTA-MW01	Hc-FTA-MW01	7.65	13.30	~~Hc-FTA-D~~ NO	5/9/18 1620
FTA-MW02	Hc-FTA-MW02	7.43	16.35	~~Hc-FTA-D~~ NO	5/9/18 1600
FTA-MW03	Hc-FTA-MW03	6.58	14.31	Hc-FTA-D	5/9/18 1645 DUP *
BBW-01	HC-BBW-01	2.25	12.46	MS/MSD	5/9 1105 MS/MSD *
TU019-MW001	Hc-TU019-MW001	3.25	19.70	NO	5/9/18 1021
608-MW01	Hc-608-MW01	5.55	12.40	NO	5/9/18 825
610-MW01	Hc-610-MW01	3.25	14.33	NO	5/9/18 1435
618-MW01	Hc-618-MW01	5.53	12.45	NO	5/9/18 850
620-MW01	HC-620-MW01	5.15	12.41	NO	5/9/18 930
644-MW01	Hc-644-MW01	3.50	13.44	NO	5/10/18 1200
646-MW01	HC-646-MW01	2.60	12.45	NO	5/9/18 945 * Sampled by Weston

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: FTA-MW01 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-FTA-MW01 QA/QC Collected? ~~YES~~ NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	13.30	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	7.65	feet
4. C = Column of Water in Well:	5.65	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	0.92	gal
6. 3(V) = Target Purge Volume	2.76	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1535	1540	1545	1550	1555		
Water Level (0.33)	feet	8.45	9.10	10.10	11.12	12.24		
Volume Purged	gal	0	0.2	0.50	0.75	1.00		
Flow Rate	mL/min	<100	<100	150	150	150		
Turbidity (+/- 10%)	NTU	Limit	Limit	264.0	38.7			
Dissolved Oxygen (+/- 10%)	%	5.0	2.5	1.5	2.0	2.4		
Dissolved Oxygen (+/- 10%)	mg/L	0.57	0.27	0.17	0.23	0.27		
Eh / ORP (+/- 10)	MeV	-51.5	-40.0	-12.5	-16.2	-16.9		
Specific Conductivity (+/- 3%)	mS/cm[c]	0.755	0.740	0.737	0.743	0.740		
Conductivity (+/- 3%)	mS/cm	0.569	0.551	0.533	0.529	0.524		
pH (+/- 0.1)	pH unit	7.36	7.08	6.46	6.46	6.46		
Temp (+/- 0.5)	C°	11.90	11.61	10.54	9.98	9.67		
Color	Visual	BR	BR	Tan	clear	clear		
Odor	Olfactory	NO	NO	NO	NO	NO		

Comments: Sampled @ 1620

Well purged dry after 1 gallon, waited for well to recharge & then collected sample

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: FTA-MW02 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-FTA-MW02 QA/QC Collected? [redacted] No

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	16.35	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	7.43	feet
4. C = Column of Water in Well:	8.92	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.45	gal
6. 3(V) = Target Purge Volume	4.36	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1450	1455	1500	1515	1520		
Water Level (0.33)	feet	8.60	8.57	8.60	*12.30	14.60		
Volume Purged	gal	0	0.2	0.40	0.60	1.8		
Flow Rate	mL/min	<100	<100	<100	<100	250		
Turbidity (+/- 10%)	NTU	23.9	21.0	Limit	Limit	Limit		
Dissolved Oxygen (+/- 10%)	%	13.4	17.4	18.1	2.1	6.1		
Dissolved Oxygen (+/- 10%)	mg/L	1.52	1.51	1.82	2.21	0.69		
Eh / ORP (+/- 10)	MeV	-24.0	-14.6	-18.1	-40.9	-28.2		
Specific Conductivity (+/- 3%)	mS/cm[c]	0.749	0.738	0.740	0.824	0.815		
Conductivity (+/- 3%)	mS/cm	0.531	0.524	0.524	0.594	0.578		
pH (+/- 0.1)	pH unit	6.67	6.42	6.40	6.23	6.30		
Temp (+/- 0.5)	C°	9.74	9.82	9.88	10.51	9.84		
Color	Visual	clear	clear	Mud	Mud	Mud		
Odor	Olfactory	No	No	No	No	No		

Comments: Well purged dry after 2 gallons, very Muddy, waited & returned to collect Sample

Sampled @ 1600

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: FTA-MW03 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-FTA-MW03 QA/QC Collected? ~~FB~~ HC-FTA-D

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	14.31	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	6.58	feet
4. C = Column of Water in Well:	7.73	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.26	gal
6. 3(V) = Target Purge Volume	3.78	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings					
Time	24 hr	1620	1625	1630	1635	1640	1645
Water Level (0.33)	feet	7.10	7.65	8.35	8.80	8.82	8.84
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.00
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	57.0	61.2	60.9	60.3	60.1	62.2
Dissolved Oxygen (+/- 10%)	%	34.4	12.3	11.8	11.7	11.9	11.8
Dissolved Oxygen (+/- 10%)	mg/L	4.01	1.36	1.32	1.31	1.54	1.35
Eh / ORP (+/- 10)	MeV	32.8	54.8	67.4	70.1	71.4	71.9
Specific Conductivity (+/- 3%)	mS/cm^c	0.773	0.764	0.762	0.762	0.761	0.761
Conductivity (+/- 3%)	mS/cm	0.562	0.557	0.548	0.546	0.543	0.544
pH (+/- 0.1)	pH unit	7.32	6.79	6.49	6.46	6.46	6.74
Temp (+/- 0.5)	C°	10.87	10.77	10.32	10.19	9.98	9.97
Color	Visual	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No

Comments: Sampled @ 1645

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 44 - MW01 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: Hc-44-MW01 QA/QC Collected? NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	13.44	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	3.50	feet
4. C = Column of Water in Well:	9.94	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.62	gal
6. 3(V) = Target Purge Volume	4.86	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1135	1140	1145	1150	1155	1200	
Water Level (0.33)	feet	4.46	4.65	4.92	5.20	5.22	5.27	
Volume Purged	gal	0	0.2	0.40	0.60	0.80	1.0	
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100	
Turbidity (+/- 10%)	NTU	30.4	24.1	16.3	12.6	11.3	10.8	
Dissolved Oxygen (+/- 10%)	%	6.2	3.8	3.3	3.0	3.0	2.7	
Dissolved Oxygen (+/- 10%)	mg/L	0.64	0.43	0.37	0.33	0.33	0.30	
Eh / ORP (+/- 10)	MeV	93.7	91.2	85.7	82.0	81.1	81.1	
Specific Conductivity (+/- 3%)	mS/cm^c	1.929	1.985	2.021	2.034	2.032	2.029	
Conductivity (+/- 3%)	mS/cm	1.380	1.431	1.458	1.466	1.467	1.465	
pH (+/- 0.1)	pH unit	7.32	7.18	7.15	7.15	7.14	7.14	
Temp (+/- 0.5)	C°	10.10	10.59	10.43	10.38	10.43	10.43	
Color	Visual	clear	clear	clear	clear	clear	clear	
Odor	Olfactory	No	No	No	No	No	No	

Comments:

Sampled @ 1200

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 608-MW01 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: HC-608-MW01 QA/QC Collected? No

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.40	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	5.55	feet
4. C = Column of Water in Well:	6.85	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.12	gal
6. 3(V) = Target Purge Volume	3.35	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	805	810	815	820	825		
Water Level (0.33)	feet	6.08	6.63	6.86	6.88	6.90		
Volume Purged	gal	0	0.15	0.30	0.45	0.60		
Flow Rate	mL/min	<100	<100	<100	<100	<100		
Turbidity (+/- 10%)	NTU	18.4	8.68	8.70	4.13	4.11		
Dissolved Oxygen (+/- 10%)	%	59.9	54.2	51.2	49.1	49.0		
Dissolved Oxygen (+/- 10%)	mg/L	6.65	6.04	5.68	5.44	5.42		
Eh / ORP (+/- 10)	MeV	12.4	42.2	55.1	57.6	56.4		
Specific Conductivity (+/- 3%)	mS/cm^c	0.824	0.834	0.843	0.843	0.847		
Conductivity (+/- 3%)	mS/cm	0.601	0.602	0.611	0.616	0.617		
pH (+/- 0.1)	pH unit	7.17	6.91	6.69	6.72	6.74		
Temp (+/- 0.5)	C°	10.84	10.45	10.64	10.74	10.75		
Color	Visual	clear	clear	clear	clear	clear		
Odor	Olfactory	No	No	No	No	No		

Comments: Sampled @ 825

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 610-MW01 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-610-MW01 QA/QC Collected? NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	14.33	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	3.25	feet
4. C = Column of Water in Well:	11.08	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.80	gal
6. 3(V) = Target Purge Volume	5.41	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1410	1415	1420	1425	1430	1435	
Water Level (0.33)	feet	3.86	4.35	4.45	5.20	5.24	5.26	
Volume Purged	gal	0	0.2	0.4	0.6	0.80	1.00	
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100	
Turbidity (+/- 10%)	NTU	3.66	3.06	1.39	1.21	1.27	1.51	
Dissolved Oxygen (+/- 10%)	%	20.9	6.2	5.6	5.5	5.8	5.8	
Dissolved Oxygen (+/- 10%)	mg/L	2.42	0.69	0.62	0.61	0.65	0.64	
Eh / ORP (+/- 10)	MeV	73.0	82.6	84.0	83.5	83.0	83.1	
Specific Conductivity (+/- 3%)	mS/cm[c]	0.814	0.816	0.816	0.817	0.817	0.817	
Conductivity (+/- 3%)	mS/cm	0.593	0.595	0.589	0.590	0.588	0.589	
pH (+/- 0.1)	pH unit	7.17	6.80	6.70	6.68	6.65	6.65	
Temp (+/- 0.5)	C°	10.82	10.87	10.44	10.50	10.33	10.38	
Color	Visual	clear	clear	clear	clear	clear	clear	
Odor	Olfactory	NO	NO	NO	NO	NO	NO	

Comments: Sampled @ 1435

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 618-MW01 Date: 5/10/10

Samplers: Ross McCredy

Sample Number: HC-618-MW01 QA/QC Collected? NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.49	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	5.53	feet
4. C = Column of Water in Well:	6.97	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.13	gal
6. 3(V) = Target Purge Volume	3.4	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	830	835	840	845	850		
Water Level (0.33)	feet	6.15	6.65	7.02	7.08	7.10		
Volume Purged	gal	0	0.2	0.40	0.60	0.80		
Flow Rate	mL/min	<100	<100	<100	<100	<100		
Turbidity (+/- 10%)	NTU	9.14	17.3	18.2	16.1	18.2		
Dissolved Oxygen (+/- 10%)	%	69.3	61.2	55.8	54.9	54.1		
Dissolved Oxygen (+/- 10%)	mg/L	7.81	6.99	6.35	6.21	6.20		
Eh / ORP (+/- 10)	MeV	42.1	86.1	89.7	85.1	90.0		
Specific Conductivity (+/- 3%)	mS/cm[c]	0.537	0.526	0.516	0.515	0.517		
Conductivity (+/- 3%)	mS/cm	0.386	0.370	0.364	0.363	0.364		
pH (+/- 0.1)	pH unit	7.60	6.72	6.61	6.69	6.79		
Temp (+/- 0.5)	C°	10.31	9.53	9.57	9.56	9.64		
Color	Visual	clear	clear	clear	clear	clear		
Odor	Olfactory	NO	NO	NO	NO	NO		

Comments: Sampled @ 850

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 646-MW01 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: ~~646-MW01-050918~~ 1fc-646-mw01 QA/QC Collected? * Sampled by Weston *

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.45	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	2.60	feet
4. C = Column of Water in Well:	9.85	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.60	gal
6. 3(V) = Target Purge Volume	4.80	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

537 Modified

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	905	910	915	920	925	930	935
Water Level (0.33)	feet	3.20	3.60	3.90	4.40	4.80	5.37	5.70
Volume Purged	gal	0	0.25	0.50	0.70	0.80	1.00	1.15
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	8.34	10.3	13.3	32.7	24.0	79.7	78.4
Dissolved Oxygen (+/- 10%)	%	7.1	5.9	6.6	5.0	6.0	13.0	9.7
Dissolved Oxygen (+/- 10%)	mg/L	0.80	0.63	0.71	0.55	0.65	1.40	1.06
Eh / ORP (+/- 10)	MeV	8.5	7.6	-18.5	-16.6	-20.2	-24.5	-27.5
Specific Conductivity (+/- 3%)	mS/cm^c	0.766	0.760	0.751	0.733	0.723	0.724	0.726
Conductivity (+/- 3%)	mS/cm	0.561	0.559	0.559	0.541	0.536	0.538	0.536
pH (+/- 0.1)	pH unit	7.12	6.76	6.98	6.87	6.94	6.96	6.89
Temp (+/- 0.5)	C°	11.01	11.11	11.60	11.30	11.43	11.56	11.41
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	No	No	No	No	No	No	No

Comments: Sampled @ 945

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 646-MW01 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-646-MW01 QA/QC Collected? -

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	(See prev)	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:		feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	940	945					
Water Level (0.33)	feet	5.78	5.81					
Volume Purged	gal	1.40	1.55					
Flow Rate	mL/min	<100	<100					
Turbidity (+/- 10%)	NTU	77.2	76.3					
Dissolved Oxygen (+/- 10%)	%	9.4	9.3					
Dissolved Oxygen (+/- 10%)	mg/L	1.11	1.08					
Eh / ORP (+/- 10)	MeV	-25.3	-19.8					
Specific Conductivity (+/- 3%)	mS/cm[c]	0.722	0.710					
Conductivity (+/- 3%)	mS/cm	0.526	0.522					
pH (+/- 0.1)	pH unit	6.83	6.75					
Temp (+/- 0.5)	C°	10.76	10.73					
Color	Visual	clear	clear					
Odor	Olfactory	NO	No					

Comments:

Sampled @ 945

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: TU019-MW001 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-TU019-MW001 QA/QC Collected? No

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	19.70	feet
2. D = Riser Diameter (I.D.):	017	feet
3. W = Depth to Water:	3.25	feet
4. C = Column of Water in Well:	16.45	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	2.67	gal
6. 3(V) = Target Purge Volume	8.03	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1001	1006	1011	1016	1021		
Water Level (0.33)	feet	4.28	4.40	4.60	4.60	4.61		
Volume Purged	gal	0.0	0.25	0.40	0.60	0.80		
Flow Rate	mL/min	<100	<100	<100	<100	<100		
Turbidity (+/- 10%)	NTU	113	106	91.7	88.1	86.2		
Dissolved Oxygen (+/- 10%)	%	27.3	12.4	7.7	7.4	7.1		
Dissolved Oxygen (+/- 10%)	mg/L	2.96	1.32	0.84	0.80	0.74		
Eh / ORP (+/- 10)	MeV	-59.3	-56.0	-57.9	-63.7	-65.9		
Specific Conductivity (+/- 3%)	mS/cm^c	0.783	0.771	0.780	0.781	0.781		
Conductivity (+/- 3%)	mS/cm	0.600	0.591	0.591	0.597	0.595		
pH (+/- 0.1)	pH unit	7.29	7.14	7.06	7.06	7.05		
Temp (+/- 0.5)	C°	12.77	12.46	12.63	12.65	12.60		
Color	Visual	or Floc	SAME	clear	clear	clear		
Odor	Olfactory	NO	NO	NO	NO	NO		

Comments: Sampled @ 1021

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: 620-MW01 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: HC-620-MW01 QA/QC Collected? NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.42	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	5.15	feet
4. C = Column of Water in Well:	7.27	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.19	gal
6. 3(V) = Target Purge Volume	3.56	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	900	905	910	915	920	925	930
Water Level (0.33)	feet	5.78	6.50	6.90	7.70	8.00	8.02	8.08
Volume Purged	gal	0	0.2	0.45	0.75	1.00	1.20	1.50
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	21.4	11.8	10.7	27.6	26.7	24.1	23.8
Dissolved Oxygen (+/- 10%)	%	18.0	14.2	14.4	12.4	13.2	13.8	13.2
Dissolved Oxygen (+/- 10%)	mg/L	1.98	1.52	1.54	1.32	1.38	1.42	1.41
Eh / ORP (+/- 10)	MeV	83.5	77.3	74.2	69.0	65.7	64.5	63.6
Specific Conductivity (+/- 3%)	mS/cm[c]	2.400	2.598	2.641	2.710	2.742	2.774	2.784
Conductivity (+/- 3%)	mS/cm	1.801	1.952	1.983	2.038	2.070	2.086	2.104
pH (+/- 0.1)	pH unit	7.31	7.13	7.08	7.09	7.10	7.10	7.09
Temp (+/- 0.5)	C°	12.10	12.00	11.96	12.03	12.16	12.03	12.22
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 930

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: APN-MW01 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: HC-APN-MW01 QA/QC Collected? No

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.42	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	3.95	feet
4. C = Column of Water in Well:	8.47	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.38	gal
6. 3(V) = Target Purge Volume	4.14	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	735	740	745	750			
Water Level (0.33)	feet	4.02	4.02	4.02	4.02			
Volume Purged	gal	0	0.2	0.40	0.60			
Flow Rate	mL/min	<100	<100	<100	<100			
Turbidity (+/- 10%)	NTU	51.1	3681	34.21	32.11			
Dissolved Oxygen (+/- 10%)	%	6.9	2.8	2.5	2.5			
Dissolved Oxygen (+/- 10%)	mg/L	0.78	0.31	0.28	0.25			
Eh / ORP (+/- 10)	MeV	4.9	16.1	7.3	3.2			
Specific Conductivity (+/- 3%)	mS/cm[c]	0.594	0.598	0.597	0.598			
Conductivity (+/- 3%)	mS/cm	0.423	0.424	0.427	0.427			
pH (+/- 0.1)	pH unit	7.23	6.31	6.39	6.43			
Temp (+/- 0.5)	C°	9.97	9.84	10.04	10.06			
Color	Visual	clear	clear	clear	clear			
Odor	Olfactory	No	No	No	No			

Comments: Sampled @ 750

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: APN-MW02 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HG-APN-MW02 QA/QC Collected? No FB-050918 EB-050918

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.50	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	1.22	feet
4. C = Column of Water in Well:	11.28	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.84	gal
6. 3(V) = Target Purge Volume	5.52	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1320	1325	1330	1335	1340	1345	1350
Water Level (0.33)	feet	2.65	3.38	3.85	4.40	5.52	5.70	5.80
Volume Purged	gal	0	0.2	0.4	0.60	0.90	1.1	1.3
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	9.26	5.82	4.64	3.42	3.21	6.54	7.17
Dissolved Oxygen (+/- 10%)	%	25.0	20.7	20.7	20.6	30.0	27.4	26.6
Dissolved Oxygen (+/- 10%)	mg/L	2.83	2.32	2.31	2.29	3.33	3.03	2.94
Eh / ORP (+/- 10)	MeV	69.0	81.2	78.2	75.4	63.6	60.6	59.5
Specific Conductivity (+/- 3%)	mS/cm[c]	0.687	0.686	0.687	0.687	0.682	0.682	0.683
Conductivity (+/- 3%)	mS/cm	0.491	0.494	0.494	0496	0.496	0.496	0.498
pH (+/- 0.1)	pH unit	7.02	6.74	6.72	6.74	6.96	7.00	7.00
Temp (+/- 0.5)	C°	10.02	10.32	10.30	10.42	10.69	10.89	10.86
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	No	No	NO	No	No	No

Comments: Sampled @ 1400

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: APN-MW02 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-APN-MW02 QA/QC Collected? HC-FB-050918 HC-EB-050918

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	(See pg 1)	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:		feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1355	1400					
Water Level (0.33)	feet	5.82	5.84					
Volume Purged	gal	1.50	1.70					
Flow Rate	mL/min	<100	<100					
Turbidity (+/- 10%)	NTU	7.66	7.58					
Dissolved Oxygen (+/- 10%)	%	24.0	24.0					
Dissolved Oxygen (+/- 10%)	mg/L	2.63	2.64					
Eh / ORP (+/- 10)	MeV	60.5	59.3					
Specific Conductivity (+/- 3%)	mS/cm^c	0.683	0.685					
Conductivity (+/- 3%)	mS/cm	0.503	0.504					
pH (+/- 0.1)	pH unit	7.02	7.06					
Temp (+/- 0.5)	C°	11.22	11.22					
Color	Visual	clear	clear					
Odor	Olfactory	NO	NO					

Comments: Sampled @ 1400

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: APN-MW03 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: Hc-APN-MW03 QA/QC Collected? No

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.48	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	9.12	feet
4. C = Column of Water in Well:	3.36	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	0.55	gal
6. 3(V) = Target Purge Volume	1.64	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	710	715	720				
Water Level (0.33)	feet	9.80	12.10	12.30				
Volume Purged	gal	0	0.15	0.30				
Flow Rate	mL/min	<100	<100	<100				
Turbidity (+/- 10%)	NTU	Limit	389	320				
Dissolved Oxygen (+/- 10%)	%	104.9	58.9	54.7				
Dissolved Oxygen (+/- 10%)	mg/L	12.50	6.35	6.09				
Eh / ORP (+/- 10)	MeV	29.7	96.0	100.8				
Specific Conductivity (+/- 3%)	mS/cm^c	0.606	0.610	0.607				
Conductivity (+/- 3%)	mS/cm	0.446	0.441	0.441				
pH (+/- 0.1)	pH unit	8.43	6.52	6.34				
Temp (+/- 0.5)	C°	11.94	10.49	10.61				
Color	Visual	~~Clear~~ Mud	cloudy	cloudy				
Odor	Olfactory	NO	NO	NO				

Comments: well purged dry after ~0.4 gallons, waited for recharge & sampled @ 800

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: APN - MW04 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: HC-APN-MW04 QA/QC Collected? HC-APN-D

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	13.41	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	6.90	feet
4. C = Column of Water in Well:	6.51	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.06	gal
6. 3(V) = Target Purge Volume	3.18	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings					
Time	24 hr	1050	1055	1100	1105	1110	1115
Water Level (0.33)	feet	7.51	7.75	8.05	8.21	8.28	8.31
Volume Purged	gal	0	0.2	0.45	0.60	0.80	1.00
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	113	40.3	16.2	17.2	16.4	16.6
Dissolved Oxygen (+/- 10%)	%	33.1	26.1	25.1	24.7	25.1	25.3
Dissolved Oxygen (+/- 10%)	mg/L	3.79	2.96	2.85	2.80	2.90	2.91
Eh / ORP (+/- 10)	MeV	66.5	76.6	75.9	68.9	68.3	68.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.506	0.500	0.490	0.477	0.469	0.471
Conductivity (+/- 3%)	mS/cm	0.358	0.354	0.346	0.338	0.332	0.229
pH (+/- 0.1)	pH unit	7.59	7.32	7.31	7.41	7.47	7.49
Temp (+/- 0.5)	C°	9.76	9.79	9.65	9.77	9.76	9.77
Color	Visual	cloudy	cloudy	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1115

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: OFI-MW01 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: Hc-OFI-MW01 QA/QC Collected? No

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.44	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	3.12	feet
4. C = Column of Water in Well:	9.32	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.52	gal
6. 3(V) = Target Purge Volume	4.56	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings					
Time	24 hr	940	945	950	955	1000	1005
Water Level (0.33)	feet	3.16	3.16	3.16	3.16	3.16	3.16
Volume Purged	gal	0	0.15	0.35	0.50	0.65	0.85
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	16.6	11.5	10.8	11.2	11.7	10.9
Dissolved Oxygen (+/- 10%)	%	12.8	4.4	2.6	2.2	2.0	2.0
Dissolved Oxygen (+/- 10%)	mg/L	1.45	0.50	0.29	0.25	0.22	0.23
Eh / ORP (+/- 10)	MeV	56.0	64.6	61.4	58.1	57.9	55.7
Specific Conductivity (+/- 3%)	mS/cm[c]	1.497	1.475	1.456	1.424	1.398	1.392
Conductivity (+/- 3%)	mS/cm	1.064	1.050	1.037	1.006	0.982	0.980
pH (+/- 0.1)	pH unit	7.46	7.16	7.11	7.09	7.06	7.06
Temp (+/- 0.5)	C°	9.86	9.93	9.86	9.62	9.51	9.49
Color	Visual	clear	clear	clear	clear	Clear	Clear
Odor	Olfactory	No	No	No	No	No	No

Comments: Sampled @ 1005

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: OF3-MW01 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: Htc-OF3-MW01 QA/QC Collected? NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.38	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	3.06	feet
4. C = Column of Water in Well:	9.32	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.52	gal
6. 3(V) = Target Purge Volume	4.56	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1655	1700	1705	1710	1715		
Water Level (0.33)	feet	3.10	3.10	3.10	3.10	3.10		
Volume Purged	gal	0	0.2	0.40	0.60	0.80		
Flow Rate	mL/min	<100	<100	<100	<100	<100		
Turbidity (+/- 10%)	NTU	25.1	10.1	8.1	7.83	7.62		
Dissolved Oxygen (+/- 10%)	%	26.5	3.4	3.3	3.1	3.2		
Dissolved Oxygen (+/- 10%)	mg/L	3.15	0.39	0.36	0.34	0.35		
Eh / ORP (+/- 10)	MeV	37.5	48.9	48.9	46.1	50.2		
Specific Conductivity (+/- 3%)	mS/cm^c	0.560	0.556	0.555	0.553	0.553		
Conductivity (+/- 3%)	mS/cm	0.409	0.408	0.407	0.406	0.406		
pH (+/- 0.1)	pH unit	7.56	7.22	7.21	7.24	7.23		
Temp (+/- 0.5)	C°	10.89	11.06	11.09	11.08	11.09		
Color	Visual	clear	clear	clear	clear	clear		
Odor	Olfactory	NO	NO	NO	NO	NO		

Comments: Sampled @ 1715

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: OFH-MW01 Date: 5/10/18

Samplers: Ross McCredy

Sample Number: HC-OFH-MW01 QA/QC Collected? NO

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.46	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	2.14	feet
4. C = Column of Water in Well:	10.32	feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	1.68	gal
6. 3(V) = Target Purge Volume	5.05	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings						
Time	24 hr	1015	1020	1025	1030	1035		
Water Level (0.33)	feet	2.30	2.30	2.30	2.30	2.30		
Volume Purged	gal	0	0.15	0.15	0.25	0.35		
Flow Rate	mL/min	<100	<100	<100	<100	<100		
Turbidity (+/- 10%)	NTU	16.3	5.41	5.22	5.11	5.01		
Dissolved Oxygen (+/- 10%)	%	18.8	8.2	6.4	6.5	6.4		
Dissolved Oxygen (+/- 10%)	mg/L	2.18	0.93	0.72	0.73	0.71		
Eh / ORP (+/- 10)	MeV	77.7	86.5	83.1	79.2	77.6		
Specific Conductivity (+/- 3%)	mS/cm^c	2.149	2.222	2.256	2.271	2.289		
Conductivity (+/- 3%)	mS/cm	1.518	1.571	1.605	1.612	1.626		
pH (+/- 0.1)	pH unit	7.43	7.09	7.02	7.04	7.03		
Temp (+/- 0.5)	C°	9.76	9.66	9.87	10.11	10.19		
Color	Visual	clear	clear	clr.	clear	clear		
Odor	Olfactory	NO	NO	NO	NO	NO		

Comments: Sampled @ 1035

Monitoring Well Purging / Sampling Form

Project Name and Number: Hancock ANGB 60520893

Monitoring Well Number: BBW-01 Date: 5/9/18

Samplers: Ross McCredy

Sample Number: HC-BBW-01 QA/QC Collected? MS/MSD

Purging / Sampling Method: Parestaltic Pump and Dedicated Tubing

1. L = Well Depth:	12.46	feet
2. D = Riser Diameter (I.D.):	0.17	feet
3. W = Depth to Water:	2.25	feet
4. C = Column of Water in Well:	10.21	feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)	1.66	gal
6. 3(V) = Target Purge Volume	4.8	gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI/Hach Turbidimeter

Parameter	Units	Readings							
Time	24 hr	1030	1035	1040	1045	1050	1055	1100	1105
Water Level (0.33)	feet	2.60	2.66	2.69	2.80	2.82	2.85	2.85	2.88
Volume Purged	gal	0	0.15	0.30	0.45	0.60	0.75	1.00	1.20
Flow Rate	mL/min	<100	<100	<100	<100	<100	<100	<100	<100
Turbidity (+/- 10%)	NTU	23.6	24.9	23.5	21.3	23.1	21.2	21.0	20.1
Dissolved Oxygen (+/- 10%)	%	13.7	3.0	2.9	2.1	1.8	2.4	2.7	3.0
Dissolved Oxygen (+/- 10%)	mg/L	1.63	0.34	0.33	0.24	0.21	0.28	0.31	0.34
Eh / ORP (+/- 10)	MeV	4.3	25.5	24.5	23.3	15.3	14.5	12.1	14.0
Specific Conductivity (+/- 3%)	mS/cm^c	0.402	0.393	0.393	0.412	0.494	0.553	0.556	0.560
Conductivity (+/- 3%)	mS/cm	0.286	0.280	0.279	0.291	0.348	0.370	0.400	0.403
pH (+/- 0.1)	pH unit	7.60	7.21	7.01	6.93	6.85	6.85	6.69	6.59
Temp (+/- 0.5)	C°	10.03	9.95	9.79	9.65	9.62	9.56	9.60	9.70
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	NO	NO	NO	NO	NO	NO	NO	NO

Comments: Sampled @ 1105

Appendix C-3: Surface Water and Sediment Sampling Field Notes

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Media	Sample ID	Date	Sample Time	Weather	Field Notes
Surface Water	HC-APN-SW01	4/10/2018	0955	25 deg F, sunny, wind 5 mph	
Surface Water	HC-APN-SW02	4/10/2018	1025	25 deg F, sunny, wind 5 mph	
Surface Water	HC-OF1-SW01	4/10/2018	1140	25 deg F, sunny, wind 5 mph	West of downed tree
Surface Water	HC-OF2-SW01	4/10/2018	0915	25 deg F, sunny, wind 5 mph	PID Reading: 0.0 ppm
Surface Water	HC-OF3-SW01	4/10/2018	1120	25 deg F, sunny, wind 5 mph	Sample taken straight down to water from grass area for water and sediment sample. ~35' from main outfall.
Surface Water	HC-OF4-SW01	4/10/2018	1050	25 deg F, sunny, wind 5 mph	Sample at lowest level of Outfall center of flow
Sediment	HC-APN-SD01	4/10/2018	1000	25 deg F, sunny, wind 5 mph	
Sediment	HC-APN-SD02	4/10/2018	1035	25 deg F, sunny, wind 5 mph	
Sediment	HC-OF1-SD01	4/10/2018	1150	25 deg F, sunny, wind 5 mph	West of downed tree
Sediment	HC-OF2-SD01	4/10/2018	0920	25 deg F, sunny, wind 5 mph	PID Reading: 0.0 ppm
Sediment	HC-OF3-SD01	4/10/2018	1130	25 deg F, sunny, wind 5 mph	Sample taken straight down to water from grass area for water and sediment sample. ~35' from main outfall.
Sediment	HC-OF4-SD01	4/10/2018	1055	25 deg F, sunny, wind 5 mph	Sediment sample taken at the same location as HC-OF4-SW01 at the swale bank.

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Appendix C-4:
Survey Data

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MONITORING WELL AND SOIL BORING COORDINATES AND ELEVATIONS
HANCOCK AIR NATIONAL GUARD BASE AND VICINITY, SYRACUSE, NY SURVEY CONDUCTED ON APRIL 27, 2018

Sample	Northing	Easting	Elevation	Comments
APN-MW03	1130996.20	947339.56	410.21	Top Casing / Ground
			409.78	2"PVC
APN-MW01	1131721.72	947398.91	404.63	Top Casing / Ground
			404.23	2"PVC
APN-SW01	1131816.67	947558.00	397.96	Ground
APN-SW02	1131766.19	947123.97	400.42	Ground
APN-MW02	1131361.86	948958.69	396.93	Top Casing / Ground
			396.60	2"PVC
646-SB02	1131424.71	948399.11	401.23	Ground
646-MW01	1131547.18	948260.35	402.33	Top Casing / Ground
			401.91	2"PVC
646-SB03	1131416.05	948180.97	401.49	Ground
610-SB02	1130853.30	948376.25	404.16	Ground
610-MW01	1130969.90	948460.61	403.22	Top Casing / Ground
			402.71	2"PVC
610-SB03	1130877.80	948614.52	402.75	Ground
608-MW01	1130831.26	948833.48	400.78	Top Casing / Ground
			400.58	2"PVC
608-SB02	1130958.16	948823.94	399.55	Ground
618-SB02	1130937.93	949060.73	399.66	Ground
618-MW01	1130794.75	948956.13	400.19	Top Casing / Ground
			399.82	2"PVC
620-SB03	1130671.01	948634.06	401.70	Ground
620-SB02	1130601.89	948766.69	400.76	Ground
620-MW01	1130528.52	948747.38	401.15	Top Casing / Ground
			400.76	2"PVC
APN-MW04	1130992.37	946870.01	410.96	Top Casing / Ground
			410.51	2"PVC
644-SB02	1130811.47	947984.32	408.70	Ground
644-MW01	1130745.17	947976.65	409.28	Top Casing / Ground
			408.79	2"PVC
644-SB03	1130774.95	947873.25	409.44	Ground
OF4-MW01	1129872.74	949435.21	391.32	Top Casing / Ground
			390.90	2"PVC
OF4-SW01	1129888.17	949467.98	388.10	Ground
OF2-SW01	1130560.27	950197.85	390.12	Ground
FTA-MW02	1131595.14	950394.36	398.56	Top Casing / Ground
			398.05	2"PVC
FTA-MW01	1131501.84	950394.50	397.47	Top Casing / Ground
			397.28	2"PVC
FTA-MW03	1131426.30	950427.97	396.68	Top Casing / Ground
			396.46	2"PVC
OF3-SW01	1131714.49	951543.79	380.62	Ground
OF3-MW01	1131743.14	951559.58	384.83	Top Casing / Ground
			384.59	2"PVC
BBW-MW01	1131902.57	948246.96	399.06	Top Casing / Ground
			398.83	2"PVC
OF1-MW01	1129585.57	948173.93	394.23	Top Casing / Ground
			393.60	2"PVC
OF1-SW01	1129598.33	948140.69	390.48	Ground

Horizontal Datum based on the Central Zone of the New York State Plane Coordinate System NAD 83
Vertical Datum based on NAVD 1988

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Appendix D: Data Validation and Laboratory Data Reports

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DATA VALIDATION REPORT - Level II Review

SDG No.:	**FSA 24, 87, 89, 90, 91, 94, 95, & 99**	**Analysis:**	**Perfluorinated Alkyl Substances**
Laboratory:	**Eurofins**	**Project:**	**ARNG PFAS – Hancock**
Reviewer:	**Victoria Kirkpatrick**	**Date:**	**June 5th, 2018**

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 QAPP; and, qualified according to the USEPA CLP National Functional Guidelines for Organic and Inorganic (August 2016) Superfund Data Review, with the exception of the "B" flag for blank qualifications only, as stated on the EPA Region III website. Modifications reflect the level of review requested, the specifications of the project-specific QAPP, and the specifics of the analytical methods employed.

Major Anomalies: None.

Minor Anomalies: During the PFAS analysis, the calibration verifications analyzed on 01/09/18 at 12:48 and 04/23/18 at 06:52 displayed percent differences greater than the control limit of 30% for perfluoroheptanoic acid at 30.17% and perfluorooctanoic acid at 32.03%, respectively. The following field blanks displayed detections greater than the detection limit:

Blank	Prep Batch	Analyte	Concentration (ng/L)
Water Source Hydrant	17352005	Perfluoroheptanoic acid	0.50
		Perfluorooctanoic acid	0.70
HC-EB-041718	18109005	Pefluoro-octanesulfonate	2.8
HC-EB-050918	18137006	Pefluoro-octanesulfonate	1.1
		Perfluorooctanoic acid	0.34
HC-FB-051018		Pefluoro-octanesulfonate	3.8
HC-EB-051018		Perfluorohexanesulfonate	0.41
		Perfluoro-octanesulfonate	4.4

The positive field sample results that displayed detections less than five times the concentrations found in the field reagent blanks were qualified U,y. When appropriate, the quantitation limits were elevated to the concentrations detected. The associated positive field sample results were qualified J,c.the following matrix spike pairs (MS/MSD) displayed percent recoveries outside the quality control (QC) limits of 70%-130%:

Parent Sample	QC Batch	Analyte	MS Recovery (%)	MSD Recovery (%)
HC-620-SB01-01	18109006	Perfluoro-octanesulfonate	**261**	-
HC-OF4-SB01-01	18114009	Perfluorohexansulfonate	**67**	**58**
HC-BBW-01	18137006	Perfluorobutanesulfonate	**178**	**139**
		Perfluorohexanesulfonate	**149**	118

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. The following field duplicate pairs displayed relative percent differences (RPDs) greater than the upper QC limit of 50% or differences greater than four times the limit of quantitation:

SDG	Parent Sample	Analyte	RPD (%)	Delta
FSA89	HC-608-SB02-45	Perfluorononanoic acid	**166.1**	4.9
		Perfluoro-octanesulfonate	**73.5**	5.0
FSA94	HC-FTA-SB03-45	Perfluorohexanesulfonate	128.5	**13.3**
		Perfluorononanoic acid	170.4	**8.19**
		Perfluoro-octanesulfonate	**179.5**	949
		Perfluorooctanoic acid	136.1	**8.1**
FSA99	HC-APN-MW04	Perfluorohexanesulfonate	**48.6**	90

Bold indicates the applicable parameter that was out of QC limits

The positive associated field duplicate results were qualified J,f. The field duplicate pair collected at sample location HC-FTA-SB03-45 has to be collected from a separate core adjacent to the primary core. Field sample HC-646MW01 displayed surrogate percent recoveries less than the lower QC limit of 50% for the following:

Field Sample	Date	Time	Surrogate	Recovery (%)
HC-646-MW01	05/16/18	02:55	^{13}C3-PFBS	14
			^{13}C3-PFHxS	13
			^{13}C4-PFHpA	13
			^{13}C8-PFOA	12
			^{13}C8-PFOS	14
			^{13}C9-PFNA	13
	05/19/18	11:57	^{13}C3-PFBS	36
			^{13}C3-PFHxS	27
			^{13}C4-PFHpA	28
			^{13}C8-PFOA	28
			^{13}C8-PFOS	32
			^{13}C9-PFNA	28
HC-620-MW01	05/23/18	22:59	^{13}C3-PFBS	9
			^{13}C3-PFHxS	8
			^{13}C4-PFHpA	8
			^{13}C8-PFOA	8
			^{13}C8-PFOS	8
			^{13}C9-PFNA	8
HC-644-MW01		23:14	^{13}C3-PFBS	8
			^{13}C3-PFHxS	8
			^{13}C4-PFHpA	9
			^{13}C8-PFOA	8
			^{13}C8-PFOS	8
			^{13}C9-PFNA	8

The associated field sample results were positive and were qualified J-,s. In addition, the laboratory control spike and method blank prepared in QC batch 18134014 displayed surrogate recoveries less than the lower QC limits. No data qualifying action is taken based on QC sample surrogate anomalies.

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. If a given fraction was not discussed, all quality control criteria reviewed were within acceptable limits. All data are usable, as qualified, for their intended purpose based on the data reviewed.

Signed: 
Victoria Kirkpatrick

Hancock

Job: 60520893 Laboratory: Eurofins

SDG#: FSA 24, 87, 89, 90, 91, 94, 95, & 99

SDG	Sample ID	Client ID	Sample Type	Sample Date	Matrix	PFOA/ PFOS
FSA24	9364960	Water Source Hydrant	Field Blank	12/12/17	Aqueous	X
FSA24	9364961	Trip Blank	Trip Blank	12/12/17	Aqueous	X
FSA87	9552706	HC-OF1-SW01	Field Sample	04/10/18	Aqueous	X
FSA87	9552707	HC-OF1-SD01	Field Sample	04/10/18	Sediment	X
FSA87	9552708	HC-OF3-SW01	Field Sample	04/10/18	Aqueous	X
FSA87	9552709	HC-OF3-SD01	Field Sample	04/10/18	Sediment	X
FSA87	9552710	HC-OF4-SW01	Field Sample	04/10/18	Aqueous	X
FSA87	9552711	HC-OF4-SD01	Field Sample	04/10/18	Sediment	X
FSA87	9552712	HC-OF2-SW01	Field Sample	04/10/18	Aqueous	X
FSA87	9552713	HC-OF2-SD01	Field Sample	04/10/18	Sediment	X
FSA87	9552714	HC-APN-SD02	Field Sample	04/10/18	Sediment	X
FSA87	9552715	HC-APN-SW02	Field Sample	04/10/18	Aqueous	X
FSA87	9552716	HC-APN-SW01	Field Sample	04/10/18	Aqueous	X
FSA87	9552717	HC-APN-SD01	Field Sample	04/10/18	Sediment	X
FSA87	9552718	HC-EB-041018	Equipment Blank	04/10/18	Aqueous	X
FSA87	9552719	HC-646-SB02-01	Field Sample	04/10/18	Soil	X
FSA87	9552720	HC-646-SB02-45	Field Sample	04/10/18	Soil	X
FSA87	9552721	HC-646-SB02-D	Field Duplicate	04/10/18	Soil	X
FSA87	9552722	Trip Blank	Trip Blank	04/10/18	Aqueous	X
FSA89	9557701	HC-APN-SB02-01	Field Sample	04/12/18	Soil	X
FSA89	9557702	HC-646-SB03-01	Field Sample	04/12/18	Soil	X
FSA89	9557703	HC-618-SB01-01	Field Sample	04/12/18	Soil	X
FSA89	9557704	HC-618-SB02-01	Field Sample	04/12/18	Soil	X
FSA89	9557707	HC-APN-SB03-45	Field Sample	04/12/18	Soil	X
FSA89	9557708	HC-EB-041218	Equipment Blank	04/12/18	Aqueous	X
FSA89	9557709	HC-FRB-041218	Rinsate Blank	04/12/18	Aqueous	X
FSA89	9557710	HC-608-SB02-01	Field Sample	04/12/18	Soil	X
FSA89	9557711	HC-APN-SB03-D	Field Duplicate	04/12/18	Soil	X
FSA89	9557712	HC-APN-SB03-01	Field Sample	04/12/18	Soil	X
FSA89	9557713	HC-APN-SB02-45	Field Sample	04/12/18	Soil	X
FSA89	9557714	HC-646-SB03-45	Field Sample	04/12/18	Soil	X
FSA89	9557715	HC-608-SB02-D	Field Duplicate	04/12/18	Soil	X
FSA89	9557716	HC-608-SB02-45	Field Sample	04/12/18	Soil	X
FSA89	9557717	HC-646-SB01-1314	Field Sample	04/11/18	Soil	X
FSA89	9557718	HC-APN-SB01-01	Field Sample	04/11/18	Soil	X
FSA89	9557719	HC-EB041118	Equipment Blank	04/11/18	Aqueous	X
FSA89	9557720	HC-FRB-041118	Rinsate Blank	04/11/18	Aqueous	X
FSA90	9557802	HC-618-SB01-45	Field Sample	04/12/18	Soil	X
FSA90	9557803	HC-APN-SB01-45	Field Sample	04/11/18	Soil	X
FSA90	9557804	HC-608-SB01-01	Field Sample	04/12/18	Soil	X
FSA90	9557805	HC-618-SB02-45	Field Sample	04/12/18	Soil	X
FSA90	9557806	HC-BBW-SB01-45	Field Sample	04/11/18	Soil	X
FSA90	9557807	HC-BBW-SB01-01	Field Sample	04/11/18	Soil	X
FSA90	9557808	HC-608-SB01-45	Field Sample	04/12/18	Soil	X
FSA90	9557809	HC-646-SB01-01	Field Sample	04/11/18	Soil	X
FSA91	9558857	HC-610-SB02-01	Field Sample	04/13/18	Soil	X
FSA91	9558858	HC-610-SB01-12	Field Sample	04/13/18	Soil	X
FSA91	9558859	HC-610-SB02-45	Field Sample	04/13/18	Soil	X

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Job: 60520893 Laboratory: Eurofins

SDG#: FSA 24, 87, 89, 90, 91, 94, 95, & 99

SDG	Sample ID	Client ID	Sample Type	Sample Date	Matrix	PFOA/ PFOS
FSA91	9558860	HC-FRB-041318	Rinsate Blank	04/13/18	Aqueous	X
FSA91	9558861	HC-EB-041318	Equipment Blank	04/13/18	Aqueous	X
FSA91	9558862	HC-610-SB01-1415	Field Sample	04/13/18	Soil	X
FSA91	9558863	HC-610-SB04-45	Field Sample	04/13/18	Soil	X
FSA91	9558866	HC-610-SB03-01	Field Sample	04/13/18	Soil	X
FSA94	9564405	HC-620-SB01-01	Field Sample	04/17/18	Soil	X
FSA94	9564406	HC-620-SB02-45	Field Sample	04/17/18	Soil	X
FSA94	9564407	HC-620-SB03-01	Field Sample	04/17/18	Soil	X
FSA94	9564408	HC-620-SB01-45	Field Sample	04/17/18	Soil	X
FSA94	9564409	HC-620-SB03-45	Field Sample	04/17/18	Soil	X
FSA94	9564410	HC-620-SB02-01	Field Sample	04/17/18	Soil	X
FSA94	9564411	HC-FTA-SB03-45	Field Sample	04/17/18	Soil	X
FSA94	9564412	HC-EB-041718	Equipment Blank	04/17/18	Aqueous	X
FSA94	9564413	HC-FRB-041718	Rinsate Blank	04/17/18	Aqueous	X
FSA94	9564414	HC-FTA-SB03-01	Field Sample	04/17/18	Soil	X
FSA94	9564415	HC-OF3-SB01-45	Field Sample	04/17/18	Soil	X
FSA94	9564416	HC-FTA-SB01-01	Field Sample	04/17/18	Soil	X
FSA94	9564417	HC-FTA-SB-D	Field Duplicate	04/17/18	Soil	X
FSA94	9564418	HC-FTA-SB01-45	Field Sample	04/17/18	Soil	X
FSA94	9564419	HC-FTA-SB02-01	Field Sample	04/17/18	Soil	X
FSA94	9564420	HC-OF3-SB-D	Field Duplicate	04/17/18	Soil	X
FSA94	9564421	HC-OF3-SB01-01	Field Sample	04/17/18	Soil	X
FSA94	9564422	HC-FTA-SB02-45	Field Sample	04/17/18	Soil	X
FSA95	9567185	HC-OF4-SB01-45	Field Sample	04/18/18	Soil	X
FSA95	9567186	HC-OF4-SB01-01	Field Sample	04/18/18	Soil	X
FSA95	9567189	HC-OF1-SB01-45	Field Sample	04/18/18	Soil	X
FSA95	9567190	HC-OF1-SB01-01	Field Sample	04/18/18	Soil	X
FSA95	9567191	HC-644-SB03-01	Field Sample	04/18/18	Soil	X
FSA95	9567192	HC-644-SB03-45	Field Sample	04/18/18	Soil	X
FSA95	9567193	HC-FRB-041818	Rinsate Blank	04/18/18	Aqueous	X
FSA95	9567194	HC-EB-041818	Equipment Blank	04/18/18	Aqueous	X
FSA95	9567195	HC-APN-SB04-01	Field Sample	04/18/18	Soil	X
FSA95	9567196	HC-APN-SB04-45	Field Sample	04/18/18	Soil	X
FSA95	9567197	HC-644-SB02-01	Field Sample	04/18/18	Soil	X
FSA95	9567198	HC-644-SB01-45	Field Sample	04/18/18	Soil	X
FSA95	9567199	HC-644-SB01-01	Field Sample	04/18/18	Soil	X
FSA95	9567200	HC-644-SB-D	Field Duplicate	04/18/18	Soil	X
FSA95	9567201	HC-644-SB02-45	Field Sample	04/18/18	Soil	X
FSA99	9604425	HC-646-MW01	Field Sample	05/09/18	Aqueous	X
FSA99	9604426	HC-TU019-MW001	Field Sample	05/09/18	Aqueous	X
FSA99	9604427	HC-BBW-01	Field Sample	05/09/18	Aqueous	X
FSA99	9604430	HC-APN-MW02	Field Sample	05/09/18	Aqueous	X
FSA99	9604431	HC-FB-050918	Field Blank	05/09/18	Aqueous	X
FSA99	9604432	HC-EB-050918	Equipment Blank	05/09/18	Aqueous	X
FSA99	9604433	HC-610-MW01	Field Sample	05/09/18	Aqueous	X
FSA99	9604434	HC-FTA-D	Field Duplicate	05/09/18	Aqueous	X
FSA99	9604435	HC-FTA-MW02	Field Sample	05/09/18	Aqueous	X
FSA99	9604436	HC-FTA-MW01	Field Sample	05/09/18	Aqueous	X

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Job: 60520893 Laboratory: Eurofins

SDG#: FSA 24, 87, 89, 90, 91, 94, 95, & 99

SDG	Sample ID	Client ID	Sample Type	Sample Date	Matrix	PFOA/ PFOS
FSA99	9604437	HC-FTA-MW03	Field Sample	05/09/18	Aqueous	X
FSA99	9604438	HC-OF3-MW01	Field Sample	05/09/18	Aqueous	X
FSA99	9604439	HC-APN-MW03	Field Sample	05/10/18	Aqueous	X
FSA99	9604440	HC-APN-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604441	HC-FB-051018	Field Blank	05/10/18	Aqueous	X
FSA99	9604442	HC-EB-051018	Equipment Blank	05/10/18	Aqueous	X
FSA99	9604443	HC-608-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604444	HC-618-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604445	HC-620-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604446	HC-OF1-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604447	HC-OF4-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604448	HC-644-MW01	Field Sample	05/10/18	Aqueous	X
FSA99	9604449	HC-APN-MW04	Field Sample	05/10/18	Aqueous	X
FSA99	9604450	HC-APN-D	Field Duplicate	05/10/18	Aqueous	X

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Field Duplicates
FSA87

Client Sample ID:				HC-646-SB02-45		HC-646-SB02-D					
Date Sampled:				4/10/18		4/10/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluoroheptanoic acid	ng/g	0.71	3.55	0.71	U	0.24	J	98.9%	**0.47**	2.8	Pass
Perfluorohexanesulfonate	ng/g	0.71	3.55	1.0		1.3	J	26.1%	**0.30**	2.8	Pass
Perfluoro-octanesulfonate	ng/g	0.71	3.55	12		11		**8.7%**	1.0	2.8	Pass
Perfluorooctanoic acid	ng/g	0.71	3.55	2.5		3.0		18.2%	**0.50**	2.8	Pass

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

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Field Duplicates
FSA89

Client Sample ID:				HC-APN-SB03-01		HC-APN-SB03-D					
Date Sampled:				4/12/18		4/12/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluorohexanesulfonate	ng/g	0.63	3.15	1.1		0.82		29.2%	**0.28**	2.5	Pass
Perfluorononanoic acid	ng/g	0.63	3.15	0.47	J	0.38	J	21.2%	**0.09**	2.5	Pass
Perfluoro-octanesulfonate	ng/g	0.63	3.15	4.7		4.9		**4.2%**	0.20	2.5	Pass
Perfluorooctanoic acid	ng/g	0.63	3.15	0.52	J	0.42	J	21.3%	**0.10**	2.5	Pass

Client Sample ID:				HC-608-SB02-45		HC-608-SB02-D					
Date Sampled:				4/12/18		4/12/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluorohexanesulfonate	ng/g	0.71	3.55	2.4		0.94		87.4%	**1.46**	2.8	Pass
Perfluorononanoic acid	ng/g	0.71	3.55	5.4		0.50	J	166.1%	**4.9**	2.8	**Fail**
Perfluoro-octanesulfonate	ng/g	0.71	3.55	4.3		9.3		**73.5%**	5.0	2.8	**Fail**
Perfluorooctanoic acid	ng/g	0.71	3.55	0.6	J	0.71	U	16.8%	**0.11**	2.8	Pass

Control limit

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

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Field Duplicates
FSA94

Client Sample ID:				HC-FTA-SB03-45		HC-FTA-SB-D					
Date Sampled:				4/17/18		4/17/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluorobutanesulfonate	ng/g	0.76	3.8	0.76	U	0.25	J	101.0%	**0.51**	3.0	Pass
Perfluoroheptanoic acid	ng/g	0.76	3.8	0.60	J	1.4		80.0%	**0.80**	3.0	Pass
Perfluorohexanesulfonate	ng/g	0.76	3.8	3.7		17		128.5%	**13.3**	3.0	**Fail**
Perfluorononanoic acid	ng/g	0.76	3.8	0.71	J	8.9		170.4%	**8.19**	3.0	**Fail**
Perfluoro-octanesulfonate	ng/g	0.76	3.8	54		1000		**179.5%**	946	3.0	**Fail**
Perfluorooctanoic acid	ng/g	0.76	3.8	1.9		10		136.1%	**8.1**	3.0	**Fail**

Client Sample ID:				HC-OF3-SB01-45		HC-OF3-SB-D					
Date Sampled:				4/17/18		4/17/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluoro-octanesulfonate	ng/g	0.69	3.45	0.36	J	0.41	J	13.0%	**0.050**	2.8	Pass

Control limit

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

Hancock
Field Duplicates
FSA95

Client Sample ID:				HC-644-SB02-45		HC-644-SB-D					
Date Sampled:				4/18/18		4/18/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	4x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluoroheptanoic acid	ng/g	0.74	3.7	0.74	U	0.6	J	20.9%	**0.14**	3.0	Pass
Perfluorohexanesulfonate	ng/g	0.74	3.7	4.2		3.0		33.3%	**1.2**	3.0	Pass
Perfluorononanoic acid	ng/g	0.74	3.7	0.74	U	0.91		20.6%	**0.17**	3.0	Pass
Perfluoro-octanesulfonate	ng/g	0.74	3.7	130		110		**16.7%**	20	3.0	Pass
Perfluorooctanoic acid	ng/g	0.74	3.7	0.74	U	0.99		28.9%	**0.25**	3.0	Pass

Control limit

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

Hancock
Field Duplicates
FSA99

Client Sample ID:				HC-APN-MW04		HC-APN-D					
Date Sampled:				5/10/18		5/10/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	2x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluorobutanesulfonate	ng/l	2.8	14	3.9	J	4.5		14.3%	**0.60**	5.6	Pass
Perfluoroheptanoic acid	ng/l	3.0	15	3.7	J	4.2		12.7%	**0.50**	6.0	Pass
Perfluorohexanesulfonate	ng/l	2.8	14	140		230		**48.6%**	90	5.6	Fail
Perfluorononanoic acid	ng/l	3.0	15	1.8	J	1.5	J	18.2%	**0.30**	6.0	Pass
Perfluoro-octanesulfonate	ng/l	5.8	29	220		230		**4.4%**	10	11.6	Pass
Perfluorooctanoic acid	ng/l	3.0	15	18		21		**15.4%**	3.0	6.0	Pass

Client Sample ID:				HC-FTA-MW03		HC-FTA-D					
Date Sampled:				5/9/18		5/9/18					
	Units	LOQ	5x LOQ	Sample Conc		Duplicate Conc		% RPD	Delta	2x LOQ	Pass/ Fail
Perfluorinated Alkyl Substances											
Perfluorobutanesulfonate	ng/l	110	550	1,700		1,800		**5.7%**	100	220	Pass
Perfluoroheptanoic acid	ng/l	120	600	4,100		3,700		**10.3%**	400	240	Pass
Perfluorohexanesulfonate	ng/l	110	550	25,000		23,000		**8.3%**	2000	220	Pass
Perfluorononanoic acid	ng/l	120	600	1,300		1,100		**16.7%**	200	240	Pass
Perfluoro-octanesulfonate	ng/l	2200	11000	69,000		57,000		**19.0%**	12000	4400	Pass
Perfluorooctanoic acid	ng/l	120	600	9,500		8,800		**7.7%**	700	240	Pass

Control limit

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

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Analysis Report

Sample Description: Water Source Hydrant Grab Water

Project Name: Hancock ANGB

AECOM
ELLE Sample #: WW 9364960
ELLE Group #: 1886288
Matrix: Water

Submittal Date/Time: 12/13/2017 10:15
Collection Date/Time: 12/12/2017 09:30
SDG#: FSA24-01

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.3	0.9	0.9	1
14434	Perfluoroheptanoic acid	375-85-9	0.5 J J,C	0.3	0.9	0.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.4	2	2	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.4	2	2	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.6	2	2	1
14434	Perfluorooctanoic acid	335-67-1	0.7 J	0.3	0.9	0.9	1

Due to a laboratory preparation error, the Envi-carb cleanup was not performed on this sample. This sample was re-extracted outside of the method required holding time and the Envi-carb cleanup was performed. The data reported is from the initial trial of the sample and comparable results were observed between the two extractions.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	01/09/2018 15:53	Mark Makowiecki	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	12/18/2017 08:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: Trip blank Water

Project Name: Hancock ANGB

AECOM
ELLE Sample #: WW 9364961
ELLE Group #: 1886288
Matrix: Water

Submittal Date/Time: 12/13/2017 10:15
Collection Date/Time: 12/12/2017
SDG#: FSA24-02TB

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.3	0.9	0.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.3	0.9	0.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.4	2	2	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.4	2	2	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.6	2	2	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.3	0.9	0.9	1

Due to a laboratory preparation error, the Envi-carb cleanup was not performed on this sample. This sample was re-extracted outside of the method required holding time and the Envi-carb cleanup was performed. The data reported is from the initial trial of the sample and comparable results were observed between the two extractions.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	01/09/2018 16:13	Mark Makowiecki	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	12/18/2017 08:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: HC-OF1-SW01 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:40
SDG#: FSA87-01

AECOM
ELLE Sample #: WW 9552706
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	4.9	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	8.5	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	96	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	2.3	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	80	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	28	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 06:55	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-OF1-SD01 Grab Sediment
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:50
SDG#: FSA87-02

AECOM
ELLE Sample #: SW 9552707
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.37	1.1	1.1	1
14478	Perfluoroheptanoic acid	375-85-9	1.0 J	0.37	1.1	1.1	1
14478	Perfluorohexanesulfonate	355-46-4	2.3	0.37	1.1	1.1	1
14478	Perfluorononanoic acid	375-95-1	0.84 J	0.37	1.1	1.1	1
14478	Perfluoro-octanesulfonate	1763-23-1	7.0	0.37	1.1	1.1	1
14478	Perfluorooctanoic acid	335-67-1	2.1	0.37	1.1	1.1	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	45.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 21:42	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF3-SW01 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:20
SDG#: FSA87-03

AECOM
ELLE Sample #: WW 9552708
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	38	0.28	0.93	0.93	1
14434	Perfluoroheptanoic acid	375-85-9	61	0.28	0.93	0.93	1
14434	Perfluorohexanesulfonate	355-46-4	600	3.7	19	19	10
14434	Perfluorononanoic acid	375-95-1	58	0.37	1.9	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	460	5.6	19	19	10
14434	Perfluorooctanoic acid	335-67-1	190 J,C	0.28	0.93	0.93	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 07:35	Devon M Whooley	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 07:10	Devon M Whooley	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Sample Description: HC-OF3-SD01 Grab Sediment
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:30
SDG#: FSA87-04

AECOM
ELLE Sample #: SW 9552709
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	1.0	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	21	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	36.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 21:56	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF4-SW01 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:50
SDG#: FSA87-05

AECOM
ELLE Sample #: WW 9552710
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	20	0.75	2.5	2.5	1
14434	Perfluoroheptanoic acid	375-85-9	52	0.75	2.5	2.5	1
14434	Perfluorohexanesulfonate	355-46-4	690	1.0	5.0	5.0	1
14434	Perfluorononanoic acid	375-95-1	59	1.0	5.0	5.0	1
14434	Perfluoro-octanesulfonate	1763-23-1	920	1.5	5.0	5.0	1
14434	Perfluorooctanoic acid	335-67-1	93 J,C	0.75	2.5	2.5	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 07:50	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF4-SD01 Grab Sediment
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:55
SDG#: FSA87-06

AECOM
ELLE Sample #: SW 9552711
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.32	0.96	0.96	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.32	0.96	0.96	1
14478	Perfluorohexanesulfonate	355-46-4	1.4	0.32	0.96	0.96	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.32	0.96	0.96	1
14478	Perfluoro-octanesulfonate	1763-23-1	14	0.32	0.96	0.96	1
14478	Perfluorooctanoic acid	335-67-1	0.44 J	0.32	0.96	0.96	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	41.9	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:11	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF2-SW01 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:15
SDG#: FSA87-07

AECOM
ELLE Sample #: WW 9552712
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	81	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	110	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	640	3.7	18	18	10
14434	Perfluorononanoic acid	375-95-1	32	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	1,700	5.5	18	18	10
14434	Perfluorooctanoic acid	335-67-1	92 J,C	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:04	Devon M Whooley	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 07:24	Devon M Whooley	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF2-SD01 Grab Sediment
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:20
SDG#: FSA87-08

AECOM
ELLE Sample #: SW 9552713
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	0.34 J	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	1.4	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	0.38 J	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	14	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	0.59 J	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	27.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:25	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SD02 Grab Sediment
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:35
SDG#: FSA87-09

AECOM
ELLE Sample #: SW 9552714
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.38	1.1	1.1	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.38	1.1	1.1	1
14478	Perfluorohexanesulfonate	355-46-4	2.8	0.38	1.1	1.1	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.1	1
14478	Perfluoro-octanesulfonate	1763-23-1	47	0.38	1.1	1.1	1
14478	Perfluorooctanoic acid	335-67-1	1.2	0.38	1.1	1.1	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	48.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:40	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SW02 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:25
SDG#: FSA87-10

AECOM
ELLE Sample #: WW 9552715
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	75	0.27	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	18	0.27	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	350	3.7	18	18	10
14434	Perfluorononanoic acid	375-95-1	1.4 J	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	440	5.5	18	18	10
14434	Perfluorooctanoic acid	335-67-1	74 JC	0.27	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:19	Devon M Whooley	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 07:39	Devon M Whooley	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SW01 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:55
SDG#: FSA87-11

AECOM
ELLE Sample #: WW 9552716
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	45	0.28	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	11	0.28	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	270	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	0.89 J	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	310	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	44 J,C	0.28	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:33	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SD01 Grab Sediment
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:00
SDG#: FSA87-12

AECOM
ELLE Sample #: SW 9552717
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	0.41 J	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	1.1	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	0.40 J	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.4	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	1.1	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	42.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:55	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-EB-041018 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:10
SDG#: FSA87-13EB

AECOM
ELLE Sample #: WW 9552718
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:48	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 12:30
SDG#: FSA87-14

AECOM
ELLE Sample #: SW 9552719
ELLE Group #: 1930370
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.23 J	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	0.34 J	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	1.6	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	0.33 J	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	34	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	1.0	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	15.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 23:09	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 12:35
SDG#: FSA87-15

AECOM
ELLE Sample #: SW 9552720
ELLE Group #: 1930370
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	1.0	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	12	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	2.5	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	20.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 23:24	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-SB02-D Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 12:40
SDG#: FSA87-16

AECOM
ELLE Sample #: SW 9552721
ELLE Group #: 1930370
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.20	0.61	0.61	1
14478	Perfluoroheptanoic acid	375-85-9	0.24 J	0.20	0.61	0.61	1
14478	Perfluorohexanesulfonate	355-46-4	1.3	0.20	0.61	0.61	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.20	0.61	0.61	1
14478	Perfluoro-octanesulfonate	1763-23-1	11	0.20	0.61	0.61	1
14478	Perfluorooctanoic acid	335-67-1	3.0	0.20	0.61	0.61	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	21.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 23:38	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018
SDG#: FSA87-17TB

AECOM
ELLE Sample #: WW 9552722
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 09:02	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:30
SDG#: FSA89-01

AECOM
ELLE Sample #: SW 9557701
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	0.25 J	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	3.7	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	1.5	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	20	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	0.73	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	15.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 14:21	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-SB03-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:05
SDG#: FSA89-02

AECOM
ELLE Sample #: SW 9557702
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	0.57 J	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	0.54 J	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	7.3	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	0.45 J	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	29	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	1.3	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	18.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 14:36	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-618-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 13:45
SDG#: FSA89-03

AECOM
ELLE Sample #: SW 9557703
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.0	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	17.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 14:52	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-618-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 10:45
SDG#: FSA89-04BKG

AECOM
ELLE Sample #: SW 9557704
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	0.73	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.9	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	0.65 J	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 15:07	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB03-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 08:05
SDG#: FSA89-05

AECOM
ELLE Sample #: SW 9557707
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	0.43 J	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.37 J	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 15:23	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-EB-041218 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:05
SDG#: FSA89-06EB

AECOM
ELLE Sample #: WW 9557708
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.54	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 09:32	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FRB-041218 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:00
SDG#: FSA89-07FB

AECOM
ELLE Sample #: WW 9557709
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:15	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-608-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:15
SDG#: FSA89-08

AECOM
ELLE Sample #: SW 9557710
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	0.58 J	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	0.38 J	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	5.4	0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 15:38	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB03-D Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 07:45
SDG#: FSA89-09

AECOM
ELLE Sample #: SW 9557711
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	0.82	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	0.38 J	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.9	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	0.42 J	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	22.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 16:25	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB03-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 07:55
SDG#: FSA89-10

AECOM
ELLE Sample #: SW 9557712
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	1.1	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	0.47 J	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.7	0.21	0.63	0.63	1
14478	Perfluorooctanoic acid	335-67-1	0.52 J	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	13.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 16:40	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:40
SDG#: FSA89-11

AECOM
ELLE Sample #: SW 9557713
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.78	0.78	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.78	0.78	1
14478	Perfluorohexanesulfonate	355-46-4	0.70 J	0.26	0.78	0.78	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.78	0.78	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.95	0.26	0.78	0.78	1
14478	Perfluorooctanoic acid	335-67-1	0.30 J	0.26	0.78	0.78	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	23.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 16:56	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-SB03-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:10
SDG#: FSA89-12

AECOM
ELLE Sample #: SW 9557714
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.77	0.77	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.77	0.77	1
14478	Perfluorohexanesulfonate	355-46-4	0.27 J	0.26	0.77	0.77	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.77	0.77	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.0	0.26	0.77	0.77	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.26	0.77	0.77	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	24.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:11	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-608-SB02-D Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:25
SDG#: FSA89-13

AECOM
ELLE Sample #: SW 9557715
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.62	0.62	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.62	0.62	1
14478	Perfluorohexanesulfonate	355-46-4	0.94	0.21	0.62	0.62	1
14478	Perfluorononanoic acid	375-95-1	0.50 J J,F	0.21	0.62	0.62	1
14478	Perfluoro-octanesulfonate	1763-23-1	9.3 J,F	0.21	0.62	0.62	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.21	0.62	0.62	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	8.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:27	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-608-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:20
SDG#: FSA89-14

AECOM
ELLE Sample #: SW 9557716
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	2.4	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	5.4 J,F	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.3 J,F	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	0.60 J	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	19.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:42	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-SB01-1314 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 08:30
SDG#: FSA89-15

AECOM
ELLE Sample #: SW 9557717
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	3.5	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	3.6	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	0.63 J	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:58	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-APN-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 11:00
SDG#: FSA89-16

AECOM
ELLE Sample #: SW 9557718
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	2.6	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	0.27 J	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	16	0.23	0.70	0.70	1
14478	Perfluorooctanoic acid	335-67-1	0.35 J	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 18:13	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-EB-041118 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 11:20
SDG#: FSA89-17EB

AECOM
ELLE Sample #: WW 9557719
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:30	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

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Sample Description: HC-FRB-041118 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 08:50
SDG#: FSA89-18FB

AECOM
ELLE Sample #: WW 9557720
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:44	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

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Analysis Report

Sample Description: HC-618-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 13:55
SDG#: FSA90-01

AECOM
ELLE Sample #: SW 9557802
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.84	0.84	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.84	0.84	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.28	0.84	0.84	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.28	0.84	0.84	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.34 J	0.28	0.84	0.84	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.84	0.84	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	23.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 03:33	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 11:10
SDG#: FSA90-02

AECOM
ELLE Sample #: SW 9557803
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	22.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 03:48	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-608-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:45
SDG#: FSA90-03

AECOM
ELLE Sample #: SW 9557804
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	2.2	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	0.43 J	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	23	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	0.47 J	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	6.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:04	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-618-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 10:55
SDG#: FSA90-04

AECOM
ELLE Sample #: SW 9557805
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	0.31 J	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.1	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:19	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-BBW-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 10:00
SDG#: FSA90-05

AECOM
ELLE Sample #: SW 9557806
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.83	0.83	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.83	0.83	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.28	0.83	0.83	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.28	0.83	0.83	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.28	0.83	0.83	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.83	0.83	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:35	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-BBW-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 09:40
SDG#: FSA90-06

AECOM
ELLE Sample #: SW 9557807
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	0.87	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.8	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	0.29 J	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:50	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-608-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:50
SDG#: FSA90-07

AECOM
ELLE Sample #: SW 9557808
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.79	0.79	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.79	0.79	1
14478	Perfluorohexanesulfonate	355-46-4	0.73 J	0.26	0.79	0.79	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.79	0.79	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.2	0.26	0.79	0.79	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.26	0.79	0.79	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 05:37	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-646-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 08:20
SDG#: FSA90-08

AECOM
ELLE Sample #: SW 9557809
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.19	0.58	0.58	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.19	0.58	0.58	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.19	0.58	0.58	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.19	0.58	0.58	1
14478	Perfluoro-octanesulfonate	1763-23-1	3.2	0.19	0.58	0.58	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.19	0.58	0.58	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	5.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 05:53	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-610-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 10:15
SDG#: FSA91-01

AECOM
ELLE Sample #: SW 9558857
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.62	0.62	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.62	0.62	1
14478	Perfluorohexanesulfonate	355-46-4	0.97	0.21	0.62	0.62	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.62	0.62	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.7	0.21	0.62	0.62	1
14478	Perfluorooctanoic acid	335-67-1	0.27 J	0.21	0.62	0.62	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	12.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:08	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-610-SB01-12 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:30
SDG#: FSA91-02

AECOM
ELLE Sample #: SW 9558858
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:24	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-610-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 10:20
SDG#: FSA91-03

AECOM
ELLE Sample #: SW 9558859
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:39	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FRB-041318 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:20
SDG#: FSA91-04FB

AECOM
ELLE Sample #: WW 9558860
ELLE Group #: 1931908
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:59	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-EB-041318 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:15
SDG#: FSA91-05EB

AECOM
ELLE Sample #: WW 9558861
ELLE Group #: 1931908
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 11:13	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-610-SB01-1415 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:35
SDG#: FSA91-06

AECOM
ELLE Sample #: SW 9558862
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.83	0.83	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.83	0.83	1
14478	Perfluorohexanesulfonate	355-46-4	0.63 J	0.28	0.83	0.83	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.28	0.83	0.83	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.4	0.28	0.83	0.83	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.83	0.83	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:55	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Sample Description: HC-610-SB03-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:00
SDG#: FSA91-07BKG

AECOM
ELLE Sample #: SW 9558863
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.79	0.79	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.79	0.79	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.26	0.79	0.79	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.79	0.79	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.48 J	0.26	0.79	0.79	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.26	0.79	0.79	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 07:10	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-610-SB03-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 07:50
SDG#: FSA91-08

AECOM
ELLE Sample #: SW 9558866
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	0.75	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.3	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	16.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 07:26	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-620-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:20
SDG#: FSA94-01

AECOM
ELLE Sample #: SW 9564405
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.20	0.60	0.60	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.20	0.60	0.60	1
14478	Perfluorohexanesulfonate	355-46-4	0.20 J	0.20	0.60	0.60	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.20	0.60	0.60	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.73 J+M	0.20	0.60	0.60	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.20	0.60	0.60	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	2.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 06:34	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-620-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:05
SDG#: FSA94-02

AECOM
ELLE Sample #: SW 9564406
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.78	0.78	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.78	0.78	1
14478	Perfluorohexanesulfonate	355-46-4	0.40 J	0.26	0.78	0.78	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.78	0.78	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.26	0.78	0.78	1
14478	Perfluorooctanoic acid	335-67-1	0.27 J	0.26	0.78	0.78	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	24.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 06:49	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-620-SB03-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 07:50
SDG#: FSA94-03

AECOM
ELLE Sample #: SW 9564407
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.7	0.21	0.63	0.63	1
14478	Perfluorooctanoic acid	335-67-1	0.28 J	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	9.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:05	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-620-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:25
SDG#: FSA94-04

AECOM
ELLE Sample #: SW 9564408
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.0	0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	13.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:20	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-620-SB03-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 07:55
SDG#: FSA94-05

AECOM
ELLE Sample #: SW 9564409
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.64	0.64	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.64	0.64	1
14478	Perfluorohexanesulfonate	355-46-4	0.33 J	0.21	0.64	0.64	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.64	0.64	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.5	0.21	0.64	0.64	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.21	0.64	0.64	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	13.9	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:36	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-620-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:00
SDG#: FSA94-06

AECOM
ELLE Sample #: SW 9564410
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.20	0.61	0.61	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.20	0.61	0.61	1
14478	Perfluorohexanesulfonate	355-46-4	1.9	0.20	0.61	0.61	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.20	0.61	0.61	1
14478	Perfluoro-octanesulfonate	1763-23-1	13	0.20	0.61	0.61	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.20	0.61	0.61	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	3.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:51	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-FTA-SB03-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:20
SDG#: FSA94-07

AECOM
ELLE Sample #: SW 9564411
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.76	0.76	1
14478	Perfluoroheptanoic acid	375-85-9	0.60 J	0.25	0.76	0.76	1
14478	Perfluorohexanesulfonate	355-46-4	3.7 J,F	0.25	0.76	0.76	1
14478	Perfluorononanoic acid	375-95-1	0.71 J	0.25	0.76	0.76	1
14478	Perfluoro-octanesulfonate	1763-23-1	54	0.25	0.76	0.76	1
14478	Perfluorooctanoic acid	335-67-1	1.9	0.25	0.76	0.76	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 22:05	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-EB-041718 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 14:09
SDG#: FSA94-08EB

AECOM
ELLE Sample #: WW 9564412
ELLE Group #: 1933201
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	2.8	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109005	04/26/2018 09:49	Marissa C Drexinger	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109005	04/19/2018 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FRB-041718 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:50
SDG#: FSA94-09FB

AECOM
ELLE Sample #: WW 9564413
ELLE Group #: 1933201
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.54	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/24/2018 21:51	Marissa C Drexinger	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/23/2018 16:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-SB03-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:15
SDG#: FSA94-10

AECOM
ELLE Sample #: SW 9564414
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	0.53 J	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	7.8	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	1.8	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	210	2.3	7.0	7.0	10
14478	Perfluorooctanoic acid	335-67-1	3.1	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	16.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 22:21	Joshua P Trost	1
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 01:12	Joshua P Trost	10
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF3-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 13:45
SDG#: FSA94-11

AECOM
ELLE Sample #: SW 9564415
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.36 J	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 22:36	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 10:00
SDG#: FSA94-12

AECOM
ELLE Sample #: SW 9564416
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	0.44 J	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	0.49 J	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	23	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	1.7	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	450	2.1	6.3	6.3	10
14478	Perfluorooctanoic acid	335-67-1	9.6	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	8.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18123012	05/04/2018 12:25	Joshua P Trost	1
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18123012	05/04/2018 12:41	Joshua P Trost	10
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18123012	05/03/2018 16:30	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-SB-D Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:50
SDG#: FSA94-13FD

AECOM
ELLE Sample #: SW 9564417
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.25 J	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	1.4	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	17 JF	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	8.9	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	1,000	2.3	7.0	7.0	10
14478	Perfluorooctanoic acid	335-67-1	10	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:07	Joshua P Trost	1
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 01:43	Joshua P Trost	10
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-FTA-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 10:05
SDG#: FSA94-14

AECOM
ELLE Sample #: SW 9564418
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	1.1	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	0.79	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	7.9	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	5.4	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	110	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	4.2	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:23	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 11:00
SDG#: FSA94-15

AECOM
ELLE Sample #: SW 9564419
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.41 J	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	15	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	0.30 J	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	140	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	1.3	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	17.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:38	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF3-SB-D Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 13:50
SDG#: FSA94-16FD

AECOM
ELLE Sample #: SW 9564420
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.41 J	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	21.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:54	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF3-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 13:40
SDG#: FSA94-17

AECOM
ELLE Sample #: SW 9564421
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	0.33 J	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.3	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	0.25 J	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 00:10	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 11:05
SDG#: FSA94-18

AECOM
ELLE Sample #: SW 9564422
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	2.0	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	0.81	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	18	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	5.6	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	100	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	5.6	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 00:25	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF4-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 08:55
SDG#: FSA95-01

AECOM
ELLE Sample #: SW 9567185
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.30 J	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 14:20	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF4-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 08:50
SDG#: FSA95-02BKG

AECOM
ELLE Sample #: SW 9567186
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.76	0.76	1
14478	Perfluoroheptanoic acid	375-85-9	0.26 J	0.25	0.76	0.76	1
14478	Perfluorohexanesulfonate	355-46-4	2.0 J,m	0.25	0.76	0.76	1
14478	Perfluorononanoic acid	375-95-1	0.41 J	0.25	0.76	0.76	1
14478	Perfluoro-octanesulfonate	1763-23-1	9.3	0.25	0.76	0.76	1
14478	Perfluorooctanoic acid	335-67-1	0.77	0.25	0.76	0.76	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	22.9	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 14:36	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF1-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 10:05
SDG#: FSA95-03

AECOM
ELLE Sample #: SW 9567189
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.48 J	0.23	0.70	0.70	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	21.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 14:51	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF1-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 10:00
SDG#: FSA95-04

AECOM
ELLE Sample #: SW 9567190
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	0.26 J	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	0.24 J	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.5	0.21	0.63	0.63	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	12.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 15:07	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB03-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:25
SDG#: FSA95-05

AECOM
ELLE Sample #: SW 9567191
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	3.8	0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	11.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 02:25	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB03-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:30
SDG#: FSA95-06

AECOM
ELLE Sample #: SW 9567192
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/g	ng/g	ng/g	ng/g	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		%	%	%	%	
00111	Moisture	n.a.	14.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 02:41	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FRB-041818 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 07:40
SDG#: FSA95-07FB

AECOM
ELLE Sample #: WW 9567193
ELLE Group #: 1933839
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/24/2018 23:24	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/23/2018 16:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-EB-041818 Grab Water
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:30
SDG#: FSA95-08EB

AECOM
ELLE Sample #: WW 9567194
ELLE Group #: 1933839
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.93	0.93	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.93	0.93	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.9	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.9	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.56	1.9	1.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.93	0.93	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18117008	04/30/2018 10:11	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18117008	04/27/2018 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-APN-SB04-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 11:10
SDG#: FSA95-09

AECOM
ELLE Sample #: SW 9567195
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.66	0.66	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.66	0.66	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.66	0.66	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.66	0.66	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.5	0.22	0.66	0.66	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.66	0.66	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	10.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 02:56	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Sample Description: HC-APN-SB04-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 11:15
SDG#: FSA95-10

AECOM
ELLE Sample #: SW 9567196
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.62	0.62	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.62	0.62	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.21	0.62	0.62	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.62	0.62	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.48 J	0.21	0.62	0.62	1
14478	Perfluorooctanoic acid	335-67-1	0.37 J	0.21	0.62	0.62	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:12	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB02-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:50
SDG#: FSA95-11

AECOM
ELLE Sample #: SW 9567197
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	4.4	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	74	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	0.29 J	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:27	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB01-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:25
SDG#: FSA95-12

AECOM
ELLE Sample #: SW 9567198
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	0.58 J	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	0.29 J	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	70	0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	13.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:43	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB01-01 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:20
SDG#: FSA95-13

AECOM
ELLE Sample #: SW 9567199
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	0.67 J	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	1.9	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	0.67 J	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	48	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	0.81	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:58	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB-D Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:05
SDG#: FSA95-14

AECOM
ELLE Sample #: SW 9567200
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	0.60 J	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	3.0	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	0.91	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	110	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	0.99	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 04:14	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-SB02-45 Grab Soil
Hancock ANGB

Project Name: Hancock ANGB

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:55
SDG#: FSA95-15

AECOM
ELLE Sample #: SW 9567201
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	4.2	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	130	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	25.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 04:29	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-646-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 09:45
SDG#: FSA99-01

AECOM
ELLE Sample #: GW 9604425
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	21 J-, S	0.28	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	29	2.8	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	130	3.7	10	18	10
14434	Perfluorononanoic acid	375-95-1	28 J-, S	0.37	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	530	5.5	21	28	10
14434	Perfluorooctanoic acid	335-67-1	95 J-, S	0.28	1.1	1.8	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 11:57	Joshua P Trost	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 12:13	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-TU019-MW001 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 10:21
SDG#: FSA99-02

AECOM
ELLE Sample #: GW 9604426
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	860	5.0	18	33	10
14434	Perfluoroheptanoic acid	375-85-9	1,000	5.0	20	33	10
14434	Perfluorohexanesulfonate	355-46-4	6,300	6.6	18	33	10
14434	Perfluorononanoic acid	375-95-1	19 J	6.6	20	33	10
14434	Perfluoro-octanesulfonate	1763-23-1	1,100	10	38	50	10
14434	Perfluorooctanoic acid	335-67-1	2,800	5.0	20	33	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 12:44	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-BBW-01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 11:05
SDG#: FSA99-03BKG

AECOM
ELLE Sample #: GW 9604427
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	13 J+,m	0.28	1.0	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	1.4 J	0.28	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	8.1 J+,m	0.38	1.0	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	2.4 ~~J~~ U U,4	0.57	~~2.2~~ 2,4	2.8	1
14434	Perfluorooctanoic acid	335-67-1	~~0.88 J~~ 1.1 U U,4	0.28	1.1	1.9	1

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Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 13:46	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-APN-MW02 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 14:00
SDG#: FSA99-04

AECOM
ELLE Sample #: GW 9604430
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	29	2.7	10	18	10
14434	Perfluoroheptanoic acid	375-85-9	56	2.7	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	390	3.6	10	18	10
14434	Perfluorononanoic acid	375-95-1	17 J	3.6	11	18	10
14434	Perfluoro-octanesulfonate	1763-23-1	66 U U,Y	5.4	~~21~~ 66	~~27~~ 66	10
14434	Perfluorooctanoic acid	335-67-1	77	2.7	11	18	10

Reporting limits were raised due to interference from the sample matrix.

NAT 06/05/18

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/24/2018 00:17	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FB-050918 Grab Water
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 13:30
SDG#: FSA99-05FB

AECOM
ELLE Sample #: GW 9604431
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.38	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.57	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.29	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 14:48	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Analysis Report

Sample Description: HC-EB-050918 Grab Water
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 13:40
SDG#: FSA99-06EB

AECOM
ELLE Sample #: GW 9604432
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.38	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	1.1 J	0.57	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	0.34 J	0.29	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 15:04	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Analysis Report

Sample Description: HC-610-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 14:35
SDG#: FSA99-07

AECOM
ELLE Sample #: GW 9604433
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	130	2.8	10	19	10
14434	Perfluoroheptanoic acid	375-85-9	48	2.8	11	19	10
14434	Perfluorohexanesulfonate	355-46-4	2,100	3.8	10	19	10
14434	Perfluorononanoic acid	375-95-1	N.D.	3.8	11	19	10
14434	Perfluoro-octanesulfonate	1763-23-1	3,000	56	220	280	100
14434	Perfluorooctanoic acid	335-67-1	350	2.8	11	19	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 15:35	Joshua P Trost	10
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 15:50	Joshua P Trost	100
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-D Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018
SDG#: FSA99-08FD

AECOM
ELLE Sample #: GW 9604434
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	1,800	29	110	190	100
14434	Perfluoroheptanoic acid	375-85-9	3,700	29	120	190	100
14434	Perfluorohexanesulfonate	355-46-4	23,000	39	110	190	100
14434	Perfluorononanoic acid	375-95-1	1,100	39	120	190	100
14434	Perfluoro-octanesulfonate	1763-23-1	57,000	580	2,200	2,900	1000
14434	Perfluorooctanoic acid	335-67-1	8,800	29	120	190	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 16:37	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/24/2018 00:48	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-MW02 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 16:00
SDG#: FSA99-09

AECOM
ELLE Sample #: GW 9604435
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	5,700	50	180	330	100
14434	Perfluoroheptanoic acid	375-85-9	1,400	50	200	330	100
14434	Perfluorohexanesulfonate	355-46-4	42,000	67	180	330	100
14434	Perfluorononanoic acid	375-95-1	8,500	67	200	330	100
14434	Perfluoro-octanesulfonate	1763-23-1	63,000	1,000	3,800	5,000	1000
14434	Perfluorooctanoic acid	335-67-1	7,300	50	200	330	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:08	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:23	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Sample Description: HC-FTA-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 16:20
SDG#: FSA99-10

AECOM
ELLE Sample #: GW 9604436
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	3,600	50	180	330	100
14434	Perfluoroheptanoic acid	375-85-9	3,500	50	200	330	100
14434	Perfluorohexanesulfonate	355-46-4	23,000	67	180	330	100
14434	Perfluorononanoic acid	375-95-1	8,200	67	200	330	100
14434	Perfluoro-octanesulfonate	1763-23-1	130,000	1,000	3,800	5,000	1000
14434	Perfluorooctanoic acid	335-67-1	9,200	50	200	330	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:39	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:54	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-FTA-MW03 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 16:45
SDG#: FSA99-11

AECOM
ELLE Sample #: GW 9604437
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	1,700	28	100	190	100
14434	Perfluoroheptanoic acid	375-85-9	4,100	28	110	190	100
14434	Perfluorohexanesulfonate	355-46-4	25,000	38	100	190	100
14434	Perfluorononanoic acid	375-95-1	1,300	38	110	190	100
14434	Perfluoro-octanesulfonate	1763-23-1	69,000	560	2,200	2,800	1000
14434	Perfluorooctanoic acid	335-67-1	9,500	28	110	190	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 18:26	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/24/2018 01:03	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HC-OF3-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 17:15
SDG#: FSA99-12

AECOM
ELLE Sample #: GW 9604438
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.2	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.38	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.2	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	~~1.0 J~~ 2.2 U,Y	0.58	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.29	1.2	1.9	1

NAT 5/5/18

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 18:41	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Sample Description: HC-APN-MW03 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 08:15
SDG#: FSA99-13

AECOM
ELLE Sample #: GW 9604439
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	8.7	0.50	1.8	3.3	1
14434	Perfluoroheptanoic acid	375-85-9	3.3 J	0.50	2.0	3.3	1
14434	Perfluorohexanesulfonate	355-46-4	130	0.66	1.8	3.3	1
14434	Perfluorononanoic acid	375-95-1	13	0.66	2.0	3.3	1
14434	Perfluoro-octanesulfonate	1763-23-1	~~4.9~~ J 5.0U U,y	1.0	3.8	5.0	1
14434	Perfluorooctanoic acid	335-67-1	8.6	0.50	2.0	3.3	1

NAT 06/05/18

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:12	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Analysis Report

Sample Description: HC-APN-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 07:50
SDG#: FSA99-14

AECOM
ELLE Sample #: GW 9604440
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	5.8	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	3.0	0.29	1.2	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	110	0.39	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	0.82 J	0.39	1.2	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	47	0.58	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	31	0.29	1.2	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:28	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Analysis Report

Sample Description: HC-FB-051018 Grab Water
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 07:30
SDG#: FSA99-15FB

AECOM
ELLE Sample #: GW 9604441
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	1.0	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.0	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	3.8	0.56	2.1	2.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:43	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Analysis Report

Sample Description: HC-EB-051018 Grab Water
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 07:35
SDG#: FSA99-16EB

AECOM
ELLE Sample #: GW 9604442
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.2	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	0.41 J	0.39	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.39	1.2	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	4.4	0.58	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.29	1.2	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:59	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

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Sample Description: HC-608-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 08:25
SDG#: FSA99-17

AECOM
ELLE Sample #: GW 9604443
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous EPA 537 mod QSM 5.1 table B-15			ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	76	2.9	11	20	10
14434	Perfluoroheptanoic acid	375-85-9	170	2.9	12	20	10
14434	Perfluorohexanesulfonate	355-46-4	1,100	3.9	11	20	10
14434	Perfluorononanoic acid	375-95-1	31	3.9	12	20	10
14434	Perfluoro-octanesulfonate	1763-23-1	470	5.9	23	29	10
14434	Perfluorooctanoic acid	335-67-1	330	2.9	12	20	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 20:30	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-618-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 08:50
SDG#: FSA99-18

AECOM
ELLE Sample #: GW 9604444
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	13	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	3.5	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	200	0.36	1.0	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	24	0.54	2.1	2.7	1
14434	Perfluorooctanoic acid	335-67-1	12	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 08:20	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-620-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 09:30
SDG#: FSA99-19

AECOM
ELLE Sample #: GW 9604445
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	62	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	80 J-,S	2.7	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	670 J-,S	3.6	10	18	10
14434	Perfluorononanoic acid	375-95-1	15	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	1,300 J-,S	5.4	21	27	10
14434	Perfluorooctanoic acid	335-67-1	120	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 08:35	Joshua P Trost	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/23/2018 22:59	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

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Analysis Report

Sample Description: HC-OF1-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 10:05
SDG#: FSA99-20

AECOM
ELLE Sample #: GW 9604446
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	5.6	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	3.9	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	21	0.36	1.0	1.8	1
14434	Perfluorononanoic acid	375-95-1	4.4	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	2.7 J U U, 4	0.55	~~2.1~~ 2.7	2.7	1
14434	Perfluorooctanoic acid	335-67-1	12	0.27	1.1	1.8	1

NAT 6/5/18

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 08:51	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-OF4-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 10:35
SDG#: FSA99-21

AECOM
ELLE Sample #: GW 9604447
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	1.6 J	0.27	0.99	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	3.5	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	42	0.36	0.99	1.8	1
14434	Perfluorononanoic acid	375-95-1	1.1 J	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	17U U,Y	0.54	~~2.1~~ 17	~~2.7~~ 17	1
14434	Perfluorooctanoic acid	335-67-1	6.3	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 09:07	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: HC-644-MW01 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 12:00
SDG#: FSA99-22

AECOM
ELLE Sample #: GW 9604448
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	19	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	150 J-,S	2.7	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	380 J-,S	3.6	10	18	10
14434	Perfluorononanoic acid	375-95-1	27	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	2,000 J-,S	5.5	21	27	10
14434	Perfluorooctanoic acid	335-67-1	100	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 09:22	Joshua P Trost	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/23/2018 23:14	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

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Analysis Report

Sample Description: HC-APN-MW04 Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 11:15
SDG#: FSA99-23

AECOM
ELLE Sample #: GW 9604449
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	3.9 J	0.76	2.8	5.1	1
14434	Perfluoroheptanoic acid	375-85-9	3.7 J	0.76	3.0	5.1	1
14434	Perfluorohexanesulfonate	355-46-4	140 J,F	1.0	2.8	5.1	1
14434	Perfluorononanoic acid	375-95-1	1.8 J	1.0	3.0	5.1	1
14434	Perfluoro-octanesulfonate	1763-23-1	220	1.5	5.8	7.6	1
14434	Perfluorooctanoic acid	335-67-1	18	0.76	3.0	5.1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 09:38	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

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Analysis Report

Sample Description: HC-APN-D Grab Groundwater
Hancock ANGB 60520893

Project Name: Hancock ANGB

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018
SDG#: FSA99-24FD

AECOM
ELLE Sample #: GW 9604450
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		ng/l	ng/l	ng/l	ng/l	
14434	Perfluorobutanesulfonate	375-73-5	4.5	0.27	0.98	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	4.2	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	230 JF	0.36	0.98	1.8	1
14434	Perfluorononanoic acid	375-95-1	1.5 J	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	230	0.54	2.1	2.7	1
14434	Perfluorooctanoic acid	335-67-1	21	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 10:09	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

DATA VALIDATION WORKSHEET

Perfluorinated Compounds by LC/MS/MS

Reviewer: Victoria Kirkpatrick
Date: 6/5/2018
DV Level: II III IV

Project Name: Hancock
Project Number: 60520893
Laboratory: Eurofins
SDG No.: FSA24,87,89-91,94,95,&99
Test Name: PFOA/PFOS

Review Document:
__X__ National Functional Guidelines for Organic Data Review

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(+)/R(-)	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(+)/R(-) .		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 method blanks have positive results?	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are at least five standards included in the calibration curve? If no, flag "R".	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 ±0.06 RRT units of the ICAL?	X		
4.4	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".	X		
4.5	Were continuing calibration standards analyzed every 12 hours or ten samples and at the end of the sequence? If no, flag "R".	X		
4.6	Are all calibration standard %RSD (<±20%ICAL, r>0.995, or r^2<0.990), second source (±30%) or %D(±20%) within the control limits?		X	
For initial calibration: Each calibration point, except those less than 2x MRL should calculate to be 80%-120% of the true value. (<2x MRL: 50%-150%)				
For second source: %D>30%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 20%, J(+), only. Negative Bias - %D>-20% but <-50%, J(+)/UJ(-) and %D>-50%, J(+)/R(-).				

Notes: The ICAL anomaly was low-point %D positive bias. All pos sample results >> [low-point]. No flag needed

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%)? Action: If Yes, for %R >130, K(+) only; for %R 30%-70%, L(+)/UL(-), and %R<30%, L(+)/R(-).		X	
5.3	Are there any RPD for LCS/LCSD recoveries outside the QC limits? If Yes, J(+) only.		X	

Notes:

6.0 Surrogate Recovery/Internal Standard Area Count					Yes	No	NA
6.1	Are surrogate recoveries within acceptance criteria for all samples and method blanks (±30%)?					X	
6.2	If No in Section 6.3, are these sample(s) or method blank(s) reanalyzed?				X		
6.3	If No in Section 6.4, is any sample dilution factor greater than 10? (recoveries may be diluted out.)				X		
		<10%	low	high			
	Positives	L	L	K			
	Non-detects	R	UL	No action			
6.4	Has the internal standard area count been met for all quality control and field samples? (50%-200%) If not, (J+/UJ-)					X	
6.5	Is the internal standard retention time for every QC criteria and sample been met? (±60 seconds from retention time of the IS from the ICAL mid-point standard)? If no, samples should be reanalyzed.				X		

Notes:

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-(+)/R(-) 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:

8.0 Field/Laboratory Duplicates		Yes	No	NA
8.1	Evaluate field duplicate results? If no, J(+) parent sample/field duplicate only.		X	

Notes:

9.0 Compound Identification/Tune and Detection Limit Verification		Yes	No	NA
9.1	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		
9.2	Was a mass calibration performed daily prior to analysis?	X		

Notes:

10.0 Data Completeness		Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit $95\%_{aq}$ and $90\%_{so}$)	X		
10.1.1	Number of samples: 110			
10.1.2	Number of target compounds in each analysis: 6			
10.1.3	Number of results rejected or not reported: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100%			

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24743

Init. Calib. Date/Times: 01/08/2018 17:13 01/08/2018 19:16

Lab File Names: CAL1=18JAN08MCAL-19.WIFF; CAL2=18JAN08MCAL-20.WIFF; CAL3=18JAN08MCAL-21.WIFF;
CAL4=18JAN08MCAL-22.WIFF; CAL5=18JAN08MCAL-23.WIFF; CAL6=18JAN08MCAL-24.WIFF;
CAL7=18JAN08MCAL-25.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanoic acid	0.959	0.909	0.875	0.852	0.875	0.847	0.836	5
Perfluoropentanoic acid	1.018	0.954	0.929	1.034	0.953	0.924	0.879	5
Perfluorobutanesulfonate	1.039	1.037	0.991	1.004	1.052	1.022	1.079	3
4:2 fluorotelomersulfonate	0.995	1.261	1.050	0.922	0.893	---	---	13
Perfluorohexanoic acid	0.973	0.955	0.991	0.982	0.975	0.936	0.884	4
Perfluoropentanesulfonate	0.432	0.441	0.453	0.441	0.491	0.444	0.445	4
Perfluorohexanesulfonate	1.003	0.996	1.021	1.025	0.984	1.010	1.022	1
Perfluoroheptanoic acid	1.330	1.366	1.403	1.280	1.265	1.275	1.144	6
6:2 fluorotelomersulfonate	1.171	1.220	0.974	0.924	0.924	---	---	12
Perfluoroheptanesulfonate	1.097	1.008	0.968	0.968	0.974	0.986	0.894	6
Perfluorooctanoic acid	1.117	1.051	1.096	1.032	1.002	0.989	0.954	5
Perfluoro-octanesulfonate	1.195	0.967	0.988	0.969	1.009	0.938	1.093	8
Perfluorononanoic acid	1.381	1.453	1.494	1.313	1.379	1.254	1.225	7
Perfluorononanesulfonate	0.741	0.728	0.770	0.757	0.789	0.706	0.806	4
Perfluorodecanoic acid	0.939	0.916	0.854	0.923	0.860	0.869	0.833	4
8:2 fluorotelomersulfonate	0.993	1.050	0.977	0.862	0.869	---	---	8
NMePFOSAE	1.089	1.203	1.171	1.078	1.097	1.074	0.972	6
NMePFOSA	0.928	1.155	1.069	1.070	1.104	1.055	1.068	6
NMeFOSAA	1.027	1.155	1.042	1.165	1.085	1.051	1.003	5
NEtPFOSAE	1.226	1.235	1.227	1.170	1.126	1.121	1.109	4
NEtPFOSA	1.110	1.242	1.156	1.256	1.115	1.001	0.993	9
Perfluorodecanesulfonate	0.575	0.516	0.622	0.624	0.628	0.542	0.597	7
Perfluoroundecanoic acid	1.351	1.395	1.268	1.316	1.263	1.244	1.146	6
NEtFOSAA	1.053	1.032	1.014	1.029	1.069	1.039	1.026	2
Perfluorododecanoic acid	1.047	1.034	0.942	0.943	0.934	0.912	0.808	8
10:2-fluorotelomersulfonate	1.370	1.711	1.718	1.352	1.335	---	---	12
Perfluorododecanesulfonate	0.171	0.174	0.221	0.221	0.224	0.215	0.245	12
Perfluorotridecanoic acid	0.851	0.805	0.892	0.906	0.854	0.805	0.692	8
Perfluorotetradecanoic acid	0.893	0.947	0.925	0.898	0.871	0.873	0.834	4
Perfluorohexadecanoic acid	0.481	0.495	0.475	0.414	0.435	0.502	0.505	7
Perfluorooctadecanoic acid	0.472	0.519	0.501	0.454	0.476	0.549	0.567	8

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24743 Lab File ID: 18JAN08-34.WIFF

Date/Time Analyzed: 01/09/2018 11:05 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 01/08/2018 17:13 01/08/2018 19:16

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.16	8.17	±30
Perfluoropentanoic acid	2.00	2.12	5.91	±30
Perfluorobutanesulfonate	1.77	1.74	-1.95	±30
4:2 fluorotelomersulfonate	4.90	5.01	2.24	±30
Perfluorohexanoic acid	2.00	2.28	14.11	±30
Perfluoropentanesulfonate	1.88	2.06	9.40	±30
Perfluorohexanesulfonate	1.89	1.98	4.70	±30
Perfluoroheptanoic acid	2.00	2.17	8.44	±30
6:2 fluorotelomersulfonate	5.21	4.83	-7.20	±30
Perfluoroheptanesulfonate	1.90	1.90	-0.11	±30
Perfluorooctanoic acid	2.00	2.30	15.10	±30
Perfluoro-octanesulfonate	1.91	1.81	-5.38	±30
Perfluorononanoic acid	2.00	2.22	11.05	±30
Perfluorononanesulfonate	1.92	1.67	-13.08	±30
Perfluorodecanoic acid	2.00	2.09	4.72	±30
8:2 fluorotelomersulfonate	5.27	5.67	7.63	±30
NMePFOSAE	2.00	2.49	24.38	±30
NMePFOSA	2.00	2.08	4.13	±30
NMeFOSAA	2.00	1.77	-11.26	±30
NEtPFOSAE	2.00	2.15	7.40	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24743 Lab File ID: 18JAN08-35.WIFF

Date/Time Analyzed: 01/09/2018 11:26 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 01/08/2018 17:13 01/08/2018 19:16

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.08	3.97	±30
Perfluoropentanoic acid	2.00	2.16	8.09	±30
Perfluorobutanesulfonate	1.77	1.68	-4.92	±30
4:2 fluorotelomersulfonate	4.90	4.84	-1.29	±30
Perfluorohexanoic acid	2.00	2.32	15.80	±30
Perfluoropentanesulfonate	1.88	1.85	-1.46	±30
Perfluorohexanesulfonate	1.89	1.78	-5.58	±30
Perfluoroheptanoic acid	2.00	2.24	12.19	±30
6:2 fluorotelomersulfonate	5.21	5.30	1.78	±30
Perfluoroheptanesulfonate	1.90	1.76	-7.58	±30
Perfluorooctanoic acid	2.00	2.03	1.59	±30
Perfluoro-octanesulfonate	1.91	1.98	3.41	±30
Perfluorononanoic acid	2.00	2.38	18.91	±30
Perfluorononanesulfonate	1.92	2.06	7.32	±30
Perfluorodecanoic acid	2.00	2.10	5.04	±30
8:2 fluorotelomersulfonate	5.27	5.73	8.73	±30
NMePFOSAE	2.00	2.29	14.59	±30
NMePFOSA	2.00	1.97	-1.43	±30
NMeFOSAA	2.00	1.82	-8.85	±30
NEtPFOSAE	2.00	1.99	-0.25	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24743 Lab File ID: 18JAN09-01.WIFF

Date/Time Analyzed: 01/09/2018 12:48 Lab Sample ID: CCV1_CAL1

Init. Calib. Date/Times: 01/08/2018 17:13 01/08/2018 19:16

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	0.20	0.23	14.65	±30
Perfluoropentanoic acid	0.20	0.21	6.38	±30
Perfluorobutanesulfonate	0.17	0.17	1.02	±30
4:2 fluorotelomersulfonate	0.58	0.58	-0.84	±30
Perfluorohexanoic acid	0.20	0.23	14.79	±30
Perfluoropentanesulfonate	0.19	0.21	10.86	±30
Perfluorohexanesulfonate	0.19	0.19	-0.81	±30
Perfluoroheptanoic acid	0.20	0.26	30.17 *	±30
6:2 fluorotelomersulfonate	1.30	1.37	5.41	±30
Perfluoroheptanesulfonate	0.19	0.19	-2.03	±30
Perfluorooctanoic acid	0.20	0.22	10.62	±30
Perfluoro-octanesulfonate	0.19	0.20	3.51	±30
Perfluorononanoic acid	0.20	0.23	15.77	±30
Perfluorononanesulfonate	0.19	0.18	-4.80	±30
Perfluorodecanoic acid	0.20	0.23	15.59	±30
8:2 fluorotelomersulfonate	1.32	1.41	6.91	±30
NMePFOSAE	0.20	0.24	20.22	±30
NMePFOSA	0.20	0.25	26.86	±30
NMeFOSAA	0.20	0.21	4.20	±30
NEtPFOSAE	0.20	0.20	0.80	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24743 Lab File ID: 18JAN09-14.WIFF

Date/Time Analyzed: 01/09/2018 17:15 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 01/08/2018 17:13 01/08/2018 19:16

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	0.60	0.64	7.39	±30
Perfluoropentanoic acid	0.60	0.66	10.79	±30
Perfluorobutanesulfonate	0.53	0.53	0.53	±30
4:2 fluorotelomersulfonate	1.98	2.12	7.13	±30
Perfluorohexanoic acid	0.60	0.67	11.42	±30
Perfluoropentanesulfonate	0.56	0.59	4.66	±30
Perfluorohexanesulfonate	0.57	0.58	1.97	±30
Perfluoroheptanoic acid	0.60	0.69	14.80	±30
6:2 fluorotelomersulfonate	2.09	2.07	-0.80	±30
Perfluoroheptanesulfonate	0.57	0.55	-3.40	±30
Perfluorooctanoic acid	0.60	0.65	8.40	±30
Perfluoro-octanesulfonate	0.57	0.59	4.01	±30
Perfluorononanoic acid	0.60	0.66	10.25	±30
Perfluorononanesulfonate	0.58	0.48	-16.55	±30
Perfluorodecanoic acid	0.60	0.67	11.55	±30
8:2 fluorotelomersulfonate	2.11	2.37	12.30	±30
NMePFOSAE	0.60	0.66	10.53	±30
NMePFOSA	0.60	0.62	2.79	±30
NMeFOSAA	0.60	0.65	8.97	±30
NEtPFOSAE	0.60	0.67	12.41	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA24
Matrix: WATER

17352005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1673217	1465555	1547119	488780
UPPER LIMIT		2509826	2198333	2320679	733170
LOWER LIMIT		836609	732778	773560	244390
LAB SAMPLE ID	**DATE ANALYZED**				
LCS352005	01/09/18 13:29	1617326	1568535	1554091	447019
LCSDA	01/09/18 13:50	1579805	1423634	1530640	491235
BLK352005	01/09/18 14:31	1670439	1414175	1545742	516488
9364960	01/09/18 15:53	1784493	1737455	1068562	551232
9364961	01/09/18 16:13	1662788	1353823	1560022	486254

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24960

Init. Calib. Date/Times: 12/23/2017 23:40 12/24/2017 01:43

Lab File Names: CAL1=17DEC23MCAL-23.WIFF; CAL2=17DEC23MCAL-24.WIFF; CAL3=17DEC23MCAL-25.WIFF;
CAL4=17DEC23MCAL-26.WIFF; CAL5=17DEC23MCAL-27.WIFF; CAL6=17DEC23MCAL-28.WIFF;
CAL7=17DEC23MCAL-29.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanoic acid	0.979	0.879	0.904	0.912	0.890	0.886	0.867	4
Perfluoropentanoic acid	0.960	1.007	1.016	1.017	0.958	0.995	0.990	2
Perfluorobutanesulfonate	1.069	1.013	0.978	0.991	1.019	0.992	1.006	3
4:2 fluorotelomersulfonate	0.924	1.061	0.984	0.914	0.915	---	---	6
Perfluorohexanoic acid	0.930	0.920	0.942	0.945	0.934	0.941	0.980	2
Perfluoropentanesulfonate	0.420	0.423	0.420	0.397	0.427	0.410	0.379	4
Perfluorohexanesulfonate	1.012	1.031	1.005	1.082	1.006	0.989	1.043	3
Perfluoroheptanoic acid	1.045	1.105	1.156	1.113	1.175	1.106	1.129	3
6:2 fluorotelomersulfonate	0.907	0.972	0.876	0.964	0.759	---	---	9
Perfluoroheptanesulfonate	0.960	0.913	0.828	0.875	0.884	0.907	0.913	4
Perfluorooctanoic acid	1.010	1.165	1.029	1.002	1.034	1.154	1.038	6
Perfluoro-octanesulfonate	1.009	0.948	0.962	1.027	0.971	1.026	0.963	3
Perfluorononanoic acid	1.258	1.177	1.324	1.238	1.167	1.199	1.233	4
Perfluorononanesulfonate	0.775	0.675	0.672	0.773	0.716	0.747	0.762	6
Perfluorodecanoic acid	0.961	0.921	0.848	0.940	0.893	0.949	0.940	4
8:2 fluorotelomersulfonate	0.974	1.045	1.144	0.941	0.839	---	---	10
NMePFOSAE	1.188	1.223	1.186	1.150	1.239	1.134	1.132	3
NMePFOSA	0.989	1.010	1.123	1.108	1.027	1.065	0.974	5
NMeFOSAA	1.192	1.100	1.055	1.085	1.155	1.089	1.002	5
NEtPFOSAE	1.474	1.359	1.225	1.244	1.331	1.264	1.217	7
NEtPFOSA	1.147	1.422	1.427	1.419	1.164	---	---	10
Perfluorodecanesulfonate	0.581	0.446	0.477	0.578	0.559	0.587	0.576	10
Perfluoroundecanoic acid	1.298	1.190	1.229	1.227	1.142	1.168	1.105	5
NEtFOSAA	0.907	0.947	0.924	1.095	1.092	1.035	0.963	7
Perfluorododecanoic acid	0.984	0.939	0.927	0.899	0.866	0.920	0.867	4
10:2-fluorotelomersulfonate	0.687	0.696	0.678	0.601	0.567	---	---	8
Perfluorododecanesulfonate	0.271	0.230	0.216	0.233	0.231	0.236	0.262	7
Perfluorotridecanoic acid	0.673	0.681	0.670	0.671	0.661	0.676	0.638	2
Perfluorotetradecanoic acid	0.981	0.942	0.973	0.980	0.973	0.955	0.969	1
Perfluorohexadecanoic acid	0.638	0.637	0.632	0.625	0.637	0.639	0.663	2
Perfluorooctadecanoic acid	0.499	0.531	0.531	0.548	0.571	0.601	0.629	7

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24960 Lab File ID: 17DEC23MCAL-33.WIFF

Date/Time Analyzed: 12/24/2017 03:05 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 12/23/2017 23:40 12/24/2017 01:43

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	2.00	2.04	2.08	±30
Perfluoropentanoic acid	2.00	1.99	-0.26	±30
Perfluorobutanesulfonate	1.77	1.69	-4.49	±30
4:2 fluorotelomersulfonate	4.90	5.19	5.87	±30
Perfluorohexanoic acid	2.00	2.03	1.54	±30
Perfluoropentanesulfonate	1.88	1.85	-1.46	±30
Perfluorohexanesulfonate	1.89	1.93	2.28	±30
Perfluoroheptanoic acid	2.00	1.96	-1.92	±30
6:2 fluorotelomersulfonate	5.21	6.38	22.53	±30
Perfluoroheptanesulfonate	1.90	1.85	-2.66	±30
Perfluorooctanoic acid	2.00	1.97	-1.74	±30
Perfluoro-octanesulfonate	1.91	2.04	6.68	±30
Perfluorononanoic acid	2.00	2.05	2.36	±30
Perfluorononanesulfonate	1.92	1.76	-8.56	±30
Perfluorodecanoic acid	2.00	2.11	5.59	±30
8:2 fluorotelomersulfonate	5.27	5.72	8.46	±30
NMePFOSAE	2.00	2.23	11.25	±30
NMePFOSA	2.00	2.33	16.32	±30
NMeFOSAA	2.00	1.96	-2.02	±30
NEtPFOSAE	2.00	2.13	6.29	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24960 Lab File ID: 18JAN03-01.WIFF

Date/Time Analyzed: 01/03/2018 16:31 Lab Sample ID: CCV1_CAL1

Init. Calib. Date/Times: 12/23/2017 23:40 12/24/2017 01:43

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	0.20	0.21	7.14	±30
Perfluoropentanoic acid	0.20	0.21	2.60	±30
Perfluorobutanesulfonate	0.17	0.17	1.95	±30
4:2 fluorotelomersulfonate	0.58	0.56	-2.99	±30
Perfluorohexanoic acid	0.20	0.19	-5.19	±30
Perfluoropentanesulfonate	0.19	0.16	-15.67	±30
Perfluorohexanesulfonate	0.19	0.18	-5.25	±30
Perfluoroheptanoic acid	0.20	0.20	1.14	±30
6:2 fluorotelomersulfonate	1.30	1.32	1.60	±30
Perfluoroheptanesulfonate	0.19	0.19	-2.23	±30
Perfluorooctanoic acid	0.20	0.21	3.53	±30
Perfluoro-octanesulfonate	0.19	0.19	2.04	±30
Perfluorononanoic acid	0.20	0.18	-11.72	±30
Perfluorononanesulfonate	0.19	0.20	6.38	±30
Perfluorodecanoic acid	0.20	0.20	0.44	±30
8:2 fluorotelomersulfonate	1.32	1.47	11.50	±30
NMePFOSAE	0.20	0.22	8.61	±30
NMePFOSA	0.20	0.23	16.31	±30
NMeFOSAA	0.20	0.23	12.88	±30
NEtPFOSAE	0.20	0.23	13.64	±30

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA24

Instrument ID: 24960 Lab File ID: 18JAN03-14.WIFF

Date/Time Analyzed: 01/03/2018 20:58 Lab Sample ID: CCV2_ CAL2

Init. Calib. Date/Times: 12/23/2017 23:40 12/24/2017 01:43

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanoic acid	0.60	0.61	1.32	±30
Perfluoropentanoic acid	0.60	0.59	-1.87	±30
Perfluorobutanesulfonate	0.53	0.53	0.34	±30
4:2 fluorotelomersulfonate	1.98	2.15	8.80	±30
Perfluorohexanoic acid	0.60	0.63	4.19	±30
Perfluoropentanesulfonate	0.56	0.62	10.53	±30
Perfluorohexanesulfonate	0.57	0.56	-1.37	±30
Perfluoroheptanoic acid	0.60	0.61	1.98	±30
6:2 fluorotelomersulfonate	2.09	2.26	8.23	±30
Perfluoroheptanesulfonate	0.57	0.57	0.82	±30
Perfluorooctanoic acid	0.60	0.53	-11.51	±30
Perfluoro-octanesulfonate	0.57	0.56	-1.67	±30
Perfluorononanoic acid	0.60	0.61	2.40	±30
Perfluorononanesulfonate	0.58	0.64	10.96	±30
Perfluorodecanoic acid	0.60	0.59	-1.20	±30
8:2 fluorotelomersulfonate	2.11	2.49	17.79	±30
NMePFOSAE	0.60	0.57	-5.82	±30
NMePFOSA	0.60	0.68	12.98	±30
NMeFOSAA	0.60	0.63	5.46	±30
NEtPFOSAE	0.60	0.69	15.10	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA24
Matrix: WATER

17365004		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		545940	362463	800394	273923
UPPER LIMIT		818910	543695	1200591	410885
LOWER LIMIT		272970	181232	400197	136962
LAB SAMPLE ID	**DATE ANALYZED**				
LCS365004	01/03/18 17:12	554553	381612	918275	270470
LCSDA	01/03/18 17:32	546084	395759	917881	293377
BLK365004	01/03/18 17:53	542991	412237	899464	279574
9364960RE	01/03/18 19:36	571955	436915	621519	271974
9364961RE	01/03/18 19:56	602687	422358	944467	298111

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24743

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Lab File Names: CAL1=18APR11MCAL-16.WIFF; CAL2=18APR11MCAL-17.WIFF; CAL3=18APR11MCAL-18.WIFF;
CAL4=18APR11MCAL-19.WIFF; CAL5=18APR11MCAL-20.WIFF; CAL6=18APR11MCAL-21.WIFF;
CAL7=18APR11MCAL-22.WIFF;

	RF							RF
Analyte	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.059	1.045	0.969	0.975	1.000	0.962	0.998	3
Perfluorohexanesulfonate	1.006	0.903	0.976	1.045	1.080	0.934	0.962	6
Perfluoroheptanoic acid	1.277	1.113	1.210	1.187	1.340	1.093	---	7
Perfluorooctanoic acid	1.171	0.973	0.992	1.024	1.045	0.943	---	7
Perfluoro-octanesulfonate	0.967	0.940	0.939	1.011	1.061	0.995	0.984	4
Perfluorononanoic acid	1.421	1.240	1.343	1.268	1.374	---	---	5

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24743 Lab File ID: 18APR11MCAL-26.WIFF

Date/Time Analyzed: 04/12/2018 02:09 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.81	2.25	±30
Perfluorohexanesulfonate	1.89	1.83	-2.93	±30
Perfluoroheptanoic acid	2.00	2.14	6.84	±30
Perfluorooctanoic acid	2.00	2.02	1.09	±30
Perfluoro-octanesulfonate	1.91	1.95	2.01	±30
Perfluorononanoic acid	2.00	1.92	-4.14	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24743 Lab File ID: 18APR24-12.WIFF

Date/Time Analyzed: 04/24/2018 12:32 Lab Sample ID: CCV3_CAL1

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	9.01	±30
Perfluorohexanesulfonate	0.19	0.22	16.02	±30
Perfluoroheptanoic acid	0.20	0.22	10.06	±30
Perfluorooctanoic acid	0.20	0.24	22.03	±30
Perfluoro-octanesulfonate	0.19	0.19	-0.90	±30
Perfluorononanoic acid	0.20	0.20	-1.69	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24743 Lab File ID: 18APR24-25.WIFF

Date/Time Analyzed: 04/24/2018 15:54 Lab Sample ID: CCV4_CAL2

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.56	4.97	±30
Perfluorohexanesulfonate	0.57	0.54	-5.77	±30
Perfluoroheptanoic acid	0.60	0.60	0.60	±30
Perfluorooctanoic acid	0.60	0.64	6.45	±30
Perfluoro-octanesulfonate	0.57	0.56	-1.68	±30
Perfluorononanoic acid	0.60	0.58	-3.56	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24743 Lab File ID: 18APR24-35.WIFF

Date/Time Analyzed: 04/24/2018 18:29 Lab Sample ID: CCV5_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.78	0.81	±30
Perfluorohexanesulfonate	1.89	1.95	3.27	±30
Perfluoroheptanoic acid	2.00	2.07	3.56	±30
Perfluorooctanoic acid	2.00	2.06	2.99	±30
Perfluoro-octanesulfonate	1.91	1.84	-3.54	±30
Perfluorononanoic acid	2.00	1.95	-2.30	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR24-46.WIFF

Date/Time Analyzed: 04/24/2018 21:20 Lab Sample ID: CCV6_CAL1

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.20	16.03	±30
Perfluorohexanesulfonate	0.19	0.22	16.17	±30
Perfluoroheptanoic acid	0.20	0.20	-0.25	±30
Perfluorooctanoic acid	0.20	0.23	14.84	±30
Perfluoro-octanesulfonate	0.19	0.22	13.52	±30
Perfluorononanoic acid	0.20	0.21	3.44	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR24-52.WIFF

Date/Time Analyzed: 04/24/2018 22:53 Lab Sample ID: CCV7_CAL2

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.52	-2.67	±30
Perfluorohexanesulfonate	0.57	0.55	-2.74	±30
Perfluoroheptanoic acid	0.60	0.58	-4.04	±30
Perfluorooctanoic acid	0.60	0.62	2.53	±30
Perfluoro-octanesulfonate	0.57	0.52	-8.88	±30
Perfluorononanoic acid	0.60	0.61	2.39	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA95

Instrument ID: 24743 Lab File ID: 18APR24-63.WIFF

Date/Time Analyzed: 04/25/2018 01:44 Lab Sample ID: CCV8_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.72	-3.09	±30
Perfluorohexanesulfonate	1.89	1.86	-1.35	±30
Perfluoroheptanoic acid	2.00	2.14	6.95	±30
Perfluorooctanoic acid	2.00	2.12	5.89	±30
Perfluoro-octanesulfonate	1.91	1.79	-6.20	±30
Perfluorononanoic acid	2.00	1.90	-4.88	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA89
Matrix: SOIL

18108011		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS108011	04/24/18 13:03	1280938	1700544	1103658	393960
9557705MS	04/24/18 13:18	1363216	1597008	1115182	413592
9557706MSD	04/24/18 13:34	1295268	1578070	1115562	417404
BLK108011	04/24/18 14:05	1334437	1585425	1120492	402356
9557701	04/24/18 14:21	1463504	1541526	1114744	410551
9557702	04/24/18 14:36	1390393	1538855	1096984	417242
9557703	04/24/18 14:52	1238770	1567238	1112604	403182
9557704	04/24/18 15:07	1372453	1596618	1128843	391031
9557707	04/24/18 15:23	1311628	1576088	1118417	411943
9557710	04/24/18 15:38	1297157	1616458	1094353	400401
9557711	04/24/18 16:25	1359885	1476459	1072861	378610
9557712	04/24/18 16:40	1388470	1554075	1115000	409954
9557713	04/24/18 16:56	1283254	1512240	1087614	398517
9557714	04/24/18 17:11	1376849	1460914	1078532	394901
9557715	04/24/18 17:27	1410904	1630057	1088920	419914
9557716	04/24/18 17:42	1466628	1623493	1095971	390240
9557717	04/24/18 17:58	1342636	1584835	1085305	412798
9557718	04/24/18 18:13	1396420	1674609	1109368	422261

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA94
Matrix: WATER

18113012		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS113012	04/24/18 19:00	1280237	1368265	1018405	376928
LCSDA	04/24/18 19:16	1402041	1462201	1066716	416539
BLK113012	04/24/18 19:47	1288160	1570669	1033487	374118
9564413	04/24/18 21:51	1257160	1570658	1020411	364011

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA95
Matrix: WATER

18113012		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS113012	04/24/18 19:00	1280237	1368265	1018405	376928
LCSDA	04/24/18 19:16	1402041	1462201	1066716	416539
BLK113012	04/24/18 19:47	1288160	1570669	1033487	374118
9567193	04/24/18 23:24	1293781	1636334	1060721	367249

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA90

Instrument ID: 24743 Lab File ID: 18APR24-63.WIFF

Date/Time Analyzed: 04/25/2018 01:44 Lab Sample ID: CCV8_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.72	-3.09	±30
Perfluorohexanesulfonate	1.89	1.86	-1.35	±30
Perfluoroheptanoic acid	2.00	2.14	6.95	±30
Perfluorooctanoic acid	2.00	2.12	5.89	±30
Perfluoro-octanesulfonate	1.91	1.79	-6.20	±30
Perfluorononanoic acid	2.00	1.90	-4.88	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA90

Instrument ID: 24743 Lab File ID: 18APR24-76.WIFF

Date/Time Analyzed: 04/25/2018 05:06 Lab Sample ID: CCV9_CAL1

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.21	23.83	±30
Perfluorohexanesulfonate	0.19	0.20	6.44	±30
Perfluoroheptanoic acid	0.20	0.23	15.54	±30
Perfluorooctanoic acid	0.20	0.24	20.92	±30
Perfluoro-octanesulfonate	0.19	0.22	18.08	±30
Perfluorononanoic acid	0.20	0.21	3.62	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA90

Instrument ID: 24743 Lab File ID: 18APR24-86.WIFF

Date/Time Analyzed: 04/25/2018 07:41 Lab Sample ID: CCV10_CAL2

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.50	-5.65	±30
Perfluorohexanesulfonate	0.57	0.56	-1.98	±30
Perfluoroheptanoic acid	0.60	0.57	-5.55	±30
Perfluorooctanoic acid	0.60	0.62	4.01	±30
Perfluoro-octanesulfonate	0.57	0.60	6.10	±30
Perfluorononanoic acid	0.60	0.58	-3.23	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA90
Matrix: SOIL

18108014		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS108014	04/25/18 02:15	1352945	1645208	1098340	408409
BLK108014	04/25/18 03:17	1280659	1603228	1097221	389815
9557802	04/25/18 03:33	1319346	1609381	1068832	396473
9557803	04/25/18 03:48	1360012	1546777	1098218	389507
9557804	04/25/18 04:04	1404747	1622824	1105634	381400
9557805	04/25/18 04:19	1219546	1660133	1118727	395525
9557806	04/25/18 04:35	1276119	1532060	1125385	399485
9557807	04/25/18 04:50	1406951	1677055	1133478	393794
9557808	04/25/18 05:37	1401888	1580056	1118942	406460
9557809	04/25/18 05:53	1419351	1623408	1092666	409956

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA91

Instrument ID: 24743 Lab File ID: 18APR24-97.WIFF

Date/Time Analyzed: 04/25/2018 10:50 Lab Sample ID: CCV11_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.81	2.48	±30
Perfluorohexanesulfonate	1.89	1.92	1.54	±30
Perfluoroheptanoic acid	2.00	2.14	7.20	±30
Perfluorooctanoic acid	2.00	2.00	-0.25	±30
Perfluoro-octanesulfonate	1.91	1.76	-8.11	±30
Perfluorononanoic acid	2.00	1.75	-12.48	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA91
Matrix: SOIL

18108014		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS108014	04/25/18 02:15	1352945	1645208	1098340	408409
9558864MS	04/25/18 02:31	1242489	1550500	1091895	383694
BLK108014	04/25/18 03:17	1280659	1603228	1097221	389815
9558857	04/25/18 06:08	1389270	1603486	1096869	376072
9558858	04/25/18 06:24	1418232	1610679	1134983	372807
9558859	04/25/18 06:39	1336107	1520931	1091823	393557
9558862	04/25/18 06:55	1304493	1528925	1069348	376228
9558863	04/25/18 07:10	1311880	1508741	1094994	416497
9558866	04/25/18 07:26	1277264	1539329	1109317	398732
9558865MSD	04/25/18 10:26	1180833	1456786	1037836	366760

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR25-56.WIFF

Date/Time Analyzed: 04/26/2018 01:48 Lab Sample ID: CCV6_CAL1

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	10.99	±30
Perfluorohexanesulfonate	0.19	0.19	-0.92	±30
Perfluoroheptanoic acid	0.20	0.22	9.87	±30
Perfluorooctanoic acid	0.20	0.23	17.14	±30
Perfluoro-octanesulfonate	0.19	0.19	0.14	±30
Perfluorononanoic acid	0.20	0.23	13.52	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR25-64.WIFF

Date/Time Analyzed: 04/26/2018 03:52 Lab Sample ID: CCV7_CAL2

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.50	-4.91	±30
Perfluorohexanesulfonate	0.57	0.56	-1.10	±30
Perfluoroheptanoic acid	0.60	0.62	3.31	±30
Perfluorooctanoic acid	0.60	0.58	-2.96	±30
Perfluoro-octanesulfonate	0.57	0.54	-4.84	±30
Perfluorononanoic acid	0.60	0.58	-3.25	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR25-76.WIFF

Date/Time Analyzed: 04/26/2018 06:58 Lab Sample ID: CCV8_CAL3

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.93	8.90	±30
Perfluorohexanesulfonate	1.89	1.96	3.69	±30
Perfluoroheptanoic acid	2.00	2.10	4.93	±30
Perfluorooctanoic acid	2.00	1.96	-1.76	±30
Perfluoro-octanesulfonate	1.91	2.03	6.19	±30
Perfluorononanoic acid	2.00	2.03	1.32	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR25-88.WIFF

Date/Time Analyzed: 04/26/2018 10:05 Lab Sample ID: CCV9_CAL1

Init. Calib. Date/Times: 04/11/2018 23:34 04/12/2018 01:07

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	11.05	±30
Perfluorohexanesulfonate	0.19	0.23	19.18	±30
Perfluoroheptanoic acid	0.20	0.21	6.94	±30
Perfluorooctanoic acid	0.20	0.24	20.82	±30
Perfluoro-octanesulfonate	0.19	0.23	21.12	±30
Perfluorononanoic acid	0.20	0.20	0.81	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA94
Matrix: WATER

18109005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1163606	1442107	926861	371819
UPPER LIMIT		1745409	2163161	1390292	557729
LOWER LIMIT		581803	721054	463431	185910
LAB SAMPLE ID	**DATE ANALYZED**				
LCS109005	04/26/18 02:19	1335515	1685037	1048082	402855
BLK109005	04/26/18 03:21	1230365	1571143	1023867	377071
9564412	04/26/18 09:49	1270067	1545536	1041552	349783

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Lab File Names: CAL1=18APR16MCAL-02.WIFF; CAL2=18APR16MCAL-03.WIFF; CAL3=18APR16MCAL-04.WIFF;
CAL4=18APR16MCAL-05.WIFF; CAL5=18APR16MCAL-06.WIFF; CAL6=18APR16MCAL-07.WIFF;
CAL7=18APR16MCAL-08.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.112	0.966	1.011	1.025	1.118	1.009	1.021	5
Perfluorohexanesulfonate	1.106	1.034	1.030	1.040	1.123	1.019	1.020	4
Perfluoroheptanoic acid	1.096	1.091	1.091	1.132	1.100	0.989	0.971	5
Perfluorooctanoic acid	1.173	1.066	1.028	1.026	1.067	0.976	0.972	6
Perfluoro-octanesulfonate	1.184	1.016	1.060	1.056	1.090	0.987	1.010	6
Perfluorononanoic acid	1.426	1.211	1.292	1.339	1.295	1.131	1.102	9

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR16MCAL-12.WIFF

Date/Time Analyzed: 04/17/2018 17:35 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.76	-0.76	±30
Perfluorohexanesulfonate	1.89	1.89	-0.11	±30
Perfluoroheptanoic acid	2.00	2.13	6.44	±30
Perfluorooctanoic acid	2.00	1.99	-0.74	±30
Perfluoro-octanesulfonate	1.91	1.84	-3.45	±30
Perfluorononanoic acid	2.00	2.23	11.52	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR17-02.WIFF

Date/Time Analyzed: 04/17/2018 18:04 Lab Sample ID: CCV1_CAL1

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	11.30	±30
Perfluorohexanesulfonate	0.19	0.20	5.84	±30
Perfluoroheptanoic acid	0.20	0.24	20.26	±30
Perfluorooctanoic acid	0.20	0.25	23.74	±30
Perfluoro-octanesulfonate	0.19	0.21	11.36	±30
Perfluorononanoic acid	0.20	0.24	17.57	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR17-15.WIFF

Date/Time Analyzed: 04/17/2018 21:13 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.52	-1.44	±30
Perfluorohexanesulfonate	0.57	0.54	-5.68	±30
Perfluoroheptanoic acid	0.60	0.67	10.97	±30
Perfluorooctanoic acid	0.60	0.63	5.43	±30
Perfluoro-octanesulfonate	0.57	0.57	0.83	±30
Perfluorononanoic acid	0.60	0.69	15.70	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR17-26.WIFF

Date/Time Analyzed: 04/17/2018 23:53 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.79	0.92	±30
Perfluorohexanesulfonate	1.89	1.90	0.50	±30
Perfluoroheptanoic acid	2.00	2.23	11.35	±30
Perfluorooctanoic acid	2.00	2.04	1.81	±30
Perfluoro-octanesulfonate	1.91	1.97	2.98	±30
Perfluorononanoic acid	2.00	2.15	7.49	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR18-67.WIFF

Date/Time Analyzed: 04/18/2018 22:50 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.78	0.75	±30
Perfluorohexanesulfonate	1.89	1.79	-5.48	±30
Perfluoroheptanoic acid	2.00	2.15	7.54	±30
Perfluorooctanoic acid	2.00	2.08	3.78	±30
Perfluoro-octanesulfonate	1.91	1.87	-1.94	±30
Perfluorononanoic acid	2.00	2.29	14.47	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR18-78.WIFF

Date/Time Analyzed: 04/19/2018 01:30 Lab Sample ID: CCV7_CAL1

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.18	5.69	±30
Perfluorohexanesulfonate	0.19	0.20	7.43	±30
Perfluoroheptanoic acid	0.20	0.23	16.14	±30
Perfluorooctanoic acid	0.20	0.24	17.72	±30
Perfluoro-octanesulfonate	0.19	0.20	3.55	±30
Perfluorononanoic acid	0.20	0.25	25.00	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA87
Matrix: SOIL

18102016		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		750681	690610	1246021	472107
UPPER LIMIT		1126022	1035915	1869032	708161
LOWER LIMIT		375341	345305	623011	236054
LAB SAMPLE ID	**DATE ANALYZED**				
LCS102016	04/17/18 19:31	991763	910095	1741109	625575
LCSDA	04/17/18 19:46	1028008	903831	1679401	617121
BLK102016	04/17/18 20:29	1031134	871269	1656003	614003
9552707	04/17/18 21:42	1031890	893432	1623208	581190
9552709	04/17/18 21:56	1053123	906959	1589271	582826
9552711	04/17/18 22:11	982383	880378	1610994	563493
9552713	04/17/18 22:25	1006952	908426	1610164	586149
9552714	04/17/18 22:40	984006	907715	1603700	589533
9552717	04/17/18 22:55	991860	865571	1586888	583054
9552719	04/17/18 23:09	1030866	953619	1685651	589243
9552720	04/17/18 23:24	977416	833916	1600290	603484
9552721	04/17/18 23:38	1009124	881222	1630174	574773

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA87
Matrix: SOIL

18107005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		750681	690610	1246021	472107
UPPER LIMIT		1126022	1035915	1869032	708161
LOWER LIMIT		375341	345305	623011	236054
LAB SAMPLE ID	**DATE ANALYZED**				
LCS107005	04/19/18 00:17	1011005	942195	1671620	594143
LCSDA	04/19/18 00:32	1023447	932835	1746073	612895
BLK107005	04/19/18 01:01	1040095	991651	1761230	605298

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24960 Lab File ID: 18APR18-67.WIFF

Date/Time Analyzed: 04/18/2018 22:50 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.78	0.75	±30
Perfluorohexanesulfonate	1.89	1.79	-5.48	±30
Perfluoroheptanoic acid	2.00	2.15	7.54	±30
Perfluorooctanoic acid	2.00	2.08	3.78	±30
Perfluoro-octanesulfonate	1.91	1.87	-1.94	±30
Perfluorononanoic acid	2.00	2.29	14.47	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24960 Lab File ID: 18APR18-78.WIFF

Date/Time Analyzed: 04/19/2018 01:30 Lab Sample ID: CCV7_CAL1

Init. Calib. Date/Times: 04/17/2018 15:10 04/17/2018 16:37

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.18	5.69	±30
Perfluorohexanesulfonate	0.19	0.20	7.43	±30
Perfluoroheptanoic acid	0.20	0.23	16.14	±30
Perfluorooctanoic acid	0.20	0.24	17.72	±30
Perfluoro-octanesulfonate	0.19	0.20	3.55	±30
Perfluorononanoic acid	0.20	0.25	25.00	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA89
Matrix: WATER

18107005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		750681	690610	1246021	472107
UPPER LIMIT		1126022	1035915	1869032	708161
LOWER LIMIT		375341	345305	623011	236054
LAB SAMPLE ID	**DATE ANALYZED**				
LCS107005	04/19/18 00:17	1011005	942195	1671620	594143
LCSDA	04/19/18 00:32	1023447	932835	1746073	612895
BLK107005	04/19/18 01:01	1040095	991651	1761230	605298

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA91
Matrix: WATER

18107005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		750681	690610	1246021	472107
UPPER LIMIT		1126022	1035915	1869032	708161
LOWER LIMIT		375341	345305	623011	236054
LAB SAMPLE ID	**DATE ANALYZED**				
LCS107005	04/19/18 00:17	1011005	942195	1671620	594143
LCSDA	04/19/18 00:32	1023447	932835	1746073	612895
BLK107005	04/19/18 01:01	1040095	991651	1761230	605298

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Lab File Names: CAL1=18APR22MCAL-04.WIFF; CAL2=18APR22MCAL-05.WIFF; CAL3=18APR22MCAL-06.WIFF;
CAL4=18APR22MCAL-07.WIFF; CAL5=18APR22MCAL-08.WIFF; CAL6=18APR22MCAL-09.WIFF;
CAL7=18APR22MCAL-10.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.200	1.020	1.055	1.057	1.098	0.990	1.011	6
Perfluorohexanesulfonate	1.045	1.043	1.098	1.048	1.100	0.986	1.011	4
Perfluoroheptanoic acid	1.379	1.229	1.127	1.181	1.300	1.133	1.028	9
Perfluorooctanoic acid	1.144	1.110	1.097	1.010	1.117	0.975	0.954	7
Perfluoro-octanesulfonate	1.117	0.994	0.971	1.016	1.101	0.982	1.002	5
Perfluorononanoic acid	1.723	1.576	1.453	1.511	1.609	1.305	---	9

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR22MCAL-14.WIFF

Date/Time Analyzed: 04/22/2018 09:02 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.83	3.52	±30
Perfluorohexanesulfonate	1.89	2.00	5.82	±30
Perfluoroheptanoic acid	2.00	2.09	4.49	±30
Perfluorooctanoic acid	2.00	2.03	1.47	±30
Perfluoro-octanesulfonate	1.91	1.86	-2.55	±30
Perfluorononanoic acid	2.00	2.17	8.56	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR23-01.WIFF

Date/Time Analyzed: 04/23/2018 06:52 Lab Sample ID: CCV1_CAL1

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	14.32	±30
Perfluorohexanesulfonate	0.19	0.21	10.40	±30
Perfluoroheptanoic acid	0.20	0.24	17.93	±30
Perfluorooctanoic acid	0.20	0.26	32.03 *	±30
Perfluoro-octanesulfonate	0.19	0.20	6.87	±30
Perfluorononanoic acid	0.20	0.23	13.59	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR23-13.WIFF

Date/Time Analyzed: 04/23/2018 09:46 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.55	4.51	±30
Perfluorohexanesulfonate	0.57	0.56	-1.70	±30
Perfluoroheptanoic acid	0.60	0.62	3.50	±30
Perfluorooctanoic acid	0.60	0.63	5.48	±30
Perfluoro-octanesulfonate	0.57	0.59	3.48	±30
Perfluorononanoic acid	0.60	0.73	21.55	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR23-98.WIFF

Date/Time Analyzed: 04/24/2018 06:26 Lab Sample ID: CCV11_CAL1

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	13.75	±30
Perfluorohexanesulfonate	0.19	0.21	11.62	±30
Perfluoroheptanoic acid	0.20	0.23	16.06	±30
Perfluorooctanoic acid	0.20	0.23	14.42	±30
Perfluoro-octanesulfonate	0.19	0.20	4.45	±30
Perfluorononanoic acid	0.20	0.22	9.26	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA87

Instrument ID: 24960 Lab File ID: 18APR23-104.WIFF

Date/Time Analyzed: 04/24/2018 07:54 Lab Sample ID: CCV12_CAL2

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.51	-3.22	±30
Perfluorohexanesulfonate	0.57	0.58	1.08	±30
Perfluoroheptanoic acid	0.60	0.69	14.41	±30
Perfluorooctanoic acid	0.60	0.64	6.37	±30
Perfluoro-octanesulfonate	0.57	0.58	1.45	±30
Perfluorononanoic acid	0.60	0.67	11.15	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA87
Matrix: WATER

18107005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		743214	669745	1471609	516407
UPPER LIMIT		1114821	1004618	2207414	774611
LOWER LIMIT		371607	334873	735805	258204
LAB SAMPLE ID	**DATE ANALYZED**				
9552708	04/23/18 07:35	827070	687351	879583	484496
9552710	04/23/18 07:50	950553	769720	1133973	494383
9552712	04/23/18 08:04	893327	749562	1007910	287598
9552715	04/23/18 08:19	959225	759069	914170	444542
9552716	04/23/18 08:33	926176	789541	917846	501654
9552718	04/23/18 08:48	917345	855484	1837219	613783
9552722	04/23/18 09:02	937071	841369	1773412	593260
9552706	04/24/18 06:55	1005835	912685	1003483	620420
9552708DL	04/24/18 07:10	959601	872819	1919575	635019
9552712DL	04/24/18 07:24	997363	905397	1950249	564744
9552715DL	04/24/18 07:39	964235	887098	1894658	602506

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA89

Instrument ID: 24960 Lab File ID: 18APR23-20.WIFF

Date/Time Analyzed: 04/23/2018 11:28 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.78	0.39	±30
Perfluorohexanesulfonate	1.89	1.81	-4.39	±30
Perfluoroheptanoic acid	2.00	2.19	9.57	±30
Perfluorooctanoic acid	2.00	2.11	5.30	±30
Perfluoro-octanesulfonate	1.91	1.74	-9.12	±30
Perfluorononanoic acid	2.00	2.33	16.48	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA89
Matrix: WATER

18107005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		743214	669745	1471609	516407
UPPER LIMIT		1114821	1004618	2207414	774611
LOWER LIMIT		371607	334873	735805	258204
LAB SAMPLE ID	**DATE ANALYZED**				
9557708	04/23/18 09:32	814378	780564	1757226	588229
9557709	04/23/18 10:15	828925	767814	1760612	596209
9557719	04/23/18 10:30	875620	790884	1747438	559219
9557720	04/23/18 10:44	869559	784303	1766117	586317

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA91

Instrument ID: 24960 Lab File ID: 18APR23-20.WIFF

Date/Time Analyzed: 04/23/2018 11:28 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/22/2018 06:37 04/22/2018 08:04

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.78	0.39	±30
Perfluorohexanesulfonate	1.89	1.81	-4.39	±30
Perfluoroheptanoic acid	2.00	2.19	9.57	±30
Perfluorooctanoic acid	2.00	2.11	5.30	±30
Perfluoro-octanesulfonate	1.91	1.74	-9.12	±30
Perfluorononanoic acid	2.00	2.33	16.48	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA91
Matrix: WATER

18107005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		743214	669745	1471609	516407
UPPER LIMIT		1114821	1004618	2207414	774611
LOWER LIMIT		371607	334873	735805	258204
LAB SAMPLE ID	**DATE ANALYZED**				
9558860	04/23/18 10:59	872366	796539	1779373	588262
9558861	04/23/18 11:13	842433	755617	1739383	587916

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Lab File Names: CAL1=18APR26MCAL-24.WIFF; CAL2=18APR26MCAL-25.WIFF; CAL3=18APR26MCAL-26.WIFF;
CAL4=18APR26MCAL-27.WIFF; CAL5=18APR26MCAL-28.WIFF; CAL6=18APR26MCAL-29.WIFF;
CAL7=18APR26MCAL-30.WIFF;

	RF							RF
Analyte	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.154	1.029	1.002	0.969	0.928	0.924	---	8
Perfluorohexanesulfonate	1.041	0.980	1.037	0.975	1.029	0.941	0.941	4
Perfluoroheptanoic acid	1.342	1.216	1.147	1.142	1.254	1.030	---	8
Perfluorooctanoic acid	1.149	1.075	1.017	0.885	1.005	0.904	0.882	10
Perfluoro-octanesulfonate	1.133	1.015	1.006	0.956	0.974	0.947	0.899	7
Perfluorononanoic acid	1.368	1.251	1.363	1.235	1.384	1.111	1.074	9

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18APR26MCAL-34.WIFF

Date/Time Analyzed: 04/27/2018 05:30 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.99	12.18	±30
Perfluorohexanesulfonate	1.89	2.04	7.76	±30
Perfluoroheptanoic acid	2.00	2.22	11.18	±30
Perfluorooctanoic acid	2.00	2.17	8.49	±30
Perfluoro-octanesulfonate	1.91	1.92	0.36	±30
Perfluorononanoic acid	2.00	2.31	15.65	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA95

Instrument ID: 24743 Lab File ID: 18APR30-07.WIFF

Date/Time Analyzed: 04/30/2018 08:54 Lab Sample ID: CCV1_CAL1

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.20	18.39	±30
Perfluorohexanesulfonate	0.19	0.22	17.88	±30
Perfluoroheptanoic acid	0.20	0.25	27.04	±30
Perfluorooctanoic acid	0.20	0.26	28.77	±30
Perfluoro-octanesulfonate	0.19	0.20	7.53	±30
Perfluorononanoic acid	0.20	0.25	27.46	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA95

Instrument ID: 24743 Lab File ID: 18APR30-19.WIFF

Date/Time Analyzed: 04/30/2018 12:00 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.56	5.47	±30
Perfluorohexanesulfonate	0.57	0.59	3.69	±30
Perfluoroheptanoic acid	0.60	0.68	13.33	±30
Perfluorooctanoic acid	0.60	0.71	18.73	±30
Perfluoro-octanesulfonate	0.57	0.58	1.97	±30
Perfluorononanoic acid	0.60	0.70	15.87	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA95

Instrument ID: 24743 Lab File ID: 18APR30-32.WIFF

Date/Time Analyzed: 04/30/2018 15:22 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.87	5.81	±30
Perfluorohexanesulfonate	1.89	2.19	15.90	±30
Perfluoroheptanoic acid	2.00	2.31	15.43	±30
Perfluorooctanoic acid	2.00	2.34	16.76	±30
Perfluoro-octanesulfonate	1.91	1.99	4.33	±30
Perfluorononanoic acid	2.00	2.51	25.42	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA95
Matrix: SOIL

18117008		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1185438	1428544	906074	355553
UPPER LIMIT		1778157	2142816	1359111	533330
LOWER LIMIT		592719	714272	453037	177777
LAB SAMPLE ID	**DATE ANALYZED**				
LCS117008	04/30/18 09:25	1310430	1531561	1024576	382954
LCSDA	04/30/18 09:40	1169653	1473328	996230	400504
BLK117008	04/30/18 09:56	1264107	1548503	991483	392913
9567194	04/30/18 10:11	1277248	1557782	984310	378867

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA95

Instrument ID: 24743 Lab File ID: 18MAY01-05.WIFF

Date/Time Analyzed: 05/01/2018 01:54 Lab Sample ID: CCV1_CAL1

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	10.49	±30
Perfluorohexanesulfonate	0.19	0.23	22.33	±30
Perfluoroheptanoic acid	0.20	0.24	20.68	±30
Perfluorooctanoic acid	0.20	0.26	28.27	±30
Perfluoro-octanesulfonate	0.19	0.22	15.74	±30
Perfluorononanoic acid	0.20	0.25	23.29	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY01-16.WIFF

Date/Time Analyzed: 05/01/2018 04:45 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.58	9.23	±30
Perfluorohexanesulfonate	0.57	0.57	0.58	±30
Perfluoroheptanoic acid	0.60	0.70	17.00	±30
Perfluorooctanoic acid	0.60	0.69	14.66	±30
Perfluoro-octanesulfonate	0.57	0.60	4.67	±30
Perfluorononanoic acid	0.60	0.73	20.88	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY01-29.WIFF

Date/Time Analyzed: 05/01/2018 08:07 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	2.04	15.25	±30
Perfluorohexanesulfonate	1.89	1.92	1.75	±30
Perfluoroheptanoic acid	2.00	2.13	6.74	±30
Perfluorooctanoic acid	2.00	2.32	16.12	±30
Perfluoro-octanesulfonate	1.91	2.01	5.25	±30
Perfluorononanoic acid	2.00	2.40	20.15	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY01-81.WIFF

Date/Time Analyzed: 05/01/2018 21:34 Lab Sample ID: CCV9_CAL1

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	13.63	±30
Perfluorohexanesulfonate	0.19	0.23	19.93	±30
Perfluoroheptanoic acid	0.20	0.25	24.56	±30
Perfluorooctanoic acid	0.20	0.26	28.44	±30
Perfluoro-octanesulfonate	0.19	0.21	10.36	±30
Perfluorononanoic acid	0.20	0.23	17.40	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY01-93.WIFF

Date/Time Analyzed: 05/02/2018 00:41 Lab Sample ID: CCV10_CAL2

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.62	16.25	±30
Perfluorohexanesulfonate	0.57	0.58	2.16	±30
Perfluoroheptanoic acid	0.60	0.63	5.67	±30
Perfluorooctanoic acid	0.60	0.67	11.19	±30
Perfluoro-octanesulfonate	0.57	0.59	2.89	±30
Perfluorononanoic acid	0.60	0.69	15.38	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY01-98.WIFF

Date/Time Analyzed: 05/02/2018 01:58 Lab Sample ID: CCV11_CAL3

Init. Calib. Date/Times: 04/27/2018 02:55 04/27/2018 04:28

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	2.01	13.39	±30
Perfluorohexanesulfonate	1.89	2.04	7.95	±30
Perfluoroheptanoic acid	2.00	2.30	15.10	±30
Perfluorooctanoic acid	2.00	2.32	16.09	±30
Perfluoro-octanesulfonate	1.91	1.97	3.36	±30
Perfluorononanoic acid	2.00	2.50	25.08	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18109006		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1185438	1428544	906074	355553
UPPER LIMIT		1778157	2142816	1359111	533330
LOWER LIMIT		592719	714272	453037	177777
LAB SAMPLE ID	**DATE ANALYZED**				
LCS109006	05/01/18 05:16	1354030	1586338	1152169	420446
LCSDA	05/01/18 05:32	1562712	1767870	1177343	411422
9564405MS	05/01/18 05:47	1608667	1758206	1132140	420052
BLK109006	05/01/18 06:18	1325733	1718636	1194197	422446
9564405	05/01/18 06:34	1570203	1725344	1130106	418046
9564406	05/01/18 06:49	1397265	1626474	1138967	408397
9564407	05/01/18 07:05	1357183	1602282	1137579	418914
9564408	05/01/18 07:20	1361394	1683440	1149500	401022
9564409	05/01/18 07:36	1472233	1638459	1130109	446382
9564410	05/01/18 07:51	1591696	1742425	1157235	428013
9564411	05/01/18 22:05	1377606	1597880	1119428	400503
9564414	05/01/18 22:21	1323341	1593245	1118813	391491
9564415	05/01/18 22:36	1400379	1645394	1127727	430210
9564417	05/01/18 23:07	1440597	1644857	1107870	302775
9564418	05/01/18 23:23	1287768	1674520	1135411	401843
9564419	05/01/18 23:38	1415601	1688764	1136355	407234
9564420	05/01/18 23:54	1400636	1615818	1150729	410219
9564421	05/02/18 00:10	1355658	1719744	1137472	412018
9564422	05/02/18 00:25	1361892	1690213	1141264	424365
9564414DL	05/02/18 01:12	1422810	1671377	1109767	411076

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18109006		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1185438	1428544	906074	355553
UPPER LIMIT		1778157	2142816	1359111	533330
LOWER LIMIT		592719	714272	453037	177777
LAB SAMPLE ID	**DATE ANALYZED**				
9564417DL	05/02/18 01:43	1315532	1622956	1114307	395637

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA95
Matrix: SOIL

18114009		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1185438	1428544	906074	355553
UPPER LIMIT		1778157	2142816	1359111	533330
LOWER LIMIT		592719	714272	453037	177777
LAB SAMPLE ID	**DATE ANALYZED**				
LCS114009	04/30/18 13:02	1321803	1578282	1070373	408758
9567187MS	04/30/18 13:18	1284382	1527285	1025978	398723
9567188MSD	04/30/18 13:33	1311477	1492747	1001984	372088
BLK114009	04/30/18 14:05	1262827	1573176	1046195	376248
9567185	04/30/18 14:20	1310566	1570754	1037721	386279
9567186	04/30/18 14:36	1284932	1515571	1047319	405620
9567189	04/30/18 14:51	1261646	1528225	1072222	378208
9567190	04/30/18 15:07	1238084	1498499	1049672	401830
9567191	05/01/18 02:25	1310544	1553009	1049956	376460
9567192	05/01/18 02:41	1273638	1473719	1059494	362857
9567195	05/01/18 02:56	1261703	1498768	1067070	398005
9567196	05/01/18 03:12	1281289	1538305	1070312	368959
9567197	05/01/18 03:27	1272972	1487213	1038021	364182
9567198	05/01/18 03:43	1312139	1560166	1086411	374297
9567199	05/01/18 03:58	1410874	1569582	1035831	385713
9567200	05/01/18 04:14	1372373	1591967	1058746	388158
9567201	05/01/18 04:29	1313726	1609954	1051427	370976

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Lab File Names: CAL1=18MAY02MCAL-10.WIFF; CAL2=18MAY02MCAL-11.WIFF; CAL3=18MAY02MCAL-12.WIFF;
CAL4=18MAY02MCAL-13.WIFF; CAL5=18MAY02MCAL-14.WIFF; CAL6=18MAY02MCAL-15.WIFF;
CAL7=18MAY02MCAL-16.WIFF;

	RF							RF
Analyte	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.166	0.970	0.999	0.938	0.989	0.897	0.923	8
Perfluorohexanesulfonate	1.108	0.995	1.114	0.945	0.907	0.884	0.930	9
Perfluoroheptanoic acid	1.220	1.283	1.316	1.199	1.210	---	---	4
Perfluorooctanoic acid	1.140	0.999	1.017	1.001	1.007	0.922	---	6
Perfluoro-octanesulfonate	1.157	1.144	1.009	0.919	1.041	0.936	0.913	9
Perfluorononanoic acid	1.374	1.327	1.382	1.274	1.260	---	---	4

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY02MCAL-20.WIFF

Date/Time Analyzed: 05/02/2018 12:04 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.91	8.13	±30
Perfluorohexanesulfonate	1.89	2.17	15.08	±30
Perfluoroheptanoic acid	2.00	2.08	4.20	±30
Perfluorooctanoic acid	2.00	2.19	9.68	±30
Perfluoro-octanesulfonate	1.91	2.14	12.06	±30
Perfluorononanoic acid	2.00	2.05	2.34	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY04-36.WIFF

Date/Time Analyzed: 05/04/2018 10:52 Lab Sample ID: CCV4_CAL1

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	14.39	±30
Perfluorohexanesulfonate	0.19	0.22	16.50	±30
Perfluoroheptanoic acid	0.20	0.20	1.77	±30
Perfluorooctanoic acid	0.20	0.22	7.77	±30
Perfluoro-octanesulfonate	0.19	0.23	19.31	±30
Perfluorononanoic acid	0.20	0.24	18.60	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA94

Instrument ID: 24743 Lab File ID: 18MAY04-44.WIFF

Date/Time Analyzed: 05/04/2018 12:56 Lab Sample ID: CCV5_CAL2

Init. Calib. Date/Times: 05/02/2018 09:29 05/02/2018 11:02

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.54	2.02	±30
Perfluorohexanesulfonate	0.57	0.62	9.38	±30
Perfluoroheptanoic acid	0.60	0.59	-2.09	±30
Perfluorooctanoic acid	0.60	0.64	7.27	±30
Perfluoro-octanesulfonate	0.57	0.64	12.69	±30
Perfluorononanoic acid	0.60	0.61	1.70	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18123012		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1161375	1434409	1013462	353288
UPPER LIMIT		1742063	2151614	1520193	529932
LOWER LIMIT		580688	717205	506731	176644
LAB SAMPLE ID	**DATE ANALYZED**				
BLK123012	05/04/18 11:23	1335587	1672152	1169649	404199
LCS123012	05/04/18 11:39	1361628	1667302	1119854	395511
LCSDA	05/04/18 11:54	1315314	1650499	1120329	388725
9564416MS	05/04/18 12:10	1636999	1630757	1129237	351953
9564416	05/04/18 12:25	1799810 *	1845760	1095859	354989
9564416DL	05/04/18 12:41	1567368	1679078	1149479	377939

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

155.0%
N/A - not associated

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 24743

Init. Calib. Date/Times: 05/10/2018 11:47 05/10/2018 13:20

Lab File Names: CAL1=18MAY10MCAL-10.WIFF; CAL2=18MAY10MCAL-11.WIFF; CAL3=18MAY10MCAL-12.WIFF;
CAL4=18MAY10MCAL-13.WIFF; CAL5=18MAY10MCAL-14.WIFF; CAL6=18MAY10MCAL-15.WIFF;
CAL7=18MAY10MCAL-16.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.065	1.033	0.960	0.933	0.964	0.908	0.950	5
Perfluorohexanesulfonate	1.092	1.080	1.008	0.965	0.986	0.913	0.987	6
Perfluoroheptanoic acid	1.296	1.266	1.172	1.142	1.097	1.014	---	8
Perfluorooctanoic acid	1.107	0.998	1.051	0.949	0.970	0.870	0.842	9
Perfluoro-octanesulfonate	1.264	1.027	1.064	1.030	1.005	0.901	1.017	10
Perfluorononanoic acid	1.418	1.201	1.330	1.138	1.215	1.118	---	9

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 24743 Lab File ID: 18MAY10MCAL-20.WIFF

Date/Time Analyzed: 05/10/2018 14:22 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 05/10/2018 11:47 05/10/2018 13:20

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	2.01	13.77	±30
Perfluorohexanesulfonate	1.89	2.13	12.74	±30
Perfluoroheptanoic acid	2.00	2.39	19.27	±30
Perfluorooctanoic acid	2.00	2.48	24.16	±30
Perfluoro-octanesulfonate	1.91	2.04	6.71	±30
Perfluorononanoic acid	2.00	2.18	8.92	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 24743 Lab File ID: 18MAY15-72.WIFF

Date/Time Analyzed: 05/16/2018 00:36 Lab Sample ID: CCV7_ISC_CAL1

Init. Calib. Date/Times: 05/10/2018 11:47 05/10/2018 13:20

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.21	25.23	±30
Perfluorohexanesulfonate	0.19	0.22	17.99	±30
Perfluoroheptanoic acid	0.20	0.26	28.42	±30
Perfluorooctanoic acid	0.20	0.24	22.21	±30
Perfluoro-octanesulfonate	0.19	0.22	17.60	±30
Perfluorononanoic acid	0.20	0.25	22.60	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 24743 Lab File ID: 18MAY15-85.WIFF

Date/Time Analyzed: 05/16/2018 03:58 Lab Sample ID: CCV8_CAL2

Init. Calib. Date/Times: 05/10/2018 11:47 05/10/2018 13:20

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.56	5.27	±30
Perfluorohexanesulfonate	0.57	0.59	2.88	±30
Perfluoroheptanoic acid	0.60	0.68	13.81	±30
Perfluorooctanoic acid	0.60	0.68	13.01	±30
Perfluoro-octanesulfonate	0.57	0.59	3.93	±30
Perfluorononanoic acid	0.60	0.68	12.52	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18134014		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1341367	1622279	1129878	374541
UPPER LIMIT		2012051	2433419	1694817	561812
LOWER LIMIT		670684	811140	564939	187271
LAB SAMPLE ID	**DATE ANALYZED**	/	/	/	/
LCS134014	05/16/18 02:24	1565700	1802461	1167955	412913
BLK134014	05/16/18 02:40	1629409	1723457	1172068	388550
9604425RE	05/16/18 02:55	1565593	1657936	948185	346939

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Lab File Names: CAL1=18MAY17MCAL-10.WIFF; CAL2=18MAY17MCAL-11.WIFF; CAL3=18MAY17MCAL-12.WIFF;
CAL4=18MAY17MCAL-13.WIFF; CAL5=18MAY17MCAL-14.WIFF; CAL6=18MAY17MCAL-15.WIFF;
CAL7=18MAY17MCAL-16.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.102	1.016	1.023	1.033	0.981	0.915	0.949	6
Perfluorohexanesulfonate	1.219	1.050	1.098	1.018	0.991	0.946	1.018	8
Perfluoroheptanoic acid	1.248	1.090	1.307	1.116	1.162	---	---	7
Perfluorooctanoic acid	1.174	1.063	0.963	0.956	0.973	0.891	---	9
Perfluoro-octanesulfonate	1.097	1.089	1.049	0.980	1.009	0.959	1.048	5
Perfluorononanoic acid	1.288	1.167	1.245	1.071	1.068	---	---	8

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY17MCAL-20.WIFF

Date/Time Analyzed: 05/18/2018 01:28 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.96	10.81	±30
Perfluorohexanesulfonate	1.89	1.94	2.85	±30
Perfluoroheptanoic acid	2.00	2.00	0.18	±30
Perfluorooctanoic acid	2.00	2.32	16.05	±30
Perfluoro-octanesulfonate	1.91	2.03	6.22	±30
Perfluorononanoic acid	2.00	2.01	0.40	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY19-23.WIFF

Date/Time Analyzed: 05/19/2018 06:31 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.52	-1.64	±30
Perfluorohexanesulfonate	0.57	0.56	-2.23	±30
Perfluoroheptanoic acid	0.60	0.61	1.44	±30
Perfluorooctanoic acid	0.60	0.66	9.28	±30
Perfluoro-octanesulfonate	0.57	0.61	6.57	±30
Perfluorononanoic acid	0.60	0.66	10.46	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY19-36.WIFF

Date/Time Analyzed: 05/19/2018 09:53 Lab Sample ID: CCV3_CAL3

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	2.00	13.24	±30
Perfluorohexanesulfonate	1.89	2.00	5.65	±30
Perfluoroheptanoic acid	2.00	2.00	0.12	±30
Perfluorooctanoic acid	2.00	2.38	18.86	±30
Perfluoro-octanesulfonate	1.91	2.00	4.58	±30
Perfluorononanoic acid	2.00	2.02	0.84	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY19-48.WIFF

Date/Time Analyzed: 05/19/2018 13:00 Lab Sample ID: CCV4_ISC_CAL1

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.21	25.94	±30
Perfluorohexanesulfonate	0.19	0.21	13.10	±30
Perfluoroheptanoic acid	0.20	0.20	1.41	±30
Perfluorooctanoic acid	0.20	0.26	27.66	±30
Perfluoro-octanesulfonate	0.19	0.22	16.28	±30
Perfluorononanoic acid	0.20	0.23	17.13	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY19-60.WIFF

Date/Time Analyzed: 05/19/2018 16:06 Lab Sample ID: CCV5_CAL2

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.58	9.79	±30
Perfluorohexanesulfonate	0.57	0.63	10.55	±30
Perfluoroheptanoic acid	0.60	0.58	-2.60	±30
Perfluorooctanoic acid	0.60	0.68	13.37	±30
Perfluoro-octanesulfonate	0.57	0.55	-3.54	±30
Perfluorononanoic acid	0.60	0.65	7.61	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY19-71.WIFF

Date/Time Analyzed: 05/19/2018 18:57 Lab Sample ID: CCV6_CAL3

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.98	12.09	±30
Perfluorohexanesulfonate	1.89	1.93	2.23	±30
Perfluoroheptanoic acid	2.00	1.94	-2.91	±30
Perfluorooctanoic acid	2.00	2.48	24.13	±30
Perfluoro-octanesulfonate	1.91	2.08	8.72	±30
Perfluorononanoic acid	2.00	2.17	8.71	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY19-81.WIFF

Date/Time Analyzed: 05/19/2018 21:32 Lab Sample ID: CCV7_ISC_CAL1

Init. Calib. Date/Times: 05/17/2018 22:53 05/18/2018 00:26

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.21	21.81	±30
Perfluorohexanesulfonate	0.19	0.20	7.53	±30
Perfluoroheptanoic acid	0.20	0.21	6.81	±30
Perfluorooctanoic acid	0.20	0.24	17.94	±30
Perfluoro-octanesulfonate	0.19	0.23	20.90	±30
Perfluorononanoic acid	0.20	0.21	3.94	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18135005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1619923	1544592	1006849	317183
UPPER LIMIT		2429885	2316888	1510274	475775
LOWER LIMIT		809962	772296	503425	158592
LAB SAMPLE ID	**DATE ANALYZED**				
LCS135005	05/19/18 07:33	1618532	1723659	1068139	344277
LCSDA	05/19/18 07:49	1722332	1651496	1060670	341699
BLK135005	05/19/18 08:04	1687379	1616712	1068876	353929
9604444	05/19/18 08:20	1633321	1671283	815171	338400
9604445	05/19/18 08:35	1812590	1589516	779069	272867
9604446	05/19/18 08:51	1588302	1715705	675645	352130
9604447	05/19/18 09:07	1728247	1645403	928373	362557
9604448	05/19/18 09:22	1555578	1591255	755592	196292
9604449	05/19/18 09:38	1839131	1698299	976712	333676
9604450	05/19/18 10:09	1557697	1738705	890930	323932

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1619923	1544592	1006849	317183
UPPER LIMIT		2429885	2316888	1510274	475775
LOWER LIMIT		809962	772296	503425	158592
LAB SAMPLE ID	**DATE ANALYZED**				
LCS137006	05/19/18 11:26	1794300	1780668	1084315	358662
BLK137006	05/19/18 11:42	1751541	1676352	1084605	360030
9604425	05/19/18 11:57	1824176	1858021	886911	315817
9604425DL	05/19/18 12:13	1676455	1911731	1174526	374971
9604426	05/19/18 12:44	1770154	1509046	1120284	346219
9604426DL	05/19/18 13:31	1889142	1759315	1172089	392653
9604427	05/19/18 13:46	1741673	1687148	810388	339369
9604428MS	05/19/18 14:02	1662838	1708633	755250	366493
9604429MSD	05/19/18 14:17	1750703	1821494	816449	336776
9604431	05/19/18 14:48	1810950	1725485	1122742	356871
9604432	05/19/18 15:04	1851336	1763799	1086803	365395
9604433	05/19/18 15:35	1813607	1850255	1014569	343978
9604433DL	05/19/18 15:50	1880185	1920220	1196617	363382
9604434	05/19/18 16:37	1827387	1699288	1141679	299700
9604435	05/19/18 17:08	1909998	1819451	1175837	347149
9604435DL	05/19/18 17:23	1699103	1909792	1159044	369265
9604436	05/19/18 17:39	1800319	1848885	1176101	312326
9604436DL	05/19/18 17:54	1778959	1839236	1136719	377183
9604437	05/19/18 18:26	1597419	1683678	1154313	303506
9604438	05/19/18 18:41	1844897	1746319	842494	358151

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1619923	1544592	1006849	317183
UPPER LIMIT		2429885	2316888	1510274	475775
LOWER LIMIT		809962	772296	503425	158592
LAB SAMPLE ID	**DATE ANALYZED**				
9604439	05/19/18 19:12	1646804	1781515	953617	348849
9604440	05/19/18 19:28	1857806	2022767	750225	336715
9604441	05/19/18 19:43	1823512	1812813	1126955	377366
9604442	05/19/18 19:59	1877581	1826614	1170019	350504
9604443	05/19/18 20:30	1891992	1815586	1061867	357280

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 06A DOD - EPA 537 mod QSM 5.1 table B-15
INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719

Init. Calib. Date/Times: 05/23/2018 02:12 05/23/2018 03:45

Lab File Names: CAL1=18MAY23MCAL-10.WIFF; CAL2=18MAY23MCAL-11.WIFF; CAL3=18MAY23MCAL-12.WIFF;
CAL4=18MAY23MCAL-13.WIFF; CAL5=18MAY23MCAL-14.WIFF; CAL6=18MAY23MCAL-15.WIFF;
CAL7=18MAY23MCAL-16.WIFF;

Analyte	RF							RF
	CAL1	CAL2	CAL3	CAL4	CAL5	CAL6	CAL7	%RSD
Perfluorobutanesulfonate	1.120	0.964	1.063	0.989	0.948	0.911	0.956	7
Perfluorohexanesulfonate	1.135	1.002	1.045	1.035	1.088	1.020	0.984	5
Perfluoroheptanoic acid	1.229	1.149	1.211	1.088	1.062	0.993	---	7
Perfluorooctanoic acid	1.140	1.045	1.025	0.947	1.003	0.926	0.880	8
Perfluoro-octanesulfonate	1.091	1.073	1.109	0.969	1.047	0.984	0.942	6
Perfluorononanoic acid	1.215	1.150	1.237	0.983	1.112	1.004	---	9

--- Calibration point does not apply

* = % RSD > 20

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY23MCAL-20.WIFF

Date/Time Analyzed: 05/23/2018 04:47 Lab Sample ID: CCV1_CAL3

Init. Calib. Date/Times: 05/23/2018 02:12 05/23/2018 03:45

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	1.77	1.80	1.68	±30
Perfluorohexanesulfonate	1.89	2.21	16.83	±30
Perfluoroheptanoic acid	2.00	2.09	4.47	±30
Perfluorooctanoic acid	2.00	2.16	7.77	±30
Perfluoro-octanesulfonate	1.91	2.23	16.59	±30
Perfluorononanoic acid	2.00	2.29	14.48	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY23-10.WIFF

Date/Time Analyzed: 05/23/2018 22:28 Lab Sample ID: CCV1_ISC_CAL1

Init. Calib. Date/Times: 05/23/2018 02:12 05/23/2018 03:45

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.17	0.19	12.99	±30
Perfluorohexanesulfonate	0.19	0.22	14.30	±30
Perfluoroheptanoic acid	0.20	0.24	18.88	±30
Perfluorooctanoic acid	0.20	0.26	29.97	±30
Perfluoro-octanesulfonate	0.19	0.24	26.39	±30
Perfluorononanoic acid	0.20	0.23	14.20	±30

* Outside QC Limits.

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FORM 07
CALIBRATION VERIFICATION SUMMARY
LC/MS/MS

SDG No.: FSA99

Instrument ID: 26719 Lab File ID: 18MAY23-21.WIFF

Date/Time Analyzed: 05/24/2018 01:19 Lab Sample ID: CCV2_CAL2

Init. Calib. Date/Times: 05/23/2018 02:12 05/23/2018 03:45

Analytes	Specified Amount	Calculated Amount	% Difference	Limit
Perfluorobutanesulfonate	0.53	0.61	14.23	±30
Perfluorohexanesulfonate	0.57	0.59	3.57	±30
Perfluoroheptanoic acid	0.60	0.65	8.24	±30
Perfluorooctanoic acid	0.60	0.69	14.49	±30
Perfluoro-octanesulfonate	0.57	0.66	15.48	±30
Perfluorononanoic acid	0.60	0.66	9.94	±30

* Outside QC Limits.

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18135005		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1204785	1408055	766280	299851
UPPER LIMIT		1807178	2112083	1149420	449777
LOWER LIMIT		602393	704028	383140	149926
LAB SAMPLE ID	**DATE ANALYZED**				
9604445DL	05/23/18 22:59	1514841	1731880	885151	376569
9604448DL	05/23/18 23:14	1618390	1648372	898232	329246

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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FORM 08A
INTERNAL STANDARDS
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C2-PFDA	13C2-PFOA	13C3-PFBA	13C4-PFOS
		Area	Area	Area	Area
Average ICAL Response		1204785	1408055	766280	299851
UPPER LIMIT		1807178	2112083	1149420	449777
LOWER LIMIT		602393	704028	383140	149926
LAB SAMPLE ID	**DATE ANALYZED**				
9604430	05/24/18 00:17	1514932	1722604	822251	363727
9604434DL	05/24/18 00:48	1561082	1709496	961492	366347
9604437DL	05/24/18 01:03	1579926	1784384	1013928	352736

AREA: Upper limit: 150% of the internal standard area.
Lower Limit: 50% of the internal standard area.

* Outside QC Limits

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA24

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Water by LC/MS/MS-DoD	17352005	BLK352005	01/09/2018 14:31:00
		LCS352005	01/09/2018 13:29:00
		LCSDA	01/09/2018 13:50:00
		9364960	01/09/2018 15:53:00
		9364961	01/09/2018 16:13:00
PFAS in Water by LC/MS/MS-DoD	17365004	BLK365004	01/03/2018 17:53:00
		LCS365004	01/03/2018 17:12:00
		LCSDA	01/03/2018 17:32:00
		9364960RE	01/03/2018 19:36:00
		9364961RE	01/03/2018 19:56:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA24
Matrix: WATER

17352005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS352005	01/09/18 13:29	76	78	70	76	82
LCSDA	01/09/18 13:50	79	85	82	75	74
BLK352005	01/09/18 14:31	85	95	84	85	78
9364960	01/09/18 15:53	120	76	76	75	73
9364961	01/09/18 16:13	82	94	89	81	77

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA24
Matrix: WATER

17352005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS352005	01/09/18 13:29	81
LCSDA	01/09/18 13:50	78
BLK352005	01/09/18 14:31	82
9364960	01/09/18 15:53	77
9364961	01/09/18 16:13	95

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA24
Matrix: WATER

17365004		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS365004	01/03/18 17:12	74	86	91	93	98
LCSDA	01/03/18 17:32	75	82	93	90	87
BLK365004	01/03/18 17:53	77	79	84	89	90
9364960RE	01/03/18 19:36	100	67	67	78	76
9364961RE	01/03/18 19:56	72	76	79	87	89

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA24
Matrix: WATER

17365004		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS365004	01/03/18 17:12	95
LCSDA	01/03/18 17:32	87
BLK365004	01/03/18 17:53	97
9364960RE	01/03/18 19:36	89
9364961RE	01/03/18 19:56	88

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA24
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

17352005 / BLK352005 Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	01/09/18	N.D.	ng/l	0.3	1	1
Perfluorononanoic acid	01/09/18	N.D.	ng/l	0.4	2	2
Perfluoroheptanoic acid	01/09/18	N.D.	ng/l	0.3	1	1
Perfluorobutanesulfonate	01/09/18	N.D.	ng/l	0.3	1	1
Perfluorohexanesulfonate	01/09/18	N.D.	ng/l	0.4	2	2
Perfluoro-octanesulfonate	01/09/18	N.D.	ng/l	0.6	2	2

17365004 / BLK365004 Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	01/03/18	N.D.	ng/l	0.3	1	1
Perfluorononanoic acid	01/03/18	N.D.	ng/l	0.4	2	2
Perfluoroheptanoic acid	01/03/18	N.D.	ng/l	0.3	1	1
Perfluorobutanesulfonate	01/03/18	N.D.	ng/l	0.3	1	1
Perfluorohexanesulfonate	01/03/18	N.D.	ng/l	0.4	2	2
Perfluoro-octanesulfonate	01/03/18	N.D.	ng/l	0.6	2	2

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA24
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS352005 LCSD: LCSDA	Batch: **17352005** (Sample number(s): 9364960-9364961)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	6.21	7.03	114	129	70-130	12	30
Perfluorononanoic acid	5.44	6.84	6.74	126	124	70-130	2	30
Perfluoroheptanoic acid	5.44	6.80	6.96	125	128	70-130	2	30
Perfluorobutanesulfonate	4.81	5.54	5.19	115	108	70-130	7	30
Perfluorohexanesulfonate	5.14	5.65	5.18	110	101	70-130	9	30
Perfluoro-octanesulfonate	5.20	5.99	5.70	115	110	70-130	5	30

LCS: LCS365004 LCSD: LCSDA	Batch: **17365004** (Sample number(s): 9364960-9364961)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	5.89	5.45	108	100	70-130	8	30
Perfluorononanoic acid	5.44	6.73	5.97	124	110	70-130	12	30
Perfluoroheptanoic acid	5.44	5.90	5.61	108	103	70-130	5	30
Perfluorobutanesulfonate	4.81	5.16	4.92	107	102	70-130	5	30
Perfluorohexanesulfonate	5.14	5.13	5.44	100	106	70-130	6	30
Perfluoro-octanesulfonate	5.20	5.85	5.50	112	106	70-130	6	30

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA87

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Soil by LC/MS/MS-DoD	18102016	BLK102016	04/17/2018 20:29:00
		LCS102016	04/17/2018 19:31:00
		LCSDA	04/17/2018 19:46:00
		9552707	04/17/2018 21:42:00
		9552709	04/17/2018 21:56:00
		9552711	04/17/2018 22:11:00
		9552713	04/17/2018 22:25:00
		9552714	04/17/2018 22:40:00
		9552717	04/17/2018 22:55:00
		9552719	04/17/2018 23:09:00
		9552720	04/17/2018 23:24:00
		9552721	04/17/2018 23:38:00
PFAS in Water by LC/MS/MS-DoD	18107005	BLK107005	04/19/2018 01:01:00
		LCS107005	04/19/2018 00:17:00
		LCSDA	04/19/2018 00:32:00
		9552706	04/24/2018 06:55:00
		9552708	04/23/2018 07:35:00
		9552708	04/24/2018 07:10:00
		9552710	04/23/2018 07:50:00
		9552712	04/23/2018 08:04:00
		9552712	04/24/2018 07:24:00
		9552715	04/23/2018 08:19:00
		9552715	04/24/2018 07:39:00
		9552716	04/23/2018 08:33:00
		9552718	04/23/2018 08:48:00
		9552722	04/23/2018 09:02:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA87
Matrix: SOIL

18107005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS107005	04/19/18 00:17	76	74	78	79	82
LCSDA	04/19/18 00:32	72	79	80	84	81
BLK107005	04/19/18 01:01	71	71	76	76	82

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA87
Matrix: SOIL

18107005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS107005	04/19/18 00:17	84
LCSDA	04/19/18 00:32	80
BLK107005	04/19/18 01:01	81

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA87
Matrix: WATER

18107005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9552708	04/23/18 07:35	139	62	69	78	75
9552710	04/23/18 07:50	122	71	76	83	88
9552712	04/23/18 08:04	112	52	54	78	83
9552715	04/23/18 08:19	126	60	64	75	75
9552716	04/23/18 08:33	130	68	67	74	82
9552718	04/23/18 08:48	80	84	86	89	89
9552722	04/23/18 09:02	79	85	85	91	87
9552706	04/24/18 06:55	142	70	73	82	86
9552708DL	04/24/18 07:10	75	74	74	75	76
9552712DL	04/24/18 07:24	79	70	74	80	81
9552715DL	04/24/18 07:39	91	85	100	97	98

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA87
Matrix: WATER

18107005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9552708	04/23/18 07:35	87
9552710	04/23/18 07:50	101
9552712	04/23/18 08:04	123
9552715	04/23/18 08:19	97
9552716	04/23/18 08:33	100
9552718	04/23/18 08:48	97
9552722	04/23/18 09:02	92
9552706	04/24/18 06:55	90
9552708DL	04/24/18 07:10	77
9552712DL	04/24/18 07:24	95
9552715DL	04/24/18 07:39	101

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA87
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18107005 / BLK107005 Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/19/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/19/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/19/18	N.D.	ng/l	0.60	2.0	2.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA87
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS107005 LCSD: LCSDA Analyte	Batch: **18107005** (Sample number(s): 9552706, 9552708, 9552710, 9552712, 9552715-9552716, 9552718, 9552722)							
	Spike Added ng/l	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	5.57	5.94	102	109	70-130	7	30
Perfluorononanoic acid	5.44	5.66	6.18	104	114	70-130	9	30
Perfluoroheptanoic acid	5.44	5.50	6.23	101	115	70-130	12	30
Perfluorobutanesulfonate	4.81	4.39	4.97	91	103	70-130	12	30
Perfluorohexanesulfonate	5.14	4.81	5.17	94	100	70-130	7	30
Perfluoro-octanesulfonate	5.20	4.95	5.43	95	104	70-130	9	30

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA87
Matrix: SOIL

18102016		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS102016	04/17/18 19:31	62	65	62	68	66
LCSDA	04/17/18 19:46	69	74	73	71	72
BLK102016	04/17/18 20:29	67	75	74	72	73
9552707	04/17/18 21:42	73	79	79	77	81
9552709	04/17/18 21:56	74	71	77	77	78
9552711	04/17/18 22:11	72	75	76	78	80
9552713	04/17/18 22:25	70	72	72	70	71
9552714	04/17/18 22:40	72	71	76	79	74
9552717	04/17/18 22:55	67	72	73	75	71
9552719	04/17/18 23:09	71	69	72	74	77
9552720	04/17/18 23:24	57	66	60	64	62
9552721	04/17/18 23:38	66	70	67	69	72

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA87
Matrix: SOIL

18102016		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS102016	04/17/18 19:31	64
LCSDA	04/17/18 19:46	68
BLK102016	04/17/18 20:29	70
9552707	04/17/18 21:42	81
9552709	04/17/18 21:56	85
9552711	04/17/18 22:11	83
9552713	04/17/18 22:25	72
9552714	04/17/18 22:40	79
9552717	04/17/18 22:55	74
9552719	04/17/18 23:09	76
9552720	04/17/18 23:24	57
9552721	04/17/18 23:38	66

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA87
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18102016 / BLK102016 Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/17/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	04/17/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	04/17/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	04/17/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	04/17/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	04/17/18	N.D.	ng/g	0.20	0.60	0.60

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA87
Matrix: SOLID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS102016 LCSD: LCSDA	Batch: **18102016** (Sample number(s): 9552707, 9552709, 9552711, 9552713-9552714, 9552717, 9552719-9552721)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.47	1.44	108	106	70-130	3	30
Perfluorononanoic acid	1.36	1.69	1.49	124	110	70-130	12	30
Perfluoroheptanoic acid	1.36	1.68	1.49	124	110	70-130	12	30
Perfluorobutanesulfonate	1.20	1.21	1.24	100	103	70-130	3	30
Perfluorohexanesulfonate	1.29	1.34	1.24	105	97	70-130	8	30
Perfluoro-octanesulfonate	1.30	1.39	1.33	107	102	70-130	5	30

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA89

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Soil by LC/MS/MS-DoD	18108011	BLK108011B	04/24/2018 14:05:00
		LCS108011Q	04/24/2018 13:03:00
		9557701	04/24/2018 14:21:00
		9557702	04/24/2018 14:36:00
		9557703	04/24/2018 14:52:00
		9557704 UNSPK	04/24/2018 15:07:00
		9557705 MS	04/24/2018 13:18:00
		9557706 MSD	04/24/2018 13:34:00
		9557707	04/24/2018 15:23:00
		9557710	04/24/2018 15:38:00
		9557711	04/24/2018 16:25:00
		9557712	04/24/2018 16:40:00
		9557713	04/24/2018 16:56:00
		9557714	04/24/2018 17:11:00
		9557715	04/24/2018 17:27:00
		9557716	04/24/2018 17:42:00
		9557717	04/24/2018 17:58:00
		9557718	04/24/2018 18:13:00
PFAS in Water by LC/MS/MS-DoD	18107005	BLK107005B	04/19/2018 01:01:00
		LCS107005Q	04/19/2018 00:17:00
		LCSDAY	04/19/2018 00:32:00
		9557708	04/23/2018 09:32:00
		9557709	04/23/2018 10:15:00
		9557719	04/23/2018 10:30:00
		9557720	04/23/2018 10:44:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA89
Matrix: WATER

18107005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS107005	04/19/18 00:17	76	74	78	79	82
LCSDA	04/19/18 00:32	72	79	80	84	81
BLK107005	04/19/18 01:01	71	71	76	76	82

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA89
Matrix: WATER

18107005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS107005	04/19/18 00:17	84
LCSDA	04/19/18 00:32	80
BLK107005	04/19/18 01:01	81

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA89
Matrix: WATER

18107005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9557708	04/23/18 09:32	83	88	92	94	91
9557709	04/23/18 10:15	79	82	84	88	76
9557719	04/23/18 10:30	78	81	84	88	91
9557720	04/23/18 10:44	81	90	91	91	86

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA89
Matrix: WATER

18107005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9557708	04/23/18 09:32	93
9557709	04/23/18 10:15	87
9557719	04/23/18 10:30	94
9557720	04/23/18 10:44	96

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA89
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18107005 / BLK107005B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/19/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/19/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/19/18	N.D.	ng/l	0.60	2.0	2.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA89
Matrix: LIQUID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS107005Q LCSD: LCSDAY Analyte	Batch: **18107005** (Sample number(s): 9557708-9557709, 9557719-9557720) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	5.44	5.57	5.94	102	109	70-130	7	30
Perfluorononanoic acid	5.44	5.66	6.18	104	114	70-130	9	30
Perfluoroheptanoic acid	5.44	5.50	6.23	101	115	70-130	12	30
Perfluorobutanesulfonate	4.81	4.39	4.97	91	103	70-130	12	30
Perfluorohexanesulfonate	5.14	4.81	5.17	94	100	70-130	7	30
Perfluoro-octanesulfonate	5.20	4.95	5.43	95	104	70-130	9	30

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA89
Matrix: SOIL

18108011		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS108011	04/24/18 13:03	84	81	85	89	95
9557705MS	04/24/18 13:18	75	81	81	78	77
9557706MSD	04/24/18 13:34	73	71	75	72	74
BLK108011	04/24/18 14:05	81	93	87	88	88
9557701	04/24/18 14:21	75	84	89	86	86
9557702	04/24/18 14:36	81	91	93	87	84
9557703	04/24/18 14:52	69	76	77	74	73
9557704	04/24/18 15:07	70	75	80	74	76
9557707	04/24/18 15:23	72	79	85	76	78
9557710	04/24/18 15:38	73	76	72	73	76
9557711	04/24/18 16:25	73	83	74	82	84
9557712	04/24/18 16:40	76	78	88	81	82
9557713	04/24/18 16:56	80	86	89	80	88
9557714	04/24/18 17:11	67	81	79	75	74
9557715	04/24/18 17:27	68	66	73	70	68
9557716	04/24/18 17:42	77	76	85	81	83
9557717	04/24/18 17:58	72	74	75	74	72
9557718	04/24/18 18:13	74	74	80	79	81

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA89
Matrix: SOIL

18108011		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS108011	04/24/18 13:03	92
9557705MS	04/24/18 13:18	79
9557706MSD	04/24/18 13:34	73
BLK108011	04/24/18 14:05	86
9557701	04/24/18 14:21	83
9557702	04/24/18 14:36	82
9557703	04/24/18 14:52	74
9557704	04/24/18 15:07	81
9557707	04/24/18 15:23	72
9557710	04/24/18 15:38	74
9557711	04/24/18 16:25	83
9557712	04/24/18 16:40	82
9557713	04/24/18 16:56	80
9557714	04/24/18 17:11	75
9557715	04/24/18 17:27	68
9557716	04/24/18 17:42	90
9557717	04/24/18 17:58	69
9557718	04/24/18 18:13	79

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA89
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18108011 / BLK108011B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/24/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	04/24/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	04/24/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	04/24/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	04/24/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	04/24/18	N.D.	ng/g	0.20	0.60	0.60

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA89
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS108011Q	Batch: **18108011** (Sample number(s): 9557701-9557707, 9557710-9557718)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.12	NA	83	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.14	NA	84	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.22	NA	90	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	0.979	NA	81	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.17	NA	91	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.05	NA	80	NA	70-130	NA	NA

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: FSA89
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 9557704 MS: 9557705 MSD: 9557706 **Analyte**	Batch: **18108011** (Sample number(s): 9557701-9557707, 9557710-9557718)								
	Spike Added ng/g MS/MSD	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.32 / 1.24	0.522 J	1.72	1.52	91	80	70-130	13	30
Perfluorononanoic acid	1.32 / 1.24	N.D.	1.14	1.07	86	87	70-130	6	30
Perfluoroheptanoic acid	1.32 / 1.24	N.D.	1.33	1.23	101	100	70-130	8	30
Perfluorobutanesulfonate	1.17 / 1.09	N.D.	1.01	0.960	86	88	70-130	5	30
Perfluorohexanesulfonate	1.25 / 1.17	0.590	1.74	1.80	92	103	70-130	3	30
Perfluoro-octanesulfonate	1.26 / 1.18	7.22	6.62	4.83	-46 (2)	-201 (2)	70-130	31 *	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA90

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Soil by LC/MS/MS-DoD	18108014	BLK108014B	04/25/2018 03:17:00
		LCS108014Q	04/25/2018 02:15:00
		9557802	04/25/2018 03:33:00
		9557803	04/25/2018 03:48:00
		9557804	04/25/2018 04:04:00
		9557805	04/25/2018 04:19:00
		9557806	04/25/2018 04:35:00
		9557807	04/25/2018 04:50:00
		9557808	04/25/2018 05:37:00
		9557809	04/25/2018 05:53:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA90
Matrix: SOIL

18108014		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS108014	04/25/18 02:15	79	82	88	87	84
BLK108014	04/25/18 03:17	84	99	93	94	95
9557802	04/25/18 03:33	68	63	69	71	69
9557803	04/25/18 03:48	84	87	95	93	91
9557804	04/25/18 04:04	78	83	84	85	91
9557805	04/25/18 04:19	68	69	67	66	74
9557806	04/25/18 04:35	68	80	79	77	78
9557807	04/25/18 04:50	68	73	67	70	75
9557808	04/25/18 05:37	69	73	82	72	71
9557809	04/25/18 05:53	74	79	80	81	85

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA90
Matrix: SOIL

18108014		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS108014	04/25/18 02:15	83
BLK108014	04/25/18 03:17	89
9557802	04/25/18 03:33	65
9557803	04/25/18 03:48	92
9557804	04/25/18 04:04	89
9557805	04/25/18 04:19	67
9557806	04/25/18 04:35	75
9557807	04/25/18 04:50	76
9557808	04/25/18 05:37	73
9557809	04/25/18 05:53	79

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA90
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18108014 / BLK108014B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	04/25/18	N.D.	ng/g	0.20	0.60	0.60

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA90
Matrix: SOLID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS108014Q	Batch: **18108014** (Sample number(s): 9557802-9557809)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.16	NA	85	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.17	NA	86	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.20	NA	88	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.01	NA	84	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.08	NA	84	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.11	NA	85	NA	70-130	NA	NA

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA91

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Soil by LC/MS/MS-DoD	18108014	BLK108014B	04/25/2018 03:17:00
		LCS108014Q	04/25/2018 02:15:00
		9558857	04/25/2018 06:08:00
		9558858	04/25/2018 06:24:00
		9558859	04/25/2018 06:39:00
		9558862	04/25/2018 06:55:00
		9558863 UNSPK	04/25/2018 07:10:00
		9558864 MS	04/25/2018 02:31:00
		9558865 MSD	04/25/2018 10:26:00
		9558866	04/25/2018 07:26:00
PFAS in Water by LC/MS/MS-DoD	18107005	BLK107005B	04/19/2018 01:01:00
		LCS107005Q	04/19/2018 00:17:00
		LCSDAY	04/19/2018 00:32:00
		9558860	04/23/2018 10:59:00
		9558861	04/23/2018 11:13:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA91
Matrix: SOIL

18108014		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS108014	04/25/18 02:15	79	82	88	87	84
9558864MS	04/25/18 02:31	60	63	66	63	63
BLK108014	04/25/18 03:17	84	99	93	94	95
9558857	04/25/18 06:08	75	77	74	77	78
9558858	04/25/18 06:24	66	76	73	68	76
9558859	04/25/18 06:39	70	78	75	72	75
9558862	04/25/18 06:55	65	69	70	71	73
9558863	04/25/18 07:10	57	64	61	60	55
9558866	04/25/18 07:26	68	77	78	73	72
9558865MSD	04/25/18 10:26	53	63	57	51	57

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA91
Matrix: SOIL

18108014		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS108014	04/25/18 02:15	83
9558864MS	04/25/18 02:31	65
BLK108014	04/25/18 03:17	89
9558857	04/25/18 06:08	79
9558858	04/25/18 06:24	76
9558859	04/25/18 06:39	66
9558862	04/25/18 06:55	71
9558863	04/25/18 07:10	52
9558866	04/25/18 07:26	67
9558865MSD	04/25/18 10:26	52

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA91
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18108014 / BLK108014B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	04/25/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	04/25/18	N.D.	ng/g	0.20	0.60	0.60

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA91
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS108014Q	Batch: **18108014** (Sample number(s): 9558857-9558859, 9558862-9558866)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.16	NA	85	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.17	NA	86	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.20	NA	88	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.01	NA	84	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.08	NA	84	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.11	NA	85	NA	70-130	NA	NA

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: FSA91
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 9558863 MS: 9558864 MSD: 9558865 Analyte	Batch: **18108014** (Sample number(s): 9558857-9558859, 9558862-9558866)								
	Spike Added ng/g MS/MSD	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36 / 1.33	N.D.	1.34	1.23	99	92	70-130	9	30
Perfluorononanoic acid	1.36 / 1.33	N.D.	1.16	1.20	85	90	70-130	4	30
Perfluoroheptanoic acid	1.36 / 1.33	N.D.	1.19	1.25	88	94	70-130	5	30
Perfluorobutanesulfonate	1.20 / 1.18	N.D.	1.07	1.09	89	93	70-130	2	30
Perfluorohexanesulfonate	1.29 / 1.26	N.D.	1.20	1.15	93	91	70-130	5	30
Perfluoro-octanesulfonate	1.30 / 1.28	0.391 J	1.82	1.49	110	86	70-130	20	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA91
Matrix: WATER

18107005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS107005	04/19/18 00:17	76	74	78	79	82
LCSDA	04/19/18 00:32	72	79	80	84	81
BLK107005	04/19/18 01:01	71	71	76	76	82

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA91
Matrix: WATER

18107005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS107005	04/19/18 00:17	84
LCSDA	04/19/18 00:32	80
BLK107005	04/19/18 01:01	81

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA91
Matrix: WATER

18107005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9558860	04/23/18 10:59	82	85	85	93	88
9558861	04/23/18 11:13	83	84	88	93	86

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA91
Matrix: WATER

18107005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9558860	04/23/18 10:59	95
9558861	04/23/18 11:13	90

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA91
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18107005 / BLK107005B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/19/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/19/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/19/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/19/18	N.D.	ng/l	0.60	2.0	2.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA91
Matrix: LIQUID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS107005Q LCSD: LCSDAY	Batch: **18107005** (Sample number(s): 9558860-9558861)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	5.57	5.94	102	109	70-130	7	30
Perfluorononanoic acid	5.44	5.66	6.18	104	114	70-130	9	30
Perfluoroheptanoic acid	5.44	5.50	6.23	101	115	70-130	12	30
Perfluorobutanesulfonate	4.81	4.39	4.97	91	103	70-130	12	30
Perfluorohexanesulfonate	5.14	4.81	5.17	94	100	70-130	7	30
Perfluoro-octanesulfonate	5.20	4.95	5.43	95	104	70-130	9	30

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA94

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Soil by LC/MS/MS-DoD	18109006	BLK109006B	05/01/2018 06:18:00
		LCS109006Q	05/01/2018 05:16:00
		LCSDAY	05/01/2018 05:32:00
		9564405 MS	05/01/2018 05:47:00
		9564405 UNSPK	05/01/2018 06:34:00
		9564406	05/01/2018 06:49:00
		9564407	05/01/2018 07:05:00
		9564408	05/01/2018 07:20:00
		9564409	05/01/2018 07:36:00
		9564410	05/01/2018 07:51:00
		9564411	05/01/2018 22:05:00
		9564414	05/01/2018 22:21:00
		9564414	05/02/2018 01:12:00
		9564415	05/01/2018 22:36:00
		9564417	05/01/2018 23:07:00
		9564417	05/02/2018 01:43:00
		9564418	05/01/2018 23:23:00
		9564419	05/01/2018 23:38:00
		9564420	05/01/2018 23:54:00
		9564421	05/02/2018 00:10:00
		9564422	05/02/2018 00:25:00
PFAS in Soil by LC/MS/MS-DoD	18123012	BLK123012B	05/04/2018 11:23:00
		LCS123012Q	05/04/2018 11:39:00
		LCSDAY	05/04/2018 11:54:00
		9564416 MS	05/04/2018 12:10:00
		9564416 UNSPK	05/04/2018 12:25:00
		9564416 UNSPK	05/04/2018 12:41:00
PFAS in Water by LC/MS/MS-DoD	18109005	BLK109005B	04/26/2018 03:21:00
		LCS109005Q	04/26/2018 02:19:00
		9564412	04/26/2018 09:49:00
PFAS in Water by LC/MS/MS-DoD	18113012	BLK113012B	04/24/2018 19:47:00
		LCS113012Q	04/24/2018 19:00:00
		LCSDAY	04/24/2018 19:16:00
		9564413	04/24/2018 21:51:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18109006		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS109006	05/01/18 05:16	73	86	86	83	77
LCSDA	05/01/18 05:32	66	67	71	68	70
9564405MS	05/01/18 05:47	73	79	75	78	85
BLK109006	05/01/18 06:18	67	75	69	74	70
9564405	05/01/18 06:34	75	77	78	80	77
9564406	05/01/18 06:49	69	76	74	72	72
9564407	05/01/18 07:05	74	80	75	75	70
9564408	05/01/18 07:20	76	80	79	81	83
9564409	05/01/18 07:36	63	68	65	68	63
9564410	05/01/18 07:51	85	90	88	93	88
9564411	05/01/18 22:05	63	70	62	66	63
9564414	05/01/18 22:21	70	75	78	79	74
9564415	05/01/18 22:36	68	68	71	71	67
9564417	05/01/18 23:07	58	59	62	56	59
9564418	05/01/18 23:23	61	70	65	60	63
9564419	05/01/18 23:38	74	78	78	76	71
9564420	05/01/18 23:54	64	73	72	71	71
9564421	05/02/18 00:10	63	63	65	63	63
9564422	05/02/18 00:25	61	63	63	64	60
9564414DL	05/02/18 01:12	78	82	83	82	80

* Outside QC Limits

SDG No.: FSA94
Matrix: SOIL

18109006		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9564417DL	05/02/18 01:43	74	84	77	76	76

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18109006		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS109006	05/01/18 05:16	85
LCSDA	05/01/18 05:32	74
9564405MS	05/01/18 05:47	85
BLK109006	05/01/18 06:18	75
9564405	05/01/18 06:34	84
9564406	05/01/18 06:49	77
9564407	05/01/18 07:05	72
9564408	05/01/18 07:20	81
9564409	05/01/18 07:36	66
9564410	05/01/18 07:51	94
9564411	05/01/18 22:05	62
9564414	05/01/18 22:21	77
9564415	05/01/18 22:36	67
9564417	05/01/18 23:07	74
9564418	05/01/18 23:23	65
9564419	05/01/18 23:38	79
9564420	05/01/18 23:54	76
9564421	05/02/18 00:10	69
9564422	05/02/18 00:25	59
9564414DL	05/02/18 01:12	82

* Outside QC Limits

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18109006		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9564417DL	05/02/18 01:43	76

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18123012		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
BLK123012	05/04/18 11:23	80	80	77	77	79
LCS123012	05/04/18 11:39	89	86	84	83	87
LCSDA	05/04/18 11:54	78	76	74	75	74
9564416MS	05/04/18 12:10	64	58	62	64	62
9564416	05/04/18 12:25	77	57	64	66	71
9564416DL	05/04/18 12:41	74	77	72	76	75

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: SOIL

18123012		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
BLK123012	05/04/18 11:23	76
LCS123012	05/04/18 11:39	91
LCSDA	05/04/18 11:54	79
9564416MS	05/04/18 12:10	75
9564416	05/04/18 12:25	83
9564416DL	05/04/18 12:41	86

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA94
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18109006 / BLK109006B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	05/01/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	05/01/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	05/01/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	05/01/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	05/01/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	05/01/18	N.D.	ng/g	0.20	0.60	0.60

18123012 / BLK123012B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	05/04/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	05/04/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	05/04/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	05/04/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	05/04/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	05/04/18	N.D.	ng/g	0.20	0.60	0.60

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA94
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS109006Q LCSD: LCSDAY Analyte	Batch: **18109006** (Sample number(s): 9564405-9564411, 9564414-9564415, 9564417-9564422) Spike Added ng/g	LCS Conc ng/g	LCSD Conc ng/g	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	1.36	1.34	1.39	99	103	70-130	4	30
Perfluorononanoic acid	1.36	1.27	1.32	93	97	70-130	4	30
Perfluoroheptanoic acid	1.36	1.40	1.24	103	91	70-130	12	30
Perfluorobutanesulfonate	1.20	1.12	1.06	94	89	70-130	5	30
Perfluorohexanesulfonate	1.29	1.22	1.17	95	91	70-130	4	30
Perfluoro-octanesulfonate	1.30	1.18	1.16	91	89	70-130	2	30

LCS: LCS123012Q LCSD: LCSDAY Analyte	Batch: **18123012** (Sample number(s): 9564416) Spike Added ng/g	LCS Conc ng/g	LCSD Conc ng/g	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	1.36	1.27	1.27	94	93	70-130	0	30
Perfluorononanoic acid	1.36	1.19	1.29	88	95	70-130	8	30
Perfluoroheptanoic acid	1.36	1.18	1.25	87	92	70-130	5	30
Perfluorobutanesulfonate	1.20	1.09	1.16	91	96	70-130	6	30
Perfluorohexanesulfonate	1.29	1.19	1.26	93	98	70-130	5	30
Perfluoro-octanesulfonate	1.30	1.20	1.26	93	97	70-130	4	30

PFAS Group

Fraction: PFAS by LC/MS/MS

UNSPK: 9564405 MS: 9564405 Analyte	Batch: **18109006** (Sample number(s): 9564405-9564411, 9564414-9564415, 9564417-9564422)								
	Spike Added ng/g	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.32	N.D.	1.41	NA	107	NA	70-130	NA	NA
Perfluorononanoic acid	1.32	N.D.	1.40	NA	106	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.32	N.D.	1.31	NA	100	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.17	N.D.	1.14	NA	98	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.25	0.195 J	1.68	NA	119	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.26	0.707	4.00	NA	261 *	NA	70-130	NA	NA

UNSPK: 9564416 MS: 9564416 Analyte	Batch: **18123012** (Sample number(s): 9564416)								
	Spike Added ng/g	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.32	8.75	6.18	NA	-194 (2)	NA	70-130	NA	NA
Perfluorononanoic acid	1.32	1.55	2.58	NA	78	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.32	0.446 J	1.49	NA	79	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.17	0.402 J	1.40	NA	86	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.25	21.02	16.31	NA	-376 (2)	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.26	406.34	445.52	NA	3105 (2)	NA	70-130	NA	NA

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: WATER

18109005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS109005	04/26/18 02:19	100	92	102	100	104
BLK109005	04/26/18 03:21	101	90	107	106	103
9564412	04/26/18 09:49	98	98	99	101	106

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: WATER

18109005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS109005	04/26/18 02:19	103
BLK109005	04/26/18 03:21	111
9564412	04/26/18 09:49	125

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: WATER

18113012		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS113012	04/24/18 19:00	65	82	86	79	71
LCSDA	04/24/18 19:16	65	73	76	70	69
BLK113012	04/24/18 19:47	69	69	79	73	73
9564413	04/24/18 21:51	74	68	72	74	76

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA94
Matrix: WATER

18113012		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS113012	04/24/18 19:00	73
LCSDA	04/24/18 19:16	67
BLK113012	04/24/18 19:47	75
9564413	04/24/18 21:51	85

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA94
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18109005 / BLK109005B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/26/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/26/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/26/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/26/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/26/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/26/18	N.D.	ng/l	0.60	2.0	2.0

18113012 / BLK113012B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/24/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/24/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/24/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/24/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/24/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/24/18	N.D.	ng/l	0.60	2.0	2.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA94
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

LCS: LCS109005Q	Batch: **18109005** (Sample number(s): 9564412)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	4.94	NA	91	NA	70-130	NA	NA
Perfluorononanoic acid	5.44	4.41	NA	81	NA	70-130	NA	NA
Perfluoroheptanoic acid	5.44	4.65	NA	85	NA	70-130	NA	NA
Perfluorobutanesulfonate	4.81	3.89	NA	81	NA	70-130	NA	NA
Perfluorohexanesulfonate	5.14	4.50	NA	87	NA	70-130	NA	NA
Perfluoro-octanesulfonate	5.20	4.56	NA	88	NA	70-130	NA	NA

LCS: LCS113012Q LCSD: LCSDAY	Batch: **18113012** (Sample number(s): 9564413)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	6.86	6.78	126	125	70-130	1	30
Perfluorononanoic acid	5.44	5.73	6.03	105	111	70-130	5	30
Perfluoroheptanoic acid	5.44	6.14	6.47	113	119	70-130	5	30
Perfluorobutanesulfonate	4.81	5.83	5.12	121	106	70-130	13	30
Perfluorohexanesulfonate	5.14	5.94	6.04	115	117	70-130	2	30
Perfluoro-octanesulfonate	5.20	6.17	5.58	119	107	70-130	10	30

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA95

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Soil by LC/MS/MS-DoD	18114009	BLK114009B	04/30/2018 14:05:00
		LCS114009Q	04/30/2018 13:02:00
		9567185	04/30/2018 14:20:00
		9567186 UNSPK	04/30/2018 14:36:00
		9567187 MS	04/30/2018 13:18:00
		9567188 MSD	04/30/2018 13:33:00
		9567189	04/30/2018 14:51:00
		9567190	04/30/2018 15:07:00
		9567191	05/01/2018 02:25:00
		9567192	05/01/2018 02:41:00
		9567195	05/01/2018 02:56:00
		9567196	05/01/2018 03:12:00
		9567197	05/01/2018 03:27:00
		9567198	05/01/2018 03:43:00
		9567199	05/01/2018 03:58:00
		9567200	05/01/2018 04:14:00
		9567201	05/01/2018 04:29:00
PFAS in Water by LC/MS/MS-DoD	18113012	BLK113012B	04/24/2018 19:47:00
		LCS113012Q	04/24/2018 19:00:00
		LCSDAY	04/24/2018 19:16:00
		9567193	04/24/2018 23:24:00
PFAS in Water by LC/MS/MS-DoD	18117008	BLK117008B	04/30/2018 09:56:00
		LCS117008Q	04/30/2018 09:25:00
		LCSDAY	04/30/2018 09:40:00
		9567194	04/30/2018 10:11:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA95
Matrix: WATER

18113012		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS113012	04/24/18 19:00	65	82	86	79	71
LCSDA	04/24/18 19:16	65	73	76	70	69
BLK113012	04/24/18 19:47	69	69	79	73	73
9567193	04/24/18 23:24	67	70	68	73	74

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA95
Matrix: WATER

18113012		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS113012	04/24/18 19:00	73
LCSDA	04/24/18 19:16	67
BLK113012	04/24/18 19:47	75
9567193	04/24/18 23:24	98

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA95
Matrix: SOIL

18117008		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS117008	04/30/18 09:25	75	79	75	83	77
LCSDA	04/30/18 09:40	78	92	84	86	79
BLK117008	04/30/18 09:56	83	87	87	81	89
9567194	04/30/18 10:11	84	84	82	87	88

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA95
Matrix: SOIL

18117008		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS117008	04/30/18 09:25	81
LCSDA	04/30/18 09:40	87
BLK117008	04/30/18 09:56	84
9567194	04/30/18 10:11	95

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA95
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18113012 / BLK113012B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/24/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/24/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/24/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/24/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/24/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/24/18	N.D.	ng/l	0.60	2.0	2.0

18117008 / BLK117008B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/30/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorononanoic acid	04/30/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoroheptanoic acid	04/30/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorobutanesulfonate	04/30/18	N.D.	ng/l	0.30	1.0	1.0
Perfluorohexanesulfonate	04/30/18	N.D.	ng/l	0.40	2.0	2.0
Perfluoro-octanesulfonate	04/30/18	N.D.	ng/l	0.60	2.0	2.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA95
Matrix: LIQUID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS113012Q LCSD: LCSDAY Analyte	Batch: **18113012** (Sample number(s): 9567193) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	5.44	6.86	6.78	126	125	70-130	1	30
Perfluorononanoic acid	5.44	5.73	6.03	105	111	70-130	5	30
Perfluoroheptanoic acid	5.44	6.14	6.47	113	119	70-130	5	30
Perfluorobutanesulfonate	4.81	5.83	5.12	121	106	70-130	13	30
Perfluorohexanesulfonate	5.14	5.94	6.04	115	117	70-130	2	30
Perfluoro-octanesulfonate	5.20	6.17	5.58	119	107	70-130	10	30

LCS: LCS117008Q LCSD: LCSDAY Analyte	Batch: **18117008** (Sample number(s): 9567194) Spike Added ng/l	LCS Conc ng/l	LCSD Conc ng/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Perfluorooctanoic acid	5.44	5.92	6.19	109	114	70-130	5	30
Perfluorononanoic acid	5.44	6.31	5.83	116	107	70-130	8	30
Perfluoroheptanoic acid	5.44	5.95	6.26	109	115	70-130	5	30
Perfluorobutanesulfonate	4.81	5.21	5.08	108	106	70-130	3	30
Perfluorohexanesulfonate	5.14	5.51	5.17	107	100	70-130	6	30
Perfluoro-octanesulfonate	5.20	5.69	5.73	109	110	70-130	1	30

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA95
Matrix: SOIL

18114009		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS114009	04/30/18 13:02	61	69	71	67	68
9567187MS	04/30/18 13:18	76	77	80	78	78
9567188MSD	04/30/18 13:33	74	78	80	76	80
BLK114009	04/30/18 14:05	62	65	69	70	70
9567185	04/30/18 14:20	72	78	77	81	77
9567186	04/30/18 14:36	63	74	71	72	70
9567189	04/30/18 14:51	63	74	72	71	72
9567190	04/30/18 15:07	61	72	65	68	63
9567191	05/01/18 02:25	63	70	70	69	68
9567192	05/01/18 02:41	64	73	74	76	65
9567195	05/01/18 02:56	69	78	67	76	68
9567196	05/01/18 03:12	59	67	66	67	61
9567197	05/01/18 03:27	64	76	71	71	68
9567198	05/01/18 03:43	56	65	62	67	61
9567199	05/01/18 03:58	70	71	73	71	74
9567200	05/01/18 04:14	66	72	73	69	67
9567201	05/01/18 04:29	69	72	71	70	75

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA95
Matrix: SOIL

18114009		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS114009	04/30/18 13:02	66
9567187MS	04/30/18 13:18	79
9567188MSD	04/30/18 13:33	83
BLK114009	04/30/18 14:05	70
9567185	04/30/18 14:20	81
9567186	04/30/18 14:36	75
9567189	04/30/18 14:51	74
9567190	04/30/18 15:07	64
9567191	05/01/18 02:25	73
9567192	05/01/18 02:41	74
9567195	05/01/18 02:56	70
9567196	05/01/18 03:12	68
9567197	05/01/18 03:27	68
9567198	05/01/18 03:43	67
9567199	05/01/18 03:58	75
9567200	05/01/18 04:14	69
9567201	05/01/18 04:29	83

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA95
Matrix: SOLID

Fraction: PFAS by LC/MS/MS

18114009 / BLK114009B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	04/30/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorononanoic acid	04/30/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoroheptanoic acid	04/30/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorobutanesulfonate	04/30/18	N.D.	ng/g	0.20	0.60	0.60
Perfluorohexanesulfonate	04/30/18	N.D.	ng/g	0.20	0.60	0.60
Perfluoro-octanesulfonate	04/30/18	N.D.	ng/g	0.20	0.60	0.60

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA95
Matrix: SOLID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS114009Q	Batch: **18114009** (Sample number(s): 9567185-9567192, 9567195-9567201)							
Analyte	**Spike Added ng/g**	**LCS Conc ng/g**	**LCSD Conc ng/g**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.36	1.73	NA	127	NA	70-130	NA	NA
Perfluorononanoic acid	1.36	1.75	NA	129	NA	70-130	NA	NA
Perfluoroheptanoic acid	1.36	1.77	NA	130	NA	70-130	NA	NA
Perfluorobutanesulfonate	1.20	1.45	NA	121	NA	70-130	NA	NA
Perfluorohexanesulfonate	1.29	1.47	NA	114	NA	70-130	NA	NA
Perfluoro-octanesulfonate	1.30	1.48	NA	114	NA	70-130	NA	NA

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: FSA95
Matrix: SOLID

PFAS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 9567186 MS: 9567187 MSD: 9567188 Analyte	Batch: **18114009** (Sample number(s): 9567185-9567192, 9567195-9567201)								
	Spike Added ng/g MS/MSD	**Unspiked Conc ng/g**	**MS Conc ng/g**	**MSD Conc ng/g**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	1.31 / 1.26	0.590	2.12	2.01	117	113	70-130	5	30
Perfluorononanoic acid	1.31 / 1.26	0.318 J	1.90	1.77	121	115	70-130	7	30
Perfluoroheptanoic acid	1.31 / 1.26	0.201 J	1.86	1.76	127	124	70-130	6	30
Perfluorobutanesulfonate	1.16 / 1.11	N.D.	1.40	1.34	121	120	70-130	4	30
Perfluorohexanesulfonate	1.24 / 1.19	1.53	2.36	2.21	67 *	58 *	70-130	6	30
Perfluoro-octanesulfonate	1.25 / 1.20	7.16	4.71	4.28	-195 (2)	-239 (2)	70-130	10	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

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Quality Control Reference List
PFAS Group

CLIENT: AECOM
SDG: FSA99

Fraction: PFAS by LC/MS/MS

Analysis	Batch Number	Sample Number	Analysis Date
PFAS in Water by LC/MS/MS-DoD	18134014	BLK134014B	05/16/2018 02:40:00
		LCS134014Q	05/16/2018 02:24:00
		9604425RE	05/16/2018 02:55:00
PFAS in Water by LC/MS/MS-DoD	18135005	BLK135005B	05/19/2018 08:04:00
		LCS135005Q	05/19/2018 07:33:00
		LCSDAY	05/19/2018 07:49:00
		9604444	05/19/2018 08:20:00
		9604445	05/19/2018 08:35:00
		9604445	05/23/2018 22:59:00
		9604446	05/19/2018 08:51:00
		9604447	05/19/2018 09:07:00
		9604448	05/19/2018 09:22:00
		9604448	05/23/2018 23:14:00
		9604449	05/19/2018 09:38:00
		9604450	05/19/2018 10:09:00
PFAS in Water by LC/MS/MS-DoD	18137006	BLK137006B	05/19/2018 11:42:00
		LCS137006Q	05/19/2018 11:26:00
		9604425	05/19/2018 11:57:00
		9604425	05/19/2018 12:13:00
		9604426	05/19/2018 12:44:00
		9604426	05/19/2018 13:31:00
		9604427 UNSPK	05/19/2018 13:46:00
		9604428 MS	05/19/2018 14:02:00
		9604429 MSD	05/19/2018 14:17:00
		9604430	05/24/2018 00:17:00
		9604431	05/19/2018 14:48:00
		9604432	05/19/2018 15:04:00
		9604433	05/19/2018 15:35:00
		9604433	05/19/2018 15:50:00
		9604434	05/19/2018 16:37:00
		9604434	05/24/2018 00:48:00
		9604435	05/19/2018 17:08:00
		9604435	05/19/2018 17:23:00
		9604436	05/19/2018 17:39:00
		9604436	05/19/2018 17:54:00
		9604437	05/19/2018 18:26:00
		9604437	05/24/2018 01:03:00
		9604438	05/19/2018 18:41:00
		9604439	05/19/2018 19:12:00
		9604440	05/19/2018 19:28:00
		9604441	05/19/2018 19:43:00
		9604442	05/19/2018 19:59:00
		9604443	05/19/2018 20:30:00

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18134014		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS134014	05/16/18 02:24	28 *	29 *	28 *	27 *	28 *
BLK134014	05/16/18 02:40	12 *	14 *	13 *	12 *	14 *
9604425RE	05/16/18 02:55	14 *	13 *	13 *	12 *	14 *

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18134014		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery
LCS134014	05/16/18 02:24	27 *
BLK134014	05/16/18 02:40	13 *
9604425RE	05/16/18 02:55	13 *

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18135005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS135005	05/19/18 07:33	86	84	82	85	80
LCSDA	05/19/18 07:49	86	92	86	79	79
BLK135005	05/19/18 08:04	86	96	93	90	87
9604444	05/19/18 08:20	110	82	80	79	88
9604445	05/19/18 08:35	112	73	70	79	81
9604446	05/19/18 08:51	144	86	82	84	90
9604447	05/19/18 09:07	95	88	84	88	79
9604448	05/19/18 09:22	123	83	77	82	83
9604449	05/19/18 09:38	100	93	85	89	91
9604450	05/19/18 10:09	110	81	80	86	84

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18135005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS135005	05/19/18 07:33	84
LCSDA	05/19/18 07:49	82
BLK135005	05/19/18 08:04	95
9604444	05/19/18 08:20	87
9604445	05/19/18 08:35	79
9604446	05/19/18 08:51	92
9604447	05/19/18 09:07	78
9604448	05/19/18 09:22	70
9604449	05/19/18 09:38	91
9604450	05/19/18 10:09	86

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18135005		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	**DATE/TIME**	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9604445DL	05/23/18 22:59	9 *	8 *	8 *	8 *	8 *
9604448DL	05/23/18 23:14	8 *	8 *	9 *	8 *	8 *

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18135005		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9604445DL	05/23/18 22:59	8 *
9604448DL	05/23/18 23:14	8 *

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
LCS137006	05/19/18 11:26	95	90	90	84	84
BLK137006	05/19/18 11:42	90	93	96	88	85
9604425	05/19/18 11:57	36 *	27 *	28 *	28 *	32 *
9604425DL	05/19/18 12:13	84	80	77	77	80
9604426	05/19/18 12:44	89	99	90	84	88
9604426DL	05/19/18 13:31	90	99	96	91	87
9604427	05/19/18 13:46	115	91	84	84	79
9604428MS	05/19/18 14:02	119	89	92	82	78
9604429MSD	05/19/18 14:17	112	83	79	77	83
9604431	05/19/18 14:48	84	91	87	80	80
9604432	05/19/18 15:04	92	91	84	88	85
9604433	05/19/18 15:35	100	82	80	82	89
9604433DL	05/19/18 15:50	90	89	84	85	94
9604434	05/19/18 16:37	92	93	90	90	94
9604435	05/19/18 17:08	89	87	82	87	89
9604435DL	05/19/18 17:23	85	84	79	79	90
9604436	05/19/18 17:39	78	77	71	72	75
9604436DL	05/19/18 17:54	91	93	92	92	95
9604437	05/19/18 18:26	91	95	86	87	97
9604438	05/19/18 18:41	110	87	83	81	79

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9604439	05/19/18 19:12	103	88	87	88	83
9604440	05/19/18 19:28	121	73	78	78	89
9604441	05/19/18 19:43	82	89	78	81	79
9604442	05/19/18 19:59	81	83	79	78	90
9604443	05/19/18 20:30	104	90	90	89	90

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
LCS137006	05/19/18 11:26	88
BLK137006	05/19/18 11:42	93
9604425	05/19/18 11:57	28 *
9604425DL	05/19/18 12:13	80
9604426	05/19/18 12:44	100
9604426DL	05/19/18 13:31	88
9604427	05/19/18 13:46	83
9604428MS	05/19/18 14:02	90
9604429MSD	05/19/18 14:17	79
9604431	05/19/18 14:48	83
9604432	05/19/18 15:04	90
9604433	05/19/18 15:35	83
9604433DL	05/19/18 15:50	83
9604434	05/19/18 16:37	89
9604435	05/19/18 17:08	83
9604435DL	05/19/18 17:23	78
9604436	05/19/18 17:39	67
9604436DL	05/19/18 17:54	91
9604437	05/19/18 18:26	84
9604438	05/19/18 18:41	76

* Outside QC Limits

FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9604439	05/19/18 19:12	93
9604440	05/19/18 19:28	91
9604441	05/19/18 19:43	94
9604442	05/19/18 19:59	88
9604443	05/19/18 20:30	93

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C3-PFBS	13C3-PFHXS	13C4-PFHPA	13C8-PFOA	13C8-PFOS
	Limits	50-150	50-150	50-150	50-150	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
9604430	05/24/18 00:17	92	82	76	81	84
9604434DL	05/24/18 00:48	84	88	86	86	85
9604437DL	05/24/18 01:03	70	79	72	76	78

* Outside QC Limits

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FORM 02A
SURROGATES
LC/MS/MS

SDG No.: FSA99
Matrix: WATER

18137006		13C9-PFNA
	Limits	50-150
LAB SAMPLE ID	DATE/TIME	% Recovery
9604430	05/24/18 00:17	81
9604434DL	05/24/18 00:48	86
9604437DL	05/24/18 01:03	71

* Outside QC Limits

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Quality Control Summary
Method Blank
PFAS Group
SDG: FSA99
Matrix: LIQUID

Fraction: PFAS by LC/MS/MS

18134014 / BLK134014B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	05/16/18	N.D.	ng/l	0.30	1.2	2.0
Perfluorononanoic acid	05/16/18	N.D.	ng/l	0.40	1.2	2.0
Perfluoroheptanoic acid	05/16/18	N.D.	ng/l	0.30	1.2	2.0
Perfluorobutanesulfonate	05/16/18	N.D.	ng/l	0.30	1.1	2.0
Perfluorohexanesulfonate	05/16/18	N.D.	ng/l	0.40	1.1	2.0
Perfluoro-octanesulfonate	05/16/18	N.D.	ng/l	0.60	2.3	3.0

18135005 / BLK135005B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	05/19/18	N.D.	ng/l	0.30	1.2	2.0
Perfluorononanoic acid	05/19/18	N.D.	ng/l	0.40	1.2	2.0
Perfluoroheptanoic acid	05/19/18	N.D.	ng/l	0.30	1.2	2.0
Perfluorobutanesulfonate	05/19/18	N.D.	ng/l	0.30	1.1	2.0
Perfluorohexanesulfonate	05/19/18	N.D.	ng/l	0.40	1.1	2.0
Perfluoro-octanesulfonate	05/19/18	N.D.	ng/l	0.60	2.3	3.0

18137006 / BLK137006B Analyte	Analysis Date	Blank Results	Units	DL	LOD	LOQ
Perfluorooctanoic acid	05/19/18	N.D.	ng/l	0.30	1.2	2.0
Perfluorononanoic acid	05/19/18	N.D.	ng/l	0.40	1.2	2.0
Perfluoroheptanoic acid	05/19/18	N.D.	ng/l	0.30	1.2	2.0
Perfluorobutanesulfonate	05/19/18	N.D.	ng/l	0.30	1.1	2.0
Perfluorohexanesulfonate	05/19/18	N.D.	ng/l	0.40	1.1	2.0
Perfluoro-octanesulfonate	05/19/18	N.D.	ng/l	0.60	2.3	3.0

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: FSA99
Matrix: LIQUID

PFAS Group

Fraction: PFAS by LC/MS/MS

LCS: LCS134014Q	Batch: **18134014** (Sample number(s): 9604425)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	6.58	NA	121	NA	70-130	NA	NA
Perfluorononanoic acid	5.44	5.82	NA	107	NA	70-130	NA	NA
Perfluoroheptanoic acid	5.44	5.92	NA	109	NA	70-130	NA	NA
Perfluorobutanesulfonate	4.81	4.86	NA	101	NA	70-130	NA	NA
Perfluorohexanesulfonate	5.14	4.93	NA	96	NA	70-130	NA	NA
Perfluoro-octanesulfonate	5.20	5.10	NA	98	NA	70-130	NA	NA

LCS: LCS135005Q LCSD: LCSDAY	Batch: **18135005** (Sample number(s): 9604444-9604450)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	5.84	5.74	107	106	70-130	2	30
Perfluorononanoic acid	5.44	5.40	5.51	99	101	70-130	2	30
Perfluoroheptanoic acid	5.44	5.36	5.08	99	93	70-130	5	30
Perfluorobutanesulfonate	4.81	4.79	4.97	100	103	70-130	4	30
Perfluorohexanesulfonate	5.14	5.35	5.09	104	99	70-130	5	30
Perfluoro-octanesulfonate	5.20	5.84	4.49	112	86	70-130	26	30

LCS: LCS137006Q	Batch: **18137006** (Sample number(s): 9604425-9604443)							
Analyte	**Spike Added ng/l**	**LCS Conc ng/l**	**LCSD Conc ng/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.44	6.00	NA	110	NA	70-130	NA	NA
Perfluorononanoic acid	5.44	6.07	NA	112	NA	70-130	NA	NA
Perfluoroheptanoic acid	5.44	5.26	NA	97	NA	70-130	NA	NA
Perfluorobutanesulfonate	4.81	5.12	NA	106	NA	70-130	NA	NA
Perfluorohexanesulfonate	5.14	5.55	NA	108	NA	70-130	NA	NA
Perfluoro-octanesulfonate	5.20	5.68	NA	109	NA	70-130	NA	NA

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: FSA99
Matrix: LIQUID

PFAS Group
Fraction: PFAS by LC/MS/MS

UNSPK: 9604427 MS: 9604428 MSD: 9604429 **Analyte**	Batch: **18137006** (Sample number(s): 9604425-9604443) **Spike Added ng/l MS/MSD**	**Unspiked Conc ng/l**	**MS Conc ng/l**	**MSD Conc ng/l**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Perfluorooctanoic acid	5.18 / 5.09	0.876 J	7.33	6.57	125	112	70-130	11	30
Perfluorononanoic acid	5.18 / 5.09	N.D.	5.75	5.87	111	115	70-130	2	30
Perfluoroheptanoic acid	5.18 / 5.09	1.43 J	6.79	6.84	104	106	70-130	1	30
Perfluorobutanesulfonate	4.58 / 4.50	13.38	21.53	19.62	178 *	139 *	70-130	9	30
Perfluorohexanesulfonate	4.90 / 4.81	8.11	15.41	13.81	149 *	118	70-130	11	30
Perfluoro-octanesulfonate	4.95 / 4.86	2.41 J	6.73	5.85	87	71	70-130	14	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

5/31/2018 6:49:33 PM



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
Water Source Hydrant Grab Water	12/12/2017 09:30	9364960
Trip blank Water	12/12/2017	9364961

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-OF1-SW01 Grab Water	04/10/2018 11:40	9552706
HC-OF1-SD01 Grab Sediment	04/10/2018 11:50	9552707
HC-OF3-SW01 Grab Water	04/10/2018 11:20	9552708
HC-OF3-SD01 Grab Sediment	04/10/2018 11:30	9552709
HC-OF4-SW01 Grab Water	04/10/2018 10:50	9552710
HC-OF4-SD01 Grab Sediment	04/10/2018 10:55	9552711
HC-OF2-SW01 Grab Water	04/10/2018 09:15	9552712
HC-OF2-SD01 Grab Sediment	04/10/2018 09:20	9552713
HC-APN-SD02 Grab Sediment	04/10/2018 10:35	9552714
HC-APN-SW02 Grab Water	04/10/2018 10:25	9552715
HC-APN-SW01 Grab Water	04/10/2018 09:55	9552716
HC-APN-SD01 Grab Sediment	04/10/2018 10:00	9552717
HC-EB-041018 Grab Water	04/10/2018 09:10	9552718
HC-646-SB02-01 Grab Soil	04/10/2018 12:30	9552719
HC-646-SB02-45 Grab Soil	04/10/2018 12:35	9552720
HC-646-SB02-D Grab Soil	04/10/2018 12:40	9552721
Trip Blank Water	04/10/2018	9552722

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-APN-SB02-01 Grab Soil	04/12/2018 09:30	9557701
HC-646-SB03-01 Grab Soil	04/12/2018 09:05	9557702
HC-618-SB01-01 Grab Soil	04/12/2018 13:45	9557703
HC-618-SB02-01 Grab Soil	04/12/2018 10:45	9557704
HC-618-SB02-01MS Grab Soil	04/12/2018 10:45	9557705
HC-618-SB02-01MSD Grab Soil	04/12/2018 10:45	9557706
HC-APN-SB03-45 Grab Soil	04/12/2018 08:05	9557707
HC-EB-041218 Grab Water	04/12/2018 11:05	9557708
HC-FRB-041218 Grab Water	04/12/2018 09:00	9557709
HC-608-SB02-01 Grab Soil	04/12/2018 11:15	9557710
HC-APN-SB03-D Grab Soil	04/12/2018 07:45	9557711
HC-APN-SB03-01 Grab Soil	04/12/2018 07:55	9557712
HC-APN-SB02-45 Grab Soil	04/12/2018 09:40	9557713
HC-646-SB03-45 Grab Soil	04/12/2018 09:10	9557714
HC-608-SB02-D Grab Soil	04/12/2018 11:25	9557715
HC-608-SB02-45 Grab Soil	04/12/2018 11:20	9557716
HC-646-SB01-1314 Grab Soil	04/11/2018 08:30	9557717
HC-APN-SB01-01 Grab Soil	04/11/2018 11:00	9557718
HC-EB-041118 Grab Water	04/11/2018 11:20	9557719
HC-FRB-041118 Grab Water	04/11/2018 08:50	9557720

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-618-SB01-45 Grab Soil	04/12/2018 13:55	9557802
HC-APN-SB01-45 Grab Soil	04/11/2018 11:10	9557803
HC-608-SB01-01 Grab Soil	04/12/2018 11:45	9557804
HC-618-SB02-45 Grab Soil	04/12/2018 10:55	9557805
HC-BBW-SB01-45 Grab Soil	04/11/2018 10:00	9557806
HC-BBW-SB01-01 Grab Soil	04/11/2018 09:40	9557807
HC-608-SB01-45 Grab Soil	04/12/2018 11:50	9557808
HC-646-SB01-01 Grab Soil	04/11/2018 08:20	9557809

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-610-SB02-01 Grab Soil	04/13/2018 10:15	9558857
HC-610-SB01-12 Grab Soil	04/13/2018 08:30	9558858
HC-610-SB02-45 Grab Soil	04/13/2018 10:20	9558859
HC-FRB-041318 Grab Water	04/13/2018 08:20	9558860
HC-EB-041318 Grab Water	04/13/2018 08:15	9558861
HC-610-SB01-1415 Grab Soil	04/13/2018 08:35	9558862
HC-610-SB03-45 Grab Soil	04/13/2018 08:00	9558863
HC-610-SB03-45MS Grab Soil	04/13/2018 08:00	9558864
HC-610-SB03-45MSD Grab Soil	04/13/2018 08:00	9558865
HC-610-SB03-01 Grab Soil	04/13/2018 07:50	9558866

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-620-SB01-01 Grab Soil	04/17/2018 08:20	9564405
HC-620-SB02-45 Grab Soil	04/17/2018 08:05	9564406
HC-620-SB03-01 Grab Soil	04/17/2018 07:50	9564407
HC-620-SB01-45 Grab Soil	04/17/2018 08:25	9564408
HC-620-SB03-45 Grab Soil	04/17/2018 07:55	9564409
HC-620-SB02-01 Grab Soil	04/17/2018 08:00	9564410
HC-FTA-SB03-45 Grab Soil	04/17/2018 09:20	9564411
HC-EB-041718 Grab Water	04/17/2018 14:09	9564412
HC-FRB-041718 Grab Water	04/17/2018 09:50	9564413
HC-FTA-SB03-01 Grab Soil	04/17/2018 09:15	9564414
HC-OF3-SB01-45 Grab Soil	04/17/2018 13:45	9564415
HC-FTA-SB01-01 Grab Soil	04/17/2018 10:00	9564416
HC-FTA-SB-D Grab Soil	04/17/2018 09:50	9564417
HC-FTA-SB01-45 Grab Soil	04/17/2018 10:05	9564418
HC-FTA-SB02-01 Grab Soil	04/17/2018 11:00	9564419
HC-OF3-SB-D Grab Soil	04/17/2018 13:50	9564420
HC-OF3-SB01-01 Grab Soil	04/17/2018 13:40	9564421
HC-FTA-SB02-45 Grab Soil	04/17/2018 11:05	9564422

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-OF4-SB01-45 Grab Soil	04/18/2018 08:55	9567185
HC-OF4-SB01-01 Grab Soil	04/18/2018 08:50	9567186
HC-OF4-SB01-01MS Grab Soil	04/18/2018 08:15	9567187
HC-OF4-SB01-01MSD Grab Soil	04/18/2018 08:15	9567188
HC-OF1-SB01-45 Grab Soil	04/18/2018 10:05	9567189
HC-OF1-SB01-01 Grab Soil	04/18/2018 10:00	9567190
HC-644-SB03-01 Grab Soil	04/18/2018 13:25	9567191
HC-644-SB03-45 Grab Soil	04/18/2018 13:30	9567192
HC-FRB-041818 Grab Water	04/18/2018 07:40	9567193
HC-EB-041818 Grab Water	04/18/2018 14:30	9567194
HC-APN-SB04-01 Grab Soil	04/18/2018 11:10	9567195
HC-APN-SB04-45 Grab Soil	04/18/2018 11:15	9567196
HC-644-SB02-01 Grab Soil	04/18/2018 13:50	9567197
HC-644-SB01-45 Grab Soil	04/18/2018 14:25	9567198
HC-644-SB01-01 Grab Soil	04/18/2018 14:20	9567199
HC-644-SB-D Grab Soil	04/18/2018 14:05	9567200
HC-644-SB02-45 Grab Soil	04/18/2018 13:55	9567201

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-646-MW01 Grab Groundwater	05/09/2018 09:45	9604425
HC-TU019-MW001 Grab Groundwater	05/09/2018 10:21	9604426
HC-BBW-01 Grab Groundwater	05/09/2018 11:05	9604427
HC-BBW-01 MS Grab Groundwater	05/09/2018 11:05	9604428
HC-BBW-01 MSD Grab Groundwater	05/09/2018 11:05	9604429
HC-APN-MW02 Grab Groundwater	05/09/2018 14:00	9604430
HC-FB-050918 Grab Water	05/09/2018 13:30	9604431
HC-EB-050918 Grab Water	05/09/2018 13:40	9604432
HC-610-MW01 Grab Groundwater	05/09/2018 14:35	9604433
HC-FTA-D Grab Groundwater	05/09/2018	9604434
HC-FTA-MW02 Grab Groundwater	05/09/2018 16:00	9604435
HC-FTA-MW01 Grab Groundwater	05/09/2018 16:20	9604436
HC-FTA-MW03 Grab Groundwater	05/09/2018 16:45	9604437
HC-OF3-MW01 Grab Groundwater	05/09/2018 17:15	9604438
HC-APN-MW03 Grab Groundwater	05/10/2018 08:15	9604439
HC-APN-MW01 Grab Groundwater	05/10/2018 07:50	9604440
HC-FB-051018 Grab Water	05/10/2018 07:30	9604441
HC-EB-051018 Grab Water	05/10/2018 07:35	9604442
HC-608-MW01 Grab Groundwater	05/10/2018 08:25	9604443
HC-618-MW01 Grab Groundwater	05/10/2018 08:50	9604444
HC-620-MW01 Grab Groundwater	05/10/2018 09:30	9604445
HC-OF1-MW01 Grab Groundwater	05/10/2018 10:05	9604446
HC-OF4-MW01 Grab Groundwater	05/10/2018 10:35	9604447
HC-644-MW01 Grab Groundwater	05/10/2018 12:00	9604448
HC-APN-MW04 Grab Groundwater	05/10/2018 11:15	9604449
HC-APN-D Grab Groundwater	05/10/2018	9604450

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1886288

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, Misc. Organics

Sample #s: 9364960, 9364961

Due to a laboratory preparation error, the Envi-carb cleanup was not performed on this sample. This sample was re-extracted outside of the method required holding time and the Envi-carb cleanup was performed. The data reported is from the initial trial of the sample and comparable results were observed between the two extractions.

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Project Name: Hancock ANGB
ELLE Group #: 1930370

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9552706, 9552707, 9552708, 9552709, 9552710, 9552711, 9552712, 9552713, 9552714, 9552715, 9552716, 9552717, 9552718, 9552719, 9552720, 9552721, 9552722

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18102016 (Sample number(s): 9552707, 9552709, 9552711, 9552713-9552714, 9552717, 9552719-9552721 UNSPK: P509950)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

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Project Name: Hancock ANGB
ELLE Group #: 1931676

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9557701, 9557702, 9557703, 9557704, 9557705, 9557706, 9557707, 9557708, 9557709, 9557710, 9557711, 9557712, 9557713, 9557714, 9557715, 9557716, 9557717, 9557718, 9557719, 9557720

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18108011 (Sample number(s): 9557701-9557707, 9557710-9557718 UNSPK: 9557704)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluoro-octanesulfonate

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Project Name: Hancock ANGB
ELLE Group #: 1931696

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9557802, 9557803, 9557804, 9557805, 9557806, 9557807, 9557808, 9557809

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18107820004B (Sample number(s): 9557802-9557809 BKG: 9557805)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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Project Name: Hancock ANGB
ELLE Group #: 1931908

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9558857, 9558858, 9558859, 9558860, 9558861, 9558862, 9558863, 9558864, 9558865, 9558866

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18107820006B (Sample number(s): 9558857-9558859, 9558862-9558866 BKG: 9558863)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

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Project Name: Hancock ANGB
ELLE Group #: 1933201

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9564405, 9564406, 9564407, 9564408, 9564409, 9564410, 9564411, 9564412, 9564413, 9564414, 9564415, 9564416, 9564417, 9564418, 9564419, 9564420, 9564421, 9564422

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18109006 (Sample number(s): 9564405-9564411, 9564414-9564415, 9564417-9564422 UNSPK: 9564405)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluoro-octanesulfonate

Batch #: 18123012 (Sample number(s): 9564416 UNSPK: 9564416)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid, Perfluorohexanesulfonate

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18109820003B (Sample number(s): 9564405-9564411, 9564414-9564422 BKG: 9564415)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

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Project Name: Hancock ANGB
ELLE Group #: 1933839

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9567185, 9567186, 9567187, 9567188, 9567189, 9567190, 9567191, 9567192, 9567193, 9567194, 9567195, 9567196, 9567197, 9567198, 9567199, 9567200, 9567201

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18114009 (Sample number(s): 9567185-9567192, 9567195-9567201 UNSPK: 9567186)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

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Project Name: Hancock ANGB
ELLE Group #: 1942359

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9604428, 9604441, 9604442, 9604448

The following analytes were manually integrated due to incorrect integrations:
Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604438

The following analytes were manually integrated due to incorrect integrations:
Perfluoro-octanesulfonate

Sample #s: 9604439, 9604445, 9604446

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604427, 9604429, 9604432, 9604440, 9604444, 9604447, 9604449, 9604450

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604431

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluoro-octanesulfonate

Sample #s: 9604433, 9604434, 9604437

Reporting limits were raised due to interference from the sample matrix.

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The following analytes were manually integrated due to incorrect integrations:
Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604435, 9604443

Reporting limits were raised due to interference from the sample matrix.

The following analytes were manually integrated due to incorrect integrations:
Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604430

Reporting limits were raised due to interference from the sample matrix.

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604426, 9604436

Reporting limits were raised due to interference from the sample matrix.

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604425

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

The following analytes were manually integrated due to incorrect integrations:
Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 18137006 (Sample number(s): 9604425-9604443 UNSPK: 9604427)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorobutanesulfonate, Perfluorohexanesulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9604425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Angela Miller

From: Mullen, Laura <Laura.Mullen@aecom.com>
Sent: Monday, December 18, 2017 1:07 PM
To: Angela Miller
Subject: RE: 1886288-AECOM-PFC Analysis-12/13/2017 10:15:00 Acknowledgement

Hi Angela -
Not sure if anyone sent a reply to this sample receipt/acknowledgment but this sample is for Hancock ANGB (Hancock-Syracuse). The Base name wasn't written on the COC.
Thanks.

Laura

-----Original Message-----
From: LLAutomatedReportingSystem@eurofins.com [mailto:LLAutomatedReportingSystem@eurofins.com]
Sent: Friday, December 15, 2017 3:06 PM
To: Myers, Mike; Mullen, Laura
Subject: 1886288-AECOM-PFC Analysis-12/13/2017 10:15:00 Acknowledgement

The following is an acknowledgement of the receipt of samples by Lancaster Laboratories. Please review this acknowledgement and contact your Client Service Representative if you have concerns.

This is an automated message from an unmonitored address. Please do not reply to this address.

From: Tavantzis, Naoum <naoum.tavantzis@aecom.com>
Sent: Friday, January 05, 2018 2:05 PM
To: Angela Miller; Myers, Mike; Church, Todd; Mullen, Laura
Subject: RE: ANG PFC Phase II--Groups 1884162, 1885071, 1885072, 1886288, 1886343,1887600 -- PFAS

Angela,
Please report with comment. We would prefer to avoid this error in the future.

Naoum Tavantzis
Project Chemist, Design & Consulting Services, DC Metro Area+
Chemistry Team Leader/ Practice Area Leader
Geoenvironmental and Remediation Group
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From: Angela Miller [mailto:AngelaMiller@eurofinsUS.com]
Sent: Friday, January 05, 2018 1:52 PM
To: Myers, Mike; Tavantzis, Naoum; Church, Todd; Mullen, Laura
Subject: ANG PFC Phase II--Groups 1884162, 1885071, 1885072, 1886288, 1886343,1887600 -- PFAS

Good afternoon,

DoD 5.1 specifies the use of Envi-Carb in the extraction of the samples but this step was inadvertently missed for the below referenced samples. All of the samples except 9370763 were re-extracted outside of the method holding time. There was no sample remaining to re-extract 9370763.

The lab plans to report the in-hold extraction (qualified with the out of the hold extraction data) and add a comment that the Envi-carb was not added to the initial batch. Sample 9370763 will have a comment that there was not enough sample available to repeat the analysis.

ELLE #	Client ID	Site
9355806	FW-EB-12/6/17 Grab Water	Fort Wayne
9359774	HU-FRB-120517 Grab Water	Terre Haute
9359789	FW-EB-12/8/17 Grab Water	Fort Wayne
9364960	Water Source Hydrant Grab Water	Hancock ANGB

9364961	Trip blank Water	Hancock ANGB
9365186	FW-EB-12/12/17 Grab Water	Fort Wayne
9370763	FW-EB-12/13/17 Grab Water	Fort Wayne

Thank you,
Angela

Angela Miller
Project Manager

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601

Phone: 717-556-7260
Fax: 717-656-6766

Email: AngelaMiller@eurofinsus.com
www.EurofinsUS.com/LancLabsEnv



Notify us here to report this email as spam.

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Sample Administration Receipt Documentation Log

Doc Log ID: 203746

Group Number(s): 1886288

Client: AECOM

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/13/2017 10:15
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Unp.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 12:32 on 12/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.4	DT	Wet	Y	Bagged	N

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Sample Administration Receipt Documentation Log

Doc Log ID: 213398

Group Number(s): 1930370

Client: AECOM

Hancock ANGB

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/11/2018 9:55
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 15:44 on 04/11/2018

Samples Chilled Details: Hancock ANGB

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.9	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

Extra Sample Details: Hancock ANGB

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC Free Blank Water	4	-- --	

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Sample Administration Receipt Documentation Log

Doc Log ID: 213669

Group Number(s): 1931676

Client: Aecom

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/13/2018 11:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Felix Gonzalez (13783) at 13:42 on 04/13/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.2	DT	Wet	Y	Bagged	N
2	DT42-01	2.0	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC free blank water	4	-- --	Four samples found in cooler.

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Sample Administration Receipt Documentation Log

Doc Log ID: 213669

Group Number(s): 1931696

Client: Aecom

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/13/2018 11:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Felix Gonzalez (13 783) at 13:42 on 04/13/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.2	DT	Wet	Y	Bagged	N
2	DT42-01	2.0	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC free blank water	4	-- --	Four samples found in cooler.

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Sample Administration Receipt Documentation Log

Doc Log ID: 213789

Group Number(s): 193909

Client: AECOM

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/14/2018 10:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 15:41 on 04/14/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	2.8	DT	Wet	Y	Bagged	N

General Comments: Received two bottles of PFC blank water.

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Sample Administration Receipt Documentation Log

Doc Log ID: 214039

Group Number(s): 1933201

Client: AECOM

Hancock ANGB

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/18/2018 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 15:56 on 04/18/2018

Samples Chilled Details: Hancock ANGB

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.6	DT	Wet	Y	Bagged	N
2	DT146	0.8	DT	Wet	Y	Bagged	N

Extra Sample Details: Hancock ANGB

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC Free Blank Water	4	--	

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Sample Administration Receipt Documentation Log

Doc Log ID: 214166

Group Number(s): 1933839

Client: AECOM

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/19/2018 10:20
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	No
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Melvin Sanchez (8 943) at 14:53 on 04/19/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.2	DT	Wet	Y	Bagged	N
2	DT131	2.5	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
HC-0F4-SB01-01MSD	4/18/2018 08:20	

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Sample Administration Receipt Documentation Log

Doc Log ID: 216157

Group Number(s): 1942359

Client: Aecom

Hancock NGB 60520893

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/11/2018 7:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 09:42 on 05/11/2018

Samples Chilled Details: Hancock NGB 60520893

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	3.6	DT	Wet	Y	Bagged	N

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Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 1546298 Sample # 9364960-01

COC # 538181

Client Information		Matrix					Analysis Requested	For Lab Use Only
Client: AECOM	Acct. #: 42343						Preservation Codes	FSC:
Project Name/#: 6520893.7.1	PWSID #:							SCR#: 217161
Project Manager: John Santacroce	P.O. #:							Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other
Sampler: M. ONeill	Quote #:							Remarks: No preservative
State where samples were collected: New York	For Compliance: Yes ☐ No ☐							

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Water	Potable	Ground	Surface	NPDES	Other:	Total # of Containers	EPA537-PFAS 6 Compound
Water Source Hydrant	12/12/17	0930	✓					✓						2	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Chelsi West	12/7/17	13:00	[signature]	12/11/17	0900
[signature]	12/12/17	12:30			
			3	12.13.17	1015

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx X Other _____

Temperature upon receipt 1.4 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 47343 Group # 1930370 Sample # 9552706-22

COC # 546519 1 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Water	Other:	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-OF1-SW01	4-10-18	1140	X			X		2			X
HC-OF1-SD01	4-10-18	1150	X		X			2	X	X	
HC-OF3-SW01	4-10-18	1120	X			X		2			X
HC-OF3-SD01	4-10-18	1130	X		X			2	X	X	
HC-OF4-SW01	4-10-18	1050	X			X		2			X
HC-OF4-SD01	4-10-18	1055	X		X			2	X	X	
HC-OF2-SW01	4-10-18	0915	X			X		2			X
HC-OF2-SD01	4-10-18	0920	X		X			2	X	X	
HC-APN-SD02	4-10-18	1035	X		X			2	X	X	
HC-APN-SW02	4-10-18	1025	X			X		2			X

Matrix: ☐ Tissue ☒ Sediment ☐ Soil | ☐ Ground ☐ Potable ☐ Water | ☐ Surface ☐ NPDES

Analysis Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M ONeill	4-10-18	1340	Fed EX		
				4/11/18	955

EDD Required? Yes No
If yes, format:
Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx Other
Temperature upon receipt 0.9/1.1 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 1930370 Sample # 9552706-22

COC # 546520 2 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

Matrix

Soil ☒ Sediment ☒ Tissue ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-APN-SW01	4-10-18	0955	X		2			X
HC-APN-SD01	4-10-18	1000	X		2	X	X	
HC-EB-041018	4-10-18	0910	X		2			X
HC-646-SB02-01	4-9-18	1230	X		2	X	X	
HC-646-SB02-45	4-9-18	1235	X		2	X	X	
HC-646-SB02-D	4-9-18	1240	X		2	X	X	

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: john.santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M ONeill	4-10-18	1340	FedEx		
				4/11/18	955

EDD Required? (Yes) No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.9/1.1 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 112343 Group # 1931676 Sample # 9557701 - 20

COC # 546518 1 of 3

| Client Information | | Matrix | | |

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1431676 Sample # 955720I-20

COC # 546521 2 of 3

| Client Information | | |

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1931696 Sample # 955782 - 10

COC # 546523 3 of 3

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Matrix: Water (Tissue, Ground, Potable, Surface, NPDES)	Matrix: Other	Total # of Containers	Analysis Requested: PFAS in Soil by LC/MS/MS	Analysis Requested: Moisture
HC-618-SB01-45	4-12-18	1355	X		X			2	X	X
HC-APN-SB01-45	4-11-18	1110	X		X			2	X	X
HC-608-SB01-01	4-12-18	1145	X		X			2	X	X
HC-618-SB02-45	4-12-18	1055	X		X			2	X	X
HC-BBW-SB01-45	4-11-18	1000	X		X			2	X	X
HC-BBW-SB01-01	4-11-18	0940	X		X			2	X	X
HC-608-SB01-45	4-12-18	1150	X		X			2	X	X
HC-646-SB01-01	4-11-18	0820	X		X			2	X	X

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-12-18	1620	Fed Ex	4-12-18	1620
			Felix Gonzalez	4/13/18	11:30

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.2, 2.0 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1931908 Sample # 9558857-67

COC # 546522 1 of 1

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Water: Ground	Water: Potable	Water: Surface	Water: NPDES	Other:	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-610-SB02-01	4-13-18	1015	X		X						2	X	X	
HC-610-~~SB02~~ SB01-12	4-13-18	0830	X		X						2	X	X	
HC-610-SB02-45	4-13-18	1020	X		X						2	X	X	
HC-FRB-041318	4-13-18	0820	X			X					2			X
HC-EB-041318	4-13-18	0815	X			X					2			X
HC-610-SB01-1415	4-13-18	0835	X		X						2	X	X	
HC-610-SB03-45MSD	4-13-18	0810	X		X						2	X	X	
HC-610-SB03-45	4-13-18	0800	X		X						2	X	X	
HC-610-SB03-45MS	4-13-18	0805	X		X						2	X	X	
HC-610-SB03-~~XX~~ 01	4-13-18	0750	X		X						2	X	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-13-18	1500	FedEx	4-13-18	1500

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx X Other _____

Temperature upon receipt 2.8 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 193201 Sample # 9564465-23

COC # 546525 1 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

Matrix

Tissue ☐ Sediment ☒ Soil ☒ | Ground ☐ Potable ☐ Water | Surface ☐ NPDES ☐ | Other: ____

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS in Soil by LCMSMS	Moisture	PFAS in Water by LCMSMS
HC-620-SB01-01	4-17-18	0820	X		2	X	X	
HC-620-SB02-45	4-17-18	0805	X		2	X	X	
HC-620-SB03-01	4-17-18	0750	X		2	X	X	
HC-620-SB01-45	4-17-18	0825	X		2	X	X	
HC-620-SB03-45	4-17-18	0755	X		2	X	X	
HC-620-SB02-01	4-17-18	0800	X		2	X	X	
HC-FTA-SB03-45	4-17-18	0920	X		2	X	X	
HC-EB-~~041718~~ 041718	4-17-18	1409	X		2			X
HC-FRB-041718	4-17-18	0950	X		2			X
HC-FTA-SB03-01	4-17-18	0915	X		2	X	X	

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 blue coolers

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-17-18	1600	Fed Ex	4-17-18	1600
			Mark	4/18/18	0945

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 1.6 | 0.8 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 193320 Sample # 956445 - 23

COC # 546524 2 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

Matrix: Tissue ☐ Ground ☐ Surface ☐ Sediment ☐ Potable ☐ NPDES ☐ Soil ☒ Water ☐ Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture
HC-OF3-SB01-45	4-17-18	1345	X		X	2	X	X
HC-FTA-SB01-01		1000	X		X	2	X	X
HC-FTA-SB-D		0950	X		X	2	X	X
HC-FTA-SB01-45		1005	X		X	2	X	X
HC-FTA-SB02-01		1100	X		X	2	X	X
HC-OF3-SB-D		1350	X		X	2	X	X
HC-OF3-SB01-01		1340	X		X	2	X	X
HC-FTA-SB02-45	↓	1105	X		X	2	X	X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill 4-17-18	4-17-18	1600	FedEx	4-17-18	1600
				4/18/18	945

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 1-6/0.8 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1933859 Sample # 9567185-201

COC # 546527 1 of 2

Client Information		Matrix					Analysis Requested										For Lab Use Only
Client: AECOM	Acct. #: 60520893						Preservation Codes										FSC:
Project Name/#: Hancock ANGB	PWSID #:																SCR#:
Project Manager: J. Santacroce	P.O. #:																
Sampler: M. ONeill	Quote #:																
State where samples were collected: NY	For Compliance: Yes ☒ No ☐																

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Water	Ground	Potable	Surface	NPDES	Other:	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water LC/MS/MS
HC-OF4-SB01-01MSD	4-18-18	0815	X		X									2	X	X	
HC-OF4-SB01-45		0855			X									2	X	X	
HC-OF4-SB01-01		0850			X									2	X	X	
HC-OF4-SB01-01MS		0815			X									2	X	X	
HC-OF1-SB01-45		1005			X									2	X	X	
HC-OF1-SB01-01		1000			X									2	X	X	
HC-1644-SB03-01		1325			X									2	X	X	
HC-1644-SB03-45		1330			X									2	X	X	
HC-FRB-041818		0740						X						2			X
HC-EB-041818	↓	1430	↓					X						2			X

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-18-18	1600	FedEx	4-18-18	1600
			Edna	4-19-18	1020

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 2.2 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1933879 Sample # 9567185-201

COC # 546526

For Lab Use Only 2 of 2
FSC:
SCR#:

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Matrix: Water (Tissue / Ground / Potable / Surface / NPDES)	Matrix: Other	Total # of Containers	Analysis Requested: PFAS in Soil LC/MS/MS	Analysis Requested: Moisture
HC-APN-SB04-01	4-18-18	1110	X		X			2	X	X
HC-APN-SB04-45		1115	X		X			2	X	X
HC-644-SB02-01		1350	X		X			2	X	X
HC-644-SB01-45		1425	X		X			2	X	X
HC-644-SB01-01		1420	X		X			2	X	X
HC-644-SB-D		1405	X		X			2	X	X
HC-644-SB02-45		1355	X		X			2	X	X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-18-18	1600	FedEx	4-18-18	1600

EDD Required? Yes No
If yes, format:
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx Other
Temperature upon receipt 1.2-2.5°C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1742359 Sample # 960425-50

COC # 546528

Client Information

Client: AECOM	Acct. #:
Project Name/#: Hancock ANGB 60520893	PWSID #:
Project Manager: John Santacroce	P.O. #:
Sampler: Ross McCurdy	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water: Ground ☑ Potable ☐ NPDES ☐ Surface ☐ | Other: ___

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	537 Modified PFC	Remarks
HC-646-MW01	5/9/18	945	✓		2	X	
HC-TV019-MW001		1021	✓		2	X	
HC-BBW-01		1105	✓		2	X	
HC-BBW-01 MS		1105	–		2	X	MS
HC-BBW-01 MSD		1105	✓		2	X	MSD
HC-APN-MW02		1400	✓		2	X	
HC-FB-050918		1330	✓		2	X	
HC-EB-050918		1340	✓		2	X	
HC-610-MW01		1435	✓		2	X	
HC-FTA-D	▼	–	✓		2	X	

Analysis Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: STANDARD

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	5/10/18	1600			
				5/11/18	0750

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ___ FedEx X Other ___

Temperature upon receipt 3.6 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 42343 Group # 1947359 Sample # 7604425-50

COC # 547825

Client Information

Client: AECOM	Acct. #:
Project Name/#: Hancock ANGB 60520893	PWSID #:
Project Manager: John Santacroce	P.O. #:
Sampler: Russ McCrea	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☐ Sediment ☐ Tissue ☐ Water ☑ Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other:	Total # of Containers	Analysis Requested: EPA 537 Modified PFC
Hc-FTA-MW02	5/9/18	1100	X		GW	2	X
Hc-FTA-MW01		1620	X			2	X
Hc-FTA-MW03		1645	X			2	X
Hc-OF3-MW01		1715	X			2	X
Hc-APN-MW03	5/10/18	815	X			2	X
Hc-APN-MW01		750	X			2	X
Hc-FB-051018		730	X			2	X
Hc-EB-051018		735	X			2	X
Hc-608-MW01		825	X			2	X
Hc-618-MW01		850	X			2	X

For Lab Use Only
FSC:
SCR#: 223615

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	4/16/18	13:15			
	5/10/18	1600			
				5/11/18	0750

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx X Other

Temperature upon receipt 3.6 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 42343 Group # 494255 Sample # 760425-50

COC # 546530

Client Information

Client: AECOM	Acct. #:
Project Name/#: Hancock ANGB 60520893	PWSID #:
Project Manager: John Santacroce	P.O. #:
Sampler: Ross McCall	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water ☑ Potable ☐ Ground ☑ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Water	Potable	Ground	NPDES	Surface	Other	Total # of Containers	EPA 537 Mod. PFCs	Remarks
HC-620-MW01	5/10/18	930	X					GW						2	X	
HC-OF1-MW01		1005	X					GW						2	X	
HC-OF4-MW01		1035	X					GW						2	X	
HC-644-MW01		1200	X					GW						2	X	
~~FIELD BLANK~~ HC-APN-MW04	5-10-18	1115	X					GW						2	X	
HC-APN-D	5/10/18	-	X					GW						2	X	

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.SantaCroce@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	5/10/18	1600			
			MMP	5/11/18	0750

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.6 °C

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 and Inorganic (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+	Inorganic analyte present. Reported value may not be accurate or precise, but the result may be biased high.
J-	Inorganic analyte present. 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 URS 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

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	k	Cooler receipt temperature exceeds limits
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	l	LCS recovery failure
l	LCS recovery failure	l	LCS recovery failure	m	MS/MSD recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	n	ICS failure
p	Poor chromatography	p	Poor chromatography	o	Calibration blank contamination
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	q	Concentration exceeded the linear range
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	r	Linearity failure in calibration or MSA
s	Surrogate failure	s	Surrogate failure	s	Serial dilution failure
t	TIC	t	Blender blank contamination	t	Carboy Lot detection
w	Identification criteria failure	u	No confirmation column	u	BOD minimum depletion did not exceed 2mg/L
x	Field blank contamination	w	Retention time failure	v	Post-digestion spike failure
y	Trip blank contamination	x	Field blank contamination	w	CRDL Standard Failure
z	Method blank contamination	z	Method blank contamination	x	Field blank contamination
				z	Preparation/Method blank contamination

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: January 16, 2018 13:02

Project: Hancock ANGB

Account #: 42343
Group Number: 1886288
SDG: FSA24
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: Laura Mullen
Electronic Copy To	AECOM	Attn: Todd Church
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Angela M. Miller
Specialist

(717) 556-7260



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
Water Source Hydrant Grab Water	12/12/2017 09:30	9364960
Trip blank Water	12/12/2017	9364961

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1886288

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

For dual column analyses, the surrogate (for multi-surrogate tests, at least one surrogate) must be within the acceptance limits on at least one of the two columns.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, Misc. Organics

Sample #s: 9364960, 9364961

Due to a laboratory preparation error, the Envi-carb cleanup was not performed on this sample. This sample was re-extracted outside of the method required holding time and the Envi-carb cleanup was performed. The data reported is from the initial trial of the sample and comparable results were observed between the two extractions.

Sample Description: **Water Source Hydrant Grab Water**

Project Name: **Hancock ANGB**

AECOM
ELLE Sample #: **WW 9364960**
ELLE Group #: **1886288**
Matrix: Water

Submittal Date/Time: 12/13/2017 10:15
Collection Date/Time: 12/12/2017 09:30
SDG#: FSA24-01

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.3	0.9	0.9	1
14434	Perfluoroheptanoic acid	375-85-9	0.5 J	0.3	0.9	0.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.4	2	2	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.4	2	2	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.6	2	2	1
14434	Perfluorooctanoic acid	335-67-1	0.7 J	0.3	0.9	0.9	1

Due to a laboratory preparation error, the Envi-carb cleanup was not performed on this sample. This sample was re-extracted outside of the method required holding time and the Envi-carb cleanup was performed. The data reported is from the initial trial of the sample and comparable results were observed between the two extractions.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	01/09/2018 15:53	Mark Makowiecki	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	12/18/2017 08:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **Trip blank Water**

Project Name: **Hancock ANGB**

AECOM
ELLE Sample #: **WW 9364961**
ELLE Group #: **1886288**
Matrix: Water

Submittal Date/Time: 12/13/2017 10:15
Collection Date/Time: 12/12/2017
SDG#: FSA24-02TB

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
Misc. Organics	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.3	0.9	0.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.3	0.9	0.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.4	2	2	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.4	2	2	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.6	2	2	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.3	0.9	0.9	1

Due to a laboratory preparation error, the Envi-carb cleanup was not performed on this sample. This sample was re-extracted outside of the method required holding time and the Envi-carb cleanup was performed. The data reported is from the initial trial of the sample and comparable results were observed between the two extractions.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	01/09/2018 16:13	Mark Makowiecki	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	17352005	12/18/2017 08:25	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: AECOM
Reported: 01/16/2018 13:02

Group Number: 1886288

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/l	ng/l	ng/l	ng/l
Batch number: 17352005	Sample number(s): 9364960-9364961			
Perfluorobutanesulfonate	N.D.	0.3	1	1
Perfluoroheptanoic acid	N.D.	0.3	1	1
Perfluorohexanesulfonate	N.D.	0.4	2	2
Perfluorononanoic acid	N.D.	0.4	2	2
Perfluoro-octanesulfonate	N.D.	0.6	2	2
Perfluorooctanoic acid	N.D.	0.3	1	1

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 17352005	Sample number(s): 9364960-9364961								
Perfluorobutanesulfonate	4.81	5.54	4.81	5.19	115	108	70-130	7	30
Perfluoroheptanoic acid	5.44	6.80	5.44	6.96	125	128	70-130	2	30
Perfluorohexanesulfonate	5.14	5.65	5.14	5.18	110	101	70-130	9	30
Perfluorononanoic acid	5.44	6.84	5.44	6.74	126	124	70-130	2	30
Perfluoro-octanesulfonate	5.20	5.99	5.20	5.70	115	110	70-130	5	30
Perfluorooctanoic acid	5.44	6.21	5.44	7.03	114	129	70-130	12	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 17352005

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: AECOM
Reported: 01/16/2018 13:02

Group Number: 1886288

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report. For dual column analyses, the surrogate (at least one surrogate for multi-surrogate tests) must be within the acceptance limits on at least one of the two columns.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 17352005

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9364960	120	9	76	9	76	2	75	2	73	9	77	2
9364961	82	9	94	9	89	2	81	2	77	9	95	2
Blank	85	10	95	10	84	2	85	2	78	10	82	2
LCS	76	10	78	10	70	2	76	2	82	10	81	2
LCSD	79	10	85	10	82	2	75	2	74	10	78	2
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 1544298 Sample # 9364960-601

COC # 538181

Client Information

Client: AECOM	Acct. #: 42343
Project Name/#: 60520893.7.1	PWSID #:
Project Manager: John Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: New York	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes

EPA537-PFAS 6 Compounds

For Lab Use Only

FSC: ____

SCR#: 217161

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

No preservative

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
Water Source Hydrant	12/12/17	0930	✓		2

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Chelsia West	12/7/17	13:00		12/11/17	0900
	12/12/17	12:30			
				12.13.17	1015

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 1.4 °C

Angela Miller

From: Mullen, Laura <Laura.Mullen@aecom.com>
Sent: Monday, December 18, 2017 1:07 PM
To: Angela Miller
Subject: RE: 1886288-AECOM-PFC Analysis-12/13/2017 10:15:00 Acknowledgement

Hi Angela -
Not sure if anyone sent a reply to this sample receipt/acknowledgment but this sample is for Hancock ANGB (Hancock-Syracuse). The Base name wasn't written on the COC.
Thanks.

Laura

-----Original Message-----
From: LLAutomatedReportingSystem@eurofins.com [mailto:LLAutomatedReportingSystem@eurofins.com]
Sent: Friday, December 15, 2017 3:06 PM
To: Myers, Mike; Mullen, Laura
Subject: 1886288-AECOM-PFC Analysis-12/13/2017 10:15:00 Acknowledgement

The following is an acknowledgement of the receipt of samples by Lancaster Laboratories. Please review this acknowledgement and contact your Client Service Representative if you have concerns.

This is an automated message from an unmonitored address. Please do not reply to this address.

Natalie Luciano

From: Tavantzis, Naoum <naoum.tavantzis@aecom.com>
Sent: Friday, January 05, 2018 2:05 PM
To: Angela Miller; Myers, Mike; Church, Todd; Mullen, Laura
Subject: RE: ANG PFC Phase II--Groups 1884162, 1885071, 1885072, 1886288, 1886343,1887600 -- PFAS

Angela,
Please report with comment. We would prefer to avoid this error in the future.

Naoum Tavantzis
Project Chemist, Design & Consulting Services, DC Metro Area+
Chemistry Team Leader/ Practice Area Leader
Geoenvironmental and Remediation Group
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From: Angela Miller [mailto:AngelaMiller@eurofinsUS.com]
Sent: Friday, January 05, 2018 1:52 PM
To: Myers, Mike; Tavantzis, Naoum; Church, Todd; Mullen, Laura
Subject: ANG PFC Phase II--Groups 1884162, 1885071, 1885072, 1886288, 1886343,1887600 -- PFAS

Good afternoon,

DoD 5.1 specifies the use of Envi-Carb in the extraction of the samples but this step was inadvertently missed for the below referenced samples. All of the samples except 9370763 were re-extracted outside of the method holding time. There was no sample remaining to re-extract 9370763.

The lab plans to report the in-hold extraction (qualified with the out of the hold extraction data) and add a comment that the Envi-carb was not added to the initial batch. Sample 9370763 will have a comment that there was not enough sample available to repeat the analysis.

ELLE #	Client ID	Site
9355806	FW-EB-12/6/17 Grab Water	Fort Wayne
9359774	HU-FRB-120517 Grab Water	Terre Haute
9359789	FW-EB-12/8/17 Grab Water	Fort Wayne
9364960	Water Source Hydrant Grab Water	Hancock ANGB

9364961	Trip blank Water	Hancock ANGB
9365186	FW-EB-12/12/17 Grab Water	Fort Wayne
9370763	FW-EB-12/13/17 Grab Water	Fort Wayne

Thank you,
Angela

Angela Miller
Project Manager

Eurofins Lancaster Laboratories Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601

Phone: 717-556-7260
Fax: 717-656-6766

Email: AngelaMiller@eurofinsus.com
www.EurofinsUS.com/LancLabsEnv



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Sample Administration Receipt Documentation Log

Doc Log ID: 203746

Group Number(s): 1886288

Client: AECOM

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/13/2017 10:15
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	Unp.
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 12:32 on 12/13/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.4	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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REVISED

ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: May 16, 2018 11:14

Project: Hancock ANGB

Account #: 42343
Group Number: 1930370
SDG: FSA87
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-OF1-SW01 Grab Water	04/10/2018 11:40	9552706
HC-OF1-SD01 Grab Sediment	04/10/2018 11:50	9552707
HC-OF3-SW01 Grab Water	04/10/2018 11:20	9552708
HC-OF3-SD01 Grab Sediment	04/10/2018 11:30	9552709
HC-OF4-SW01 Grab Water	04/10/2018 10:50	9552710
HC-OF4-SD01 Grab Sediment	04/10/2018 10:55	9552711
HC-OF2-SW01 Grab Water	04/10/2018 09:15	9552712
HC-OF2-SD01 Grab Sediment	04/10/2018 09:20	9552713
HC-APN-SD02 Grab Sediment	04/10/2018 10:35	9552714
HC-APN-SW02 Grab Water	04/10/2018 10:25	9552715
HC-APN-SW01 Grab Water	04/10/2018 09:55	9552716
HC-APN-SD01 Grab Sediment	04/10/2018 10:00	9552717
HC-EB-041018 Grab Water	04/10/2018 09:10	9552718
HC-646-SB02-01 Grab Soil	04/09/2018 12:30	9552719
HC-646-SB02-45 Grab Soil	04/09/2018 12:35	9552720
HC-646-SB02-D Grab Soil	04/09/2018 12:40	9552721
Trip Blank Water	04/10/2018	9552722

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1930370

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9552718, 9552722

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample #s: 9552712

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

The following analytes were manually integrated due to incorrect integrations: Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9552707

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

The following analytes were manually integrated due to incorrect integrations: Perfluorononanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9552708, 9552710, 9552720, 9552721

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

The following analytes were manually integrated due to incorrect integrations: Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9552719

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

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The following analytes were manually integrated due to incorrect integrations: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluoroheptanoic acid, Perfluorobutanesulfonate, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9552706, 9552713, 9552714, 9552715, 9552716, 9552717

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

The following analytes were manually integrated due to incorrect integrations: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9552709, 9552711

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

The following analytes were manually integrated due to incorrect integrations: Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 18102016 (Sample number(s): 9552707, 9552709, 9552711, 9552713-9552714, 9552717, 9552719-9552721 UNSPK: P509950)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluorooctanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

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Analysis Report

REVISED

Sample Description: **HC-OF1-SW01 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:40
SDG#: FSA87-01

AECOM
ELLE Sample #: WW 9552706
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	4.9	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	8.5	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	96	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	2.3	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	80	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	28	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 06:55	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-OF1-SD01 Grab Sediment**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:50
SDG#: FSA87-02

AECOM
ELLE Sample #: SW 9552707
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.37	1.1	1.1	1
14478	Perfluoroheptanoic acid	375-85-9	1.0 J	0.37	1.1	1.1	1
14478	Perfluorohexanesulfonate	355-46-4	2.3	0.37	1.1	1.1	1
14478	Perfluorononanoic acid	375-95-1	0.84 J	0.37	1.1	1.1	1
14478	Perfluoro-octanesulfonate	1763-23-1	7.0	0.37	1.1	1.1	1
14478	Perfluorooctanoic acid	335-67-1	2.1	0.37	1.1	1.1	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	45.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 21:42	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-OF3-SW01 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:20
SDG#: FSA87-03

AECOM
ELLE Sample #: WW 9552708
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	38	0.28	0.93	0.93	1
14434	Perfluoroheptanoic acid	375-85-9	61	0.28	0.93	0.93	1
14434	Perfluorohexanesulfonate	355-46-4	600	3.7	19	19	10
14434	Perfluorononanoic acid	375-95-1	58	0.37	1.9	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	460	5.6	19	19	10
14434	Perfluorooctanoic acid	335-67-1	190	0.28	0.93	0.93	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 07:35	Devon M Whooley	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 07:10	Devon M Whooley	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-OF3-SD01 Grab Sediment**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 11:30
SDG#: FSA87-04

AECOM
ELLE Sample #: SW 9552709
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	1.0	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	21	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	36.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 21:56	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-OF4-SW01 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:50
SDG#: FSA87-05

AECOM
ELLE Sample #: WW 9552710
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	20	0.75	2.5	2.5	1
14434	Perfluoroheptanoic acid	375-85-9	52	0.75	2.5	2.5	1
14434	Perfluorohexanesulfonate	355-46-4	690	1.0	5.0	5.0	1
14434	Perfluorononanoic acid	375-95-1	59	1.0	5.0	5.0	1
14434	Perfluoro-octanesulfonate	1763-23-1	920	1.5	5.0	5.0	1
14434	Perfluorooctanoic acid	335-67-1	93	0.75	2.5	2.5	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 07:50	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-OF4-SD01 Grab Sediment**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:55
SDG#: FSA87-06

AECOM
ELLE Sample #: SW 9552711
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.32	0.96	0.96	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.32	0.96	0.96	1
14478	Perfluorohexanesulfonate	355-46-4	1.4	0.32	0.96	0.96	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.32	0.96	0.96	1
14478	Perfluoro-octanesulfonate	1763-23-1	14	0.32	0.96	0.96	1
14478	Perfluorooctanoic acid	335-67-1	0.44 J	0.32	0.96	0.96	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	41.9	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:11	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: **HC-OF2-SW01 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:15
SDG#: FSA87-07

AECOM
ELLE Sample #: WW 9552712
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	81	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	110	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	640	3.7	18	18	10
14434	Perfluorononanoic acid	375-95-1	32	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	1,700	5.5	18	18	10
14434	Perfluorooctanoic acid	335-67-1	92	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:04	Devon M Whooley	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 07:24	Devon M Whooley	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-OF2-SD01 Grab Sediment**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:20
SDG#: FSA87-08

AECOM
ELLE Sample #: SW 9552713
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**		**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.		0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	0.34	J	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	1.4		0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	0.38	J	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	14		0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	0.59	J	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.							
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	**%**	
00111	Moisture	n.a.	27.3		0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:25	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-APN-SD02 Grab Sediment**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:35
SDG#: FSA87-09

AECOM
ELLE Sample #: SW 9552714
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.38	1.1	1.1	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.38	1.1	1.1	1
14478	Perfluorohexanesulfonate	355-46-4	2.8	0.38	1.1	1.1	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.1	1
14478	Perfluoro-octanesulfonate	1763-23-1	47	0.38	1.1	1.1	1
14478	Perfluorooctanoic acid	335-67-1	1.2	0.38	1.1	1.1	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	48.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:40	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-APN-SW02 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:25
SDG#: FSA87-10

AECOM
ELLE Sample #: WW 9552715
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result		Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	75		0.27	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	18		0.27	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	350		3.7	18	18	10
14434	Perfluorononanoic acid	375-95-1	1.4	J	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	440		5.5	18	18	10
14434	Perfluorooctanoic acid	335-67-1	74		0.27	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:19	Devon M Whooley	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/24/2018 07:39	Devon M Whooley	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-APN-SW01 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:55
SDG#: FSA87-11

AECOM
ELLE Sample #: WW 9552716
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	45	0.28	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	11	0.28	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	270	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	0.89 J	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	310	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	44	0.28	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:33	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-APN-SD01 Grab Sediment**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 10:00
SDG#: FSA87-12

AECOM
ELLE Sample #: SW 9552717
ELLE Group #: 1930370
Matrix: Sediment

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**		**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.		0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	0.41	J	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	1.1		0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	0.40	J	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.4		0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	1.1		0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.							
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	**%**	
00111	Moisture	n.a.	42.6		0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 22:55	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-EB-041018 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018 09:10
SDG#: FSA87-13EB

AECOM
ELLE Sample #: WW 9552718
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 08:48	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-646-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/09/2018 12:30
SDG#: FSA87-14

AECOM
ELLE Sample #: SW 9552719
ELLE Group #: 1930370
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.23 J	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	0.34 J	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	1.6	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	0.33 J	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	34	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	1.0	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	15.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 23:09	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-646-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/09/2018 12:35
SDG#: FSA87-15

AECOM
ELLE Sample #: SW 9552720
ELLE Group #: 1930370
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	1.0	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	12	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	2.5	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 23:24	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: **HC-646-SB02-D Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/09/2018 12:40
SDG#: FSA87-16

AECOM
ELLE Sample #: SW 9552721
ELLE Group #: 1930370
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.20	0.61	0.61	1
14478	Perfluoroheptanoic acid	375-85-9	0.24 J	0.20	0.61	0.61	1
14478	Perfluorohexanesulfonate	355-46-4	1.3	0.20	0.61	0.61	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.20	0.61	0.61	1
14478	Perfluoro-octanesulfonate	1763-23-1	11	0.20	0.61	0.61	1
14478	Perfluorooctanoic acid	335-67-1	3.0	0.20	0.61	0.61	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	21.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/17/2018 23:38	Jason W Knight	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18102016	04/12/2018 15:40	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18102820004B	04/12/2018 12:42	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: **Trip Blank Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/11/2018 09:55
Collection Date/Time: 04/10/2018
SDG#: FSA87-17TB

AECOM
ELLE Sample #: WW 9552722
ELLE Group #: 1930370
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 09:02	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: AECOM
Reported: 05/16/2018 11:14

Group Number: 1930370

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/g	ng/g	ng/g	ng/g
Batch number: 18102016	Sample number(s): 9552707,9552709,9552711,9552713-9552714,9552717,9552719-9552721			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60
	ng/l	ng/l	ng/l	ng/l
Batch number: 18107005	Sample number(s): 9552706,9552708,9552710,9552712,9552715-9552716,9552718,9552722			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18102016	Sample number(s): 9552707,9552709,9552711,9552713-9552714,9552717,9552719-9552721								
Perfluorobutanesulfonate	1.20	1.21	1.20	1.24	100	103	70-130	3	30
Perfluoroheptanoic acid	1.36	1.68	1.36	1.49	124	110	70-130	12	30
Perfluorohexanesulfonate	1.29	1.34	1.29	1.24	105	97	70-130	8	30
Perfluorononanoic acid	1.36	1.69	1.36	1.49	124	110	70-130	12	30
Perfluoro-octanesulfonate	1.30	1.39	1.30	1.33	107	102	70-130	5	30
Perfluorooctanoic acid	1.36	1.47	1.36	1.44	108	106	70-130	3	30
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18107005	Sample number(s): 9552706,9552708,9552710,9552712,9552715-9552716,9552718,9552722								
Perfluorobutanesulfonate	4.81	4.39	4.81	4.97	91	103	70-130	12	30
Perfluoroheptanoic acid	5.44	5.50	5.44	6.23	101	115	70-130	12	30
Perfluorohexanesulfonate	5.14	4.81	5.14	5.17	94	100	70-130	7	30
Perfluorononanoic acid	5.44	5.66	5.44	6.18	104	114	70-130	9	30
Perfluoro-octanesulfonate	5.20	4.95	5.20	5.43	95	104	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: AECOM
Reported: 05/16/2018 11:14

Group Number: 1930370

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.57	5.44	5.94	102	109	70-130	7	30
	%	%	%	%					
Batch number: 18102820004B	Sample number(s): 9552707,9552709,9552711,9552713-9552714,9552717,9552719-9552721								
Moisture	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18102016	Sample number(s): 9552707,9552709,9552711,9552713-9552714,9552717,9552719-9552721 UNSPK: P509950									
Perfluorobutanesulfonate	N.D.	1.19	1.27			107		70-130		
Perfluoroheptanoic acid	N.D.	1.35	1.68			125		70-130		
Perfluorohexanesulfonate	4.39	1.27	6.86			193*		70-130		
Perfluorononanoic acid	0.473	1.35	2.16			125		70-130		
Perfluoro-octanesulfonate	19.07	1.29	27.58			661 (2)		70-130		
Perfluorooctanoic acid	0.782	1.35	2.57			133*		70-130		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 18102820004B	Sample number(s): 9552707,9552709,9552711,9552713-9552714,9552717,9552719-9552721 BKG: 9552714			
Moisture	48.15	48.18	0	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: AECOM
Reported: 05/16/2018 11:14

Group Number: 1930370

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18102016

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
9552707	73	1.2	79	1.2	79	1.2	77	1.2	81	1.8	81	0.80
9552709	74	0.46	71	0.46	77	0.46	77	0.46	78	0.69	85	0.31
9552711	72	0.56	75	0.56	76	0.56	78	0.56	80	0.83	83	0.37
9552713	70	0.53	72	0.53	72	0.53	70	0.53	71	0.79	72	0.35
9552714	72	0.59	71	0.59	76	0.59	79	0.59	74	0.89	79	0.40
9552717	67	0.43	72	0.43	73	0.43	75	0.43	71	0.65	74	0.29
9552719	71	0.56	69	0.56	72	0.56	74	0.56	77	0.84	76	0.37
9552720	57	0.57	66	0.57	60	0.57	64	0.57	62	0.85	57	0.38
9552721	66	0.48	70	0.48	67	0.48	69	0.48	72	0.72	66	0.32
Blank	67	1.2	75	1.2	74	1.2	72	1.2	73	1.8	70	0.80
LCS	62	1.2	65	1.2	62	1.2	68	1.2	66	1.8	64	0.80
LCSD	69	1.2	74	1.2	73	1.2	71	1.2	72	1.8	68	0.80
MS	66	0.59	72	0.59	75	0.59	69	0.59	72	0.89	67	0.40
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18107005

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9552706	142	9.1	70	9.1	73	1.8	82	1.8	86	9.1	90	1.8
9552708	139	9.3	62	9.3	69	1.9	78	1.9	75	9.3	87	1.9
9552710	122	25	71	25	76	5.0	83	5.0	88	25	101	5.0
9552712	112	9.1	52	9.1	54	1.8	78	1.8	83	9.1	123	1.8
9552715	126	9.2	60	9.2	64	1.8	75	1.8	75	9.2	97	1.8
9552716	130	9.2	68	9.2	67	1.8	74	1.8	82	9.2	100	1.8
9552718	80	9.1	84	9.1	86	1.8	89	1.8	89	9.1	97	1.8
9552722	79	9.1	85	9.1	85	1.8	91	1.8	87	9.1	92	1.8
Blank	71	10	71	10	76	2.0	76	2.0	82	10	81	2.0
LCS	76	10	74	10	78	2.0	79	2.0	82	10	84	2.0
LCSD	72	10	79	10	80	2.0	84	2.0	81	10	80	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 47343 Group # 1930370 Sample # 9552706-22

COC # 546519 1 of 2

Client Information

Client: AECOM | Acct. #: 60520893

Project Name/#: Hancock ANGB | PWSID #:

Project Manager: J. Santacroce | P.O. #:

Sampler: M. ONeill | Quote #:

State where samples were collected: NY | For Compliance: Yes ☒ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☒ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Tissue	Potable	Ground	Surface Water	NPDES	Other	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-OF1-SW01	4-10-18	1140	X						X				2			X
HC-OF1-SD01	4-10-18	1150	X			X							2	X	X	
HC-OF3-SW01	4-10-18	1120	X						X				2			X
HC-OF3-SD01	4-10-18	1130	X			X							2	X	X	
HC-OF4-SW01	4-10-18	1050	X						X				2			X
HC-OF4-SD01	4-10-18	1055	X			X							2	X	X	
HC-OF2-SW01	4-10-18	0915	X						X				2			X
HC-OF2-SD01	4-10-18	0920	X			X							2	X	X	
HC-APN-SD02	4-10-18	1035	X			X							2	X	X	
HC-APN-SW02	4-10-18	1025	X						X				2			X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
MPONeill	4-10-18	1340	FedEx		
			MMR	4/11/18	955

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx ____ Other ✓

Temperature upon receipt 0.9/1.1 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 1930370 Sample # 9552706-22

COC # 546520 2 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Matrix: Tissue	Matrix: Water (Potable / Ground / NPDES / Surface)	Matrix: Other	Total # of Containers	Analysis Requested: PFAS in Soil by LC/MS/MS	Analysis Requested: Moisture	Analysis Requested: PFAS in Water by LC/MS/MS
HC-APN-SW01	4-10-18	0955	X				X		2			X
HC-APN-SD01	4-10-18	1000	X		X				2	X	X	
HC-EB-041018	4-10-18	0910	X				X		2			X
HC-646-SB02-01	4-9-18	1230	X		X				2	X	X	
HC-646-SB02-45	4-9-18	1235	X		X				2	X	X	
HC-646-SB02-D	4-9-18	1240	X		X				2	X	X	

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.santacroce@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M ONeill	4-10-18	1340	FedEx		
			MR	4/11/18	955

EDD Required? (Yes) No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx ✓ Other _____

Temperature upon receipt 0.9/1.1 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 213398

Group Number(s): 1930370

Client: AECOM

Hancock ANGB

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/11/2018 9:55
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 15:44 on 04/11/2018

Samples Chilled Details: Hancock ANGB

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.9	DT	Wet	Y	Bagged	N
2	DT146	1.1	DT	Wet	Y	Bagged	N

Extra Sample Details: Hancock ANGB

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC Free Blank Water	4	-- --	

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: April 28, 2018 11:31

Project: Hancock ANGB

Account #: 42343
Group Number: 1931676
SDG: FSA89
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-APN-SB02-01 Grab Soil	04/12/2018 09:30	9557701
HC-646-SB03-01 Grab Soil	04/12/2018 09:05	9557702
HC-618-SB01-01 Grab Soil	04/12/2018 13:45	9557703
HC-618-SB02-01 Grab Soil	04/12/2018 10:45	9557704
HC-618-SB02-01MS Grab Soil	04/12/2018 10:45	9557705
HC-618-SB02-01MSD Grab Soil	04/12/2018 10:45	9557706
HC-APN-SB03-45 Grab Soil	04/12/2018 08:05	9557707
HC-EB-041218 Grab Water	04/12/2018 11:05	9557708
HC-FRB-041218 Grab Water	04/12/2018 09:00	9557709
HC-608-SB02-01 Grab Soil	04/12/2018 11:15	9557710
HC-APN-SB03-D Grab Soil	04/12/2018 07:45	9557711
HC-APN-SB03-01 Grab Soil	04/12/2018 07:55	9557712
HC-APN-SB02-45 Grab Soil	04/12/2018 09:40	9557713
HC-646-SB03-45 Grab Soil	04/12/2018 09:10	9557714
HC-608-SB02-D Grab Soil	04/12/2018 11:25	9557715
HC-608-SB02-45 Grab Soil	04/12/2018 11:20	9557716
HC-646-SB01-1314 Grab Soil	04/11/2018 08:30	9557717
HC-APN-SB01-01 Grab Soil	04/11/2018 11:00	9557718
HC-EB-041118 Grab Water	04/11/2018 11:20	9557719
HC-FRB-041118 Grab Water	04/11/2018 08:50	9557720

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1931676

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9557701, 9557702, 9557703, 9557704, 9557705, 9557706, 9557707, 9557708, 9557709, 9557710, 9557711, 9557712, 9557713, 9557714, 9557715, 9557716, 9557717, 9557718, 9557719, 9557720

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18108011 (Sample number(s): 9557701-9557707, 9557710-9557718 UNSPK: 9557704)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluoro-octanesulfonate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluoro-octanesulfonate

Sample Description: **HC-APN-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:30
SDG#: FSA89-01

AECOM
ELLE Sample #: SW 9557701
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	0.25 J	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	3.7	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	1.5	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	20	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	0.73	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	15.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 14:21	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-646-SB03-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:05
SDG#: FSA89-02

AECOM
ELLE Sample #: SW 9557702
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.57 J	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	0.54 J	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	7.3	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	0.45 J	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	29	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	1.3	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 14:36	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-618-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 13:45
SDG#: FSA89-03

AECOM
ELLE Sample #: SW 9557703
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.0	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	17.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 14:52	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-618-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 10:45
SDG#: FSA89-04BKG

AECOM
ELLE Sample #: SW 9557704
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	0.73	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.9	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	0.65 J	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 15:07	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-618-SB02-01MS Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 10:45
SDG#: FSA89-04MS

AECOM
ELLE Sample #: SW 9557705
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.2	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	1.6	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	2.2	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	1.4	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.2	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	2.1	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00118	Moisture	n.a.	19.3	0.50	0.50	0.50	1

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 13:18	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-618-SB02-01MSD Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 10:45
SDG#: FSA89-04MSD

AECOM
ELLE Sample #: SW 9557706
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.2	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	1.5	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	2.2	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	1.3	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	6.0	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	1.9	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00118	Moisture	n.a.	19.3	0.50	0.50	0.50	1
00121	Moisture Duplicate	n.a.	19.2	0.50	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 13:34	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB03-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 08:05
SDG#: FSA89-05

AECOM
ELLE Sample #: SW 9557707
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	0.43 J	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.37 J	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 15:23	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-041218 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:05
SDG#: FSA89-06EB

AECOM
ELLE Sample #: WW 9557708
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.54	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 09:32	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FRB-041218 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:00
SDG#: FSA89-07FB

AECOM
ELLE Sample #: WW 9557709
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:15	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-608-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:15
SDG#: FSA89-08

AECOM
ELLE Sample #: SW 9557710
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**		**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.		0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.		0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	0.58	J	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	0.38	J	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	5.4		0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.		0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.							
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	**%**	
00111	Moisture	n.a.	9.0		0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 15:38	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB03-D Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 07:45
SDG#: FSA89-09

AECOM
ELLE Sample #: SW 9557711
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	0.82	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	0.38 J	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.9	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	0.42 J	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	22.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 16:25	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB03-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 07:55
SDG#: FSA89-10

AECOM
ELLE Sample #: SW 9557712
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	1.1	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	0.47 J	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.7	0.21	0.63	0.63	1
14478	Perfluorooctanoic acid	335-67-1	0.52 J	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	13.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 16:40	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:40
SDG#: FSA89-11

AECOM
ELLE Sample #: SW 9557713
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.78	0.78	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.78	0.78	1
14478	Perfluorohexanesulfonate	355-46-4	0.70 J	0.26	0.78	0.78	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.78	0.78	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.95	0.26	0.78	0.78	1
14478	Perfluorooctanoic acid	335-67-1	0.30 J	0.26	0.78	0.78	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	23.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 16:56	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-646-SB03-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 09:10
SDG#: FSA89-12

AECOM
ELLE Sample #: SW 9557714
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.77	0.77	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.77	0.77	1
14478	Perfluorohexanesulfonate	355-46-4	0.27 J	0.26	0.77	0.77	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.77	0.77	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.0	0.26	0.77	0.77	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.26	0.77	0.77	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	24.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:11	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-608-SB02-D Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:25
SDG#: FSA89-13

AECOM
ELLE Sample #: SW 9557715
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.62	0.62	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.62	0.62	1
14478	Perfluorohexanesulfonate	355-46-4	0.94	0.21	0.62	0.62	1
14478	Perfluorononanoic acid	375-95-1	0.50 J	0.21	0.62	0.62	1
14478	Perfluoro-octanesulfonate	1763-23-1	9.3	0.21	0.62	0.62	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.21	0.62	0.62	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	8.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:27	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-608-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:20
SDG#: FSA89-14

AECOM
ELLE Sample #: SW 9557716
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	2.4	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	5.4	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.3	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	0.60 J	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:42	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-646-SB01-1314 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 08:30
SDG#: FSA89-15

AECOM
ELLE Sample #: SW 9557717
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.71	0.71	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.71	0.71	1
14478	Perfluorohexanesulfonate	355-46-4	3.5	0.24	0.71	0.71	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.71	0.71	1
14478	Perfluoro-octanesulfonate	1763-23-1	3.6	0.24	0.71	0.71	1
14478	Perfluorooctanoic acid	335-67-1	0.63 J	0.24	0.71	0.71	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 17:58	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 11:00
SDG#: FSA89-16

AECOM
ELLE Sample #: SW 9557718
ELLE Group #: 1931676
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	2.6	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	0.27 J	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	16	0.23	0.70	0.70	1
14478	Perfluorooctanoic acid	335-67-1	0.35 J	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/24/2018 18:13	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108011	04/18/2018 16:30	Danielle D McCully	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820002A	04/17/2018 10:10	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-041118 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 11:20
SDG#: FSA89-17EB

AECOM
ELLE Sample #: WW 9557719
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous EPA 537 mod QSM 5.1 table B-15			**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:30	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FRB-041118 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 08:50
SDG#: FSA89-18FB

AECOM
ELLE Sample #: WW 9557720
ELLE Group #: 1931676
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:44	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 11:31

Group Number: 1931676

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/g	ng/g	ng/g	ng/g
Batch number: 18108011	Sample number(s): 9557701-9557707,9557710-9557718			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60
	ng/l	ng/l	ng/l	ng/l
Batch number: 18107005	Sample number(s): 9557708-9557709,9557719-9557720			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/g	ng/g	ng/g	ng/g					
Batch number: 18108011	Sample number(s): 9557701-9557707,9557710-9557718								
Perfluorobutanesulfonate	1.20	0.979			81		70-130		
Perfluoroheptanoic acid	1.36	1.22			90		70-130		
Perfluorohexanesulfonate	1.29	1.17			91		70-130		
Perfluorononanoic acid	1.36	1.14			84		70-130		
Perfluoro-octanesulfonate	1.30	1.05			80		70-130		
Perfluorooctanoic acid	1.36	1.12			83		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18107005	Sample number(s): 9557708-9557709,9557719-9557720								
Perfluorobutanesulfonate	4.81	4.39	4.81	4.97	91	103	70-130	12	30
Perfluoroheptanoic acid	5.44	5.50	5.44	6.23	101	115	70-130	12	30
Perfluorohexanesulfonate	5.14	4.81	5.14	5.17	94	100	70-130	7	30
Perfluorononanoic acid	5.44	5.66	5.44	6.18	104	114	70-130	9	30
Perfluoro-octanesulfonate	5.20	4.95	5.20	5.43	95	104	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 11:31

Group Number: 1931676

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.57	5.44	5.94	102	109	70-130	7	30
	%	%	%	%					
Batch number: 18107820002A	Sample number(s): 9557701-9557707,9557710-9557718								
Moisture	89.5	89.42			100		99-101		
Moisture	89.5	89.42			100		99-101		
Moisture Duplicate	89.5	89.42			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18108011	Sample number(s): 9557701-9557707,9557710-9557718 UNSPK: 9557704									
Perfluorobutanesulfonate	N.D.	1.17	1.01	1.09	0.960	86	88	70-130	5	30
Perfluoroheptanoic acid	N.D.	1.32	1.33	1.24	1.23	101	100	70-130	8	30
Perfluorohexanesulfonate	0.590	1.25	1.74	1.17	1.80	92	103	70-130	3	30
Perfluorononanoic acid	N.D.	1.32	1.14	1.24	1.07	86	87	70-130	6	30
Perfluoro-octanesulfonate	7.22	1.26	6.62	1.18	4.83	-46 (2)	-201 (2)	70-130	31*	30
Perfluorooctanoic acid	0.522	1.32	1.72	1.24	1.52	91	80	70-130	13	30

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	%	%		
Batch number: 18107820002A	Sample number(s): 9557701-9557707,9557710-9557718 BKG: 9557704, P557704			
Moisture	19.26	19.21	0	5
Moisture	19.26	19.21	0	5
Moisture Duplicate	19.26	19.21	0	5

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 11:31

Group Number: 1931676

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18107005

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9557708	83	9.1	88	9.1	92	1.8	94	1.8	91	9.1	93	1.8
9557709	79	9.1	82	9.1	84	1.8	88	1.8	76	9.1	87	1.8
9557719	78	9.1	81	9.1	84	1.8	88	1.8	91	9.1	94	1.8
9557720	81	9.2	90	9.2	91	1.8	91	1.8	86	9.2	96	1.8
Blank	71	10	71	10	76	2.0	76	2.0	82	10	81	2.0
LCS	76	10	74	10	78	2.0	79	2.0	82	10	84	2.0
LCSD	72	10	79	10	80	2.0	84	2.0	81	10	80	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18108011

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
9557701	75	0.58	84	0.58	89	0.58	86	0.58	86	0.87	83	0.39
9557702	81	0.59	91	0.59	93	0.59	87	0.59	84	0.88	82	0.39
9557703	69	0.57	76	0.57	77	0.57	74	0.57	73	0.86	74	0.38
9557704	70	0.58	75	0.58	80	0.58	74	0.58	76	0.87	81	0.38
9557705	75	0.58	81	0.58	81	0.58	78	0.58	77	0.87	79	0.39
9557706	73	0.55	71	0.55	75	0.55	72	0.55	74	0.82	73	0.36
9557707	72	0.59	79	0.59	85	0.59	76	0.59	78	0.89	72	0.40
9557710	73	0.59	76	0.59	72	0.59	73	0.59	76	0.88	74	0.39
9557711	73	0.57	83	0.57	74	0.57	82	0.57	84	0.86	83	0.38
9557712	76	0.55	78	0.55	88	0.55	81	0.55	82	0.82	82	0.36
9557713	80	1.2	86	1.2	89	1.2	80	1.2	88	1.8	80	0.80
9557714	67	0.59	81	0.59	79	0.59	75	0.59	74	0.88	75	0.39
9557715	68	0.57	66	0.57	73	0.57	70	0.57	68	0.86	68	0.38
9557716	77	0.57	76	0.57	85	0.57	81	0.57	83	0.86	90	0.38
9557717	72	0.57	74	0.57	75	0.57	74	0.57	72	0.85	69	0.38
9557718	74	0.59	74	0.59	80	0.59	79	0.59	81	0.89	79	0.40
Blank	81	1.2	93	1.2	87	1.2	88	1.2	88	1.8	86	0.80
LCS	84	1.2	81	1.2	85	1.2	89	1.2	95	1.8	92	0.80
MS	75	0.58	81	0.58	81	0.58	78	0.58	77	0.87	79	0.39
MSD	73	0.55	71	0.55	75	0.55	72	0.55	74	0.82	73	0.36
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 12343 Group # 1931676 Sample # 9557701 - 20

COC # 546518

1 of 3

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

Matrix: Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only

FSC: ____

SCR#: ____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-APN-SB02-01	4-12-18	0930	✓		✓			2	✓	✓	
HC-646-SB03-01	4-12-18	0905	✓		✓			2	✓	✓	
HC-618-SB01-01	4-12-18	1345	✓		✓			2	✓	✓	
HC-618-SB02-01MS	4-12-18	1030	✓		✓			2	✓	✓	
HC-618-SB02-01 ✱ M.ONeill	4-12-18	1045	✓		✓			2	✓	✓	
HC-618-SB02-01MSD	4-12-18	1035	✓		✓			2	✓	✓	
HC-APN-SB03-45	4-12-18	0805	✓		✓	M.ONeill		2	✓	✓	
HC-EB-041218	4-12-18	1105	✓		~~✓~~	✓		2			✓
HC-FRB-041218	4-12-18	0900	✓		~~✓~~	✓		2			✓
HC-608-SB02-01	4-12-18	1115	✓		✓			2	✓	✓	

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@Aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or B
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-12-18	1620	Fed Ex	4-12-18	1620
			Felix Gonzalez	4/13/18	11:30

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.2, 2.0 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 1931676 Sample # 9557701-20

COC # 546521 2 of 3

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Water: Tissue	Water: Ground	Water: Potable	Water: Surface	Water: NPDES	Other:	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-APN-SB03-D	4-12-18	0745	X		X							2	X	X	
HC-APN-SB03-01	4-12-18	0755	X		X							2	X	X	
HC-APN-SB02-45	4-12-18	0940	X		X							2	X	X	
HC-646-SB03-45	4-12-18	0910	X		X							2	X	X	
HC-608-SB02-D	4-12-18	1125	X		X							2	X	X	
HC-608-SB02-45	4-12-18	1120	X		X							2	X	X	
HC-646-SB01-1314	4-11-18	0830	X		X							2	X	X	
HC-APN-SB01-01	4-11-18	1100	X		X							2	X	X	
HC-EB-041118	4-11-18	1120	X				X					2			X
HC-FRB-041118	4-11-18	0850	X				X					2			X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-12-18	1620	FedEx	4-12-18	1620
			Alix Gonzalez	4/13/18	11:30

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.2, 2.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 213669

Group Number(s): 1931676

Client: Aecom

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/13/2018 11:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Felix Gonzalez (13783) at 13:42 on 04/13/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.2	DT	Wet	Y	Bagged	N
2	DT42-01	2.0	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC free blank water	4	-- --	Four samples found in cooler.

2425 New Holland Pike
Lancaster, PA 17605-2425
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www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: April 28, 2018 12:14

Project: Hancock ANGB

Account #: 42343
Group Number: 1931696
SDG: FSA90
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-618-SB01-45 Grab Soil	04/12/2018 13:55	9557802
HC-APN-SB01-45 Grab Soil	04/11/2018 11:10	9557803
HC-608-SB01-01 Grab Soil	04/12/2018 11:45	9557804
HC-618-SB02-45 Grab Soil	04/12/2018 10:55	9557805
HC-BBW-SB01-45 Grab Soil	04/11/2018 10:00	9557806
HC-BBW-SB01-01 Grab Soil	04/11/2018 09:40	9557807
HC-608-SB01-45 Grab Soil	04/12/2018 11:50	9557808
HC-646-SB01-01 Grab Soil	04/11/2018 08:20	9557809

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1931696

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9557802, 9557803, 9557804, 9557805, 9557806, 9557807, 9557808, 9557809

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18107820004B (Sample number(s): 9557802-9557809 BKG: 9557805)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: **HC-618-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 13:55
SDG#: FSA90-01

AECOM
ELLE Sample #: SW 9557802
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.84	0.84	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.84	0.84	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.28	0.84	0.84	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.28	0.84	0.84	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.34 J	0.28	0.84	0.84	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.84	0.84	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	23.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 03:33	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 11:10
SDG#: FSA90-02

AECOM
ELLE Sample #: SW 9557803
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	22.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 03:48	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-608-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:45
SDG#: FSA90-03

AECOM
ELLE Sample #: SW 9557804
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	2.2	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	0.43 J	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	23	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	0.47 J	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	6.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:04	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-618-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 10:55
SDG#: FSA90-04

AECOM
ELLE Sample #: SW 9557805
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	0.31 J	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.1	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:19	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-BBW-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 10:00
SDG#: FSA90-05

AECOM
ELLE Sample #: SW 9557806
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.83	0.83	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.83	0.83	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.28	0.83	0.83	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.28	0.83	0.83	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.28	0.83	0.83	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.83	0.83	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:35	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-BBW-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 09:40
SDG#: FSA90-06

AECOM
ELLE Sample #: SW 9557807
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	0.87	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.8	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	0.29 J	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 04:50	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-608-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/12/2018 11:50
SDG#: FSA90-07

AECOM
ELLE Sample #: SW 9557808
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.79	0.79	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.79	0.79	1
14478	Perfluorohexanesulfonate	355-46-4	0.73 J	0.26	0.79	0.79	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.79	0.79	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.2	0.26	0.79	0.79	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.26	0.79	0.79	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 05:37	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-646-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/13/2018 11:30
Collection Date/Time: 04/11/2018 08:20
SDG#: FSA90-08

AECOM
ELLE Sample #: SW 9557809
ELLE Group #: 1931696
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.19	0.58	0.58	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.19	0.58	0.58	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.19	0.58	0.58	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.19	0.58	0.58	1
14478	Perfluoro-octanesulfonate	1763-23-1	3.2	0.19	0.58	0.58	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.19	0.58	0.58	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	5.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 05:53	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820004B	04/17/2018 11:08	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 12:14

Group Number: 1931696

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/g	ng/g	ng/g	ng/g
Batch number: 18108014	Sample number(s): 9557802-9557809			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18108014	Sample number(s): 9557802-9557809								
Perfluorobutanesulfonate	1.20	1.01			84		70-130		
Perfluoroheptanoic acid	1.36	1.20			88		70-130		
Perfluorohexanesulfonate	1.29	1.08			84		70-130		
Perfluorononanoic acid	1.36	1.17			86		70-130		
Perfluoro-octanesulfonate	1.30	1.11			85		70-130		
Perfluorooctanoic acid	1.36	1.16			85		70-130		
	%	%	%	%					
Batch number: 18107820004B	Sample number(s): 9557802-9557809								
Moisture	89.5	89.4			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18108014	Sample number(s): 9557802-9557809 UNSPK: P558863									
Perfluorobutanesulfonate	N.D.	1.20	1.07	1.18	1.09	89	93	70-130	2	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 12:14

Group Number: 1931696

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoroheptanoic acid	N.D.	1.36	1.19	1.33	1.25	88	94	70-130	5	30
Perfluorohexanesulfonate	N.D.	1.29	1.20	1.26	1.15	93	91	70-130	5	30
Perfluorononanoic acid	N.D.	1.36	1.16	1.33	1.20	85	90	70-130	4	30
Perfluoro-octanesulfonate	0.391	1.30	1.82	1.28	1.49	110	86	70-130	20	30
Perfluorooctanoic acid	N.D.	1.36	1.34	1.33	1.23	99	92	70-130	9	30

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 18107820004B	Sample number(s): 9557802-9557809 BKG: 9557805			
Moisture	18.71	17.56	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18108014

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
9557802	68	0.65	63	0.65	69	0.65	71	0.65	69	0.97	65	0.43
9557803	84	0.58	87	0.58	95	0.58	93	0.58	91	0.87	92	0.39
9557804	78	0.63	83	0.63	84	0.63	85	0.63	91	0.94	89	0.42
9557805	68	0.55	69	0.55	67	0.55	66	0.55	74	0.83	67	0.37
9557806	68	0.66	80	0.66	79	0.66	77	0.66	78	0.99	75	0.44
9557807	68	0.57	73	0.57	67	0.57	70	0.57	75	0.86	76	0.38
9557808	69	0.63	73	0.63	82	0.63	72	0.63	71	0.94	73	0.42
9557809	74	0.55	79	0.55	80	0.55	81	0.55	85	0.83	79	0.37
Blank	84	1.2	99	1.2	93	1.2	94	1.2	95	1.8	89	0.80
LCS	79	1.2	82	1.2	88	1.2	87	1.2	84	1.8	83	0.80
MS	60	1.2	63	1.2	66	1.2	63	1.2	63	1.8	65	0.80
MSD	53	0.59	63	0.59	57	0.59	51	0.59	57	0.88	52	0.39

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Quality Control Summary

Client Name: AECOM
Group Number: 1931696
Reported: 04/28/2018 12:14

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18108014

Limits:	50-150	50-150	50-150	50-150	50-150	50-150

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1931696 Sample # 955782 - 10

COC # 546523 3 of 3

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

Matrix: ☐ Tissue ☐ Sediment ☒ Soil ☐ Water (☐ Ground ☐ Potable ☐ Surface ☐ NPDES) Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture
HC-618-SB01-45	4-12-18	1355	X		2	X	X
HC-APN-SB01-45	4-11-18	1110	X		2	X	X
HC-608-SB01-01	4-12-18	1145	X		2	X	X
HC-618-SB02-45	4-12-18	1055	X		2	X	X
HC-BBW-SB01-45	4-11-18	1000	X		2	X	X
HC-BBW-SB01-01	4-11-18	0940	X		2	X	X
HC-608-SB01-45	4-12-18	1150	X		2	X	X
HC-646-SB01-01	4-11-18	0820	X		2	X	X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-12-18	1620	Fed Ex	4-12-18	1620
			Felix Gonzalez	4/13/18	11:30

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.2, 2.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 213669

Group Number(s): 1931696

Client: Aecom

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/13/2018 11:30
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Felix Gonzalez (13 783) at 13:42 on 04/13/2018

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-01	2.2	DT	Wet	Y	Bagged	N
2	DT42-01	2.0	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC free blank water	4	-- --	Four samples found in cooler.

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: April 28, 2018 12:15

Project: Hancock ANGB

Account #: 42343
Group Number: 1931908
SDG: FSA91
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-610-SB02-01 Grab Soil	04/13/2018 10:15	9558857
HC-610-SB01-12 Grab Soil	04/13/2018 08:30	9558858
HC-610-SB02-45 Grab Soil	04/13/2018 10:20	9558859
HC-FRB-041318 Grab Water	04/13/2018 08:20	9558860
HC-EB-041318 Grab Water	04/13/2018 08:15	9558861
HC-610-SB01-1415 Grab Soil	04/13/2018 08:35	9558862
HC-610-SB03-45 Grab Soil	04/13/2018 08:00	9558863
HC-610-SB03-45MS Grab Soil	04/13/2018 08:00	9558864
HC-610-SB03-45MSD Grab Soil	04/13/2018 08:00	9558865
HC-610-SB03-01 Grab Soil	04/13/2018 07:50	9558866

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1931908

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9558857, 9558858, 9558859, 9558860, 9558861, 9558862, 9558863, 9558864, 9558865, 9558866

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18107820006B (Sample number(s): 9558857-9558859, 9558862-9558866 BKG: 9558863)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture, Moisture, Moisture Duplicate

Sample Description: **HC-610-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 10:15
SDG#: FSA91-01

AECOM
ELLE Sample #: SW 9558857
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.62	0.62	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.62	0.62	1
14478	Perfluorohexanesulfonate	355-46-4	0.97	0.21	0.62	0.62	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.62	0.62	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.7	0.21	0.62	0.62	1
14478	Perfluorooctanoic acid	335-67-1	0.27 J	0.21	0.62	0.62	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	12.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:08	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB01-12 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:30
SDG#: FSA91-02

AECOM
ELLE Sample #: SW 9558858
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:24	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 10:20
SDG#: FSA91-03

AECOM
ELLE Sample #: SW 9558859
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:39	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FRB-041318 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:20
SDG#: FSA91-04FB

AECOM
ELLE Sample #: WW 9558860
ELLE Group #: 1931908
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 10:59	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-041318 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:15
SDG#: FSA91-05EB

AECOM
ELLE Sample #: WW 9558861
ELLE Group #: 1931908
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/23/2018 11:13	Devon M Whooley	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18107005	04/17/2018 15:30	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB01-1415 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:35
SDG#: FSA91-06

AECOM
ELLE Sample #: SW 9558862
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.83	0.83	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.83	0.83	1
14478	Perfluorohexanesulfonate	355-46-4	0.63 J	0.28	0.83	0.83	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.28	0.83	0.83	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.4	0.28	0.83	0.83	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.83	0.83	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 06:55	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB03-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:00
SDG#: FSA91-07BKG

AECOM
ELLE Sample #: SW 9558863
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.79	0.79	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.79	0.79	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.26	0.79	0.79	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.79	0.79	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.48 J	0.26	0.79	0.79	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.26	0.79	0.79	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 07:10	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB03-45MS Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:00
SDG#: FSA91-07MS

AECOM
ELLE Sample #: SW 9558864
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.3	0.24	0.73	0.73	1
14478	Perfluoroheptanoic acid	375-85-9	1.5	0.24	0.73	0.73	1
14478	Perfluorohexanesulfonate	355-46-4	1.5	0.24	0.73	0.73	1
14478	Perfluorononanoic acid	375-95-1	1.4	0.24	0.73	0.73	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.2	0.24	0.73	0.73	1
14478	Perfluorooctanoic acid	335-67-1	1.6	0.24	0.73	0.73	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00118	Moisture	n.a.	18.1	0.50	0.50	0.50	1

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 02:31	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB03-45MSD Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 08:00
SDG#: FSA91-07MSD

AECOM
ELLE Sample #: SW 9558865
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.3	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	1.5	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	1.4	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	1.5	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.8	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	1.5	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00118	Moisture	n.a.	18.1	0.50	0.50	0.50	1
00121	Moisture Duplicate	n.a.	21.9	0.50	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 10:26	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-SB03-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/14/2018 10:40
Collection Date/Time: 04/13/2018 07:50
SDG#: FSA91-08

AECOM
ELLE Sample #: SW 9558866
ELLE Group #: 1931908
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	0.75	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	8.3	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	16.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/25/2018 07:26	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18108014	04/18/2018 14:00	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18107820006B	04/17/2018 21:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 12:15

Group Number: 1931908

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/g	ng/g	ng/g	ng/g
Batch number: 18108014	Sample number(s): 9558857-9558859,9558862-9558866			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60
	ng/l	ng/l	ng/l	ng/l
Batch number: 18107005	Sample number(s): 9558860-9558861			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18108014	Sample number(s): 9558857-9558859,9558862-9558866								
Perfluorobutanesulfonate	1.20	1.01			84		70-130		
Perfluoroheptanoic acid	1.36	1.20			88		70-130		
Perfluorohexanesulfonate	1.29	1.08			84		70-130		
Perfluorononanoic acid	1.36	1.17			86		70-130		
Perfluoro-octanesulfonate	1.30	1.11			85		70-130		
Perfluorooctanoic acid	1.36	1.16			85		70-130		
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18107005	Sample number(s): 9558860-9558861								
Perfluorobutanesulfonate	4.81	4.39	4.81	4.97	91	103	70-130	12	30
Perfluoroheptanoic acid	5.44	5.50	5.44	6.23	101	115	70-130	12	30
Perfluorohexanesulfonate	5.14	4.81	5.14	5.17	94	100	70-130	7	30
Perfluorononanoic acid	5.44	5.66	5.44	6.18	104	114	70-130	9	30
Perfluoro-octanesulfonate	5.20	4.95	5.20	5.43	95	104	70-130	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 12:15

Group Number: 1931908

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluorooctanoic acid	5.44	5.57	5.44	5.94	102	109	70-130	7	30
	%	%	%	%					
Batch number: 18107820006B	Sample number(s): 9558857-9558859,9558862-9558866								
Moisture	89.5	89.41			100		99-101		
Moisture	89.5	89.41			100		99-101		
Moisture Duplicate	89.5	89.41			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18108014	Sample number(s): 9558857-9558859,9558862-9558866 UNSPK: 9558863									
Perfluorobutanesulfonate	N.D.	1.20	1.07	1.18	1.09	89	93	70-130	2	30
Perfluoroheptanoic acid	N.D.	1.36	1.19	1.33	1.25	88	94	70-130	5	30
Perfluorohexanesulfonate	N.D.	1.29	1.20	1.26	1.15	93	91	70-130	5	30
Perfluorononanoic acid	N.D.	1.36	1.16	1.33	1.20	85	90	70-130	4	30
Perfluoro-octanesulfonate	0.391	1.30	1.82	1.28	1.49	110	86	70-130	20	30
Perfluorooctanoic acid	N.D.	1.36	1.34	1.33	1.23	99	92	70-130	9	30

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	%	%		
Batch number: 18107820006B	Sample number(s): 9558857-9558859,9558862-9558866 BKG: 9558863, P558863			
Moisture	18.13	21.91	19*	5
Moisture	18.13	21.91	19*	5
Moisture Duplicate	18.13	21.91	19*	5

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: AECOM
Reported: 04/28/2018 12:15

Group Number: 1931908

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18107005

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9558860	82	9.2	85	9.2	85	1.8	93	1.8	88	9.2	95	1.8
9558861	83	9.1	84	9.1	88	1.8	93	1.8	86	9.1	90	1.8
Blank	71	10	71	10	76	2.0	76	2.0	82	10	81	2.0
LCS	76	10	74	10	78	2.0	79	2.0	82	10	84	2.0
LCSD	72	10	79	10	80	2.0	84	2.0	81	10	80	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18108014

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
9558857	75	0.55	77	0.55	74	0.55	77	0.55	78	0.82	79	0.36
9558858	66	0.61	76	0.61	73	0.61	68	0.61	76	0.91	76	0.40
9558859	70	0.63	78	0.63	75	0.63	72	0.63	75	0.95	66	0.42
9558862	65	0.66	69	0.66	70	0.66	71	0.66	73	0.99	71	0.44
9558863	57	0.65	64	0.65	61	0.65	60	0.65	55	0.97	52	0.43
9558864	60	1.2	63	1.2	66	1.2	63	1.2	63	1.8	65	0.80
9558865	53	0.59	63	0.59	57	0.59	51	0.59	57	0.88	52	0.39
9558866	68	0.63	77	0.63	78	0.63	73	0.63	72	0.94	67	0.42
Blank	84	1.2	99	1.2	93	1.2	94	1.2	95	1.8	89	0.80
LCS	79	1.2	82	1.2	88	1.2	87	1.2	84	1.8	83	0.80
MS	60	1.2	63	1.2	66	1.2	63	1.2	63	1.8	65	0.80
MSD	53	0.59	63	0.59	57	0.59	51	0.59	57	0.88	52	0.39
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 1431908 Sample # 9558857-67

COC # 546522 1 of 1

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Water: Potable	Water: Ground	Water: Surface	Water: NPDES	Other:	Total # of Containers	PFAS in Soil by LC/MS/MS	Moisture	PFAS in Water by LC/MS/MS
HC-610-SB02-01	4-13-18	1015	X		X						2	X	X	
HC-610-~~SB02~~ SB01-12	4-13-18	0830	X		X						2	X	X	
HC-610-SB02-45	4-13-18	1020	X		X						2	X	X	
HC-FRB-041318	4-13-18	0820	X			X					2			X
HC-EB-041318	4-13-18	0815	X			X					2			X
HC-610-SB01-1415	4-13-18	0835	X		X						2	X	X	
HC-610-SB03-45MSD	4-13-18	0810	X		X						2	X	X	
HC-610-SB03-45	4-13-18	0800	X		X						2	X	X	
HC-610-SB03-45MS	4-13-18	0805	X		X						2	X	X	
HC-610-SB03-~~NS~~ 01	4-13-18	0750	X		X						2	X	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-13-18	1500	FedEx	4-13-18	1520
				9/14/18	1040

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx X Other

Temperature upon receipt 2.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 213789

Group Number(s): 193908

Client: AECOM

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/14/2018 10:40
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25112) at 15:41 on 04/14/2018

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT42-03	2.8	DT	Wet	Y	Bagged	N

General Comments: Received two bottles of PFC blank water.

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: May 07, 2018 13:09

Project: Hancock ANGB

Account #: 42343
Group Number: 1933201
SDG: FSA94
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-620-SB01-01 Grab Soil	04/17/2018 08:20	9564405
HC-620-SB02-45 Grab Soil	04/17/2018 08:05	9564406
HC-620-SB03-01 Grab Soil	04/17/2018 07:50	9564407
HC-620-SB01-45 Grab Soil	04/17/2018 08:25	9564408
HC-620-SB03-45 Grab Soil	04/17/2018 07:55	9564409
HC-620-SB02-01 Grab Soil	04/17/2018 08:00	9564410
HC-FTA-SB03-45 Grab Soil	04/17/2018 09:20	9564411
HC-EB-041718 Grab Water	04/17/2018 14:09	9564412
HC-FRB-041718 Grab Water	04/17/2018 09:50	9564413
HC-FTA-SB03-01 Grab Soil	04/17/2018 09:15	9564414
HC-OF3-SB01-45 Grab Soil	04/17/2018 13:45	9564415
HC-FTA-SB01-01 Grab Soil	04/17/2018 10:00	9564416
HC-FTA-SB-D Grab Soil	04/17/2018 09:50	9564417
HC-FTA-SB01-45 Grab Soil	04/17/2018 10:05	9564418
HC-FTA-SB02-01 Grab Soil	04/17/2018 11:00	9564419
HC-OF3-SB-D Grab Soil	04/17/2018 13:50	9564420
HC-OF3-SB01-01 Grab Soil	04/17/2018 13:40	9564421
HC-FTA-SB02-45 Grab Soil	04/17/2018 11:05	9564422

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1933201

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9564405, 9564406, 9564407, 9564408, 9564409, 9564410, 9564411, 9564412, 9564413, 9564414, 9564415, 9564416, 9564417, 9564418, 9564419, 9564420, 9564421, 9564422

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18109006 (Sample number(s): 9564405-9564411, 9564414-9564415, 9564417-9564422 UNSPK: 9564405)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluoro-octanesulfonate

Batch #: 18123012 (Sample number(s): 9564416 UNSPK: 9564416)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Perfluoro-octanesulfonate

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Perfluorooctanoic acid, Perfluorohexanesulfonate

SM 2540 G-1997 %Moisture Calc, Wet Chemistry

Batch #: 18109820003B (Sample number(s): 9564405-9564411, 9564414-9564422 BKG: 9564415)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

Sample Description: **HC-620-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:20
SDG#: FSA94-01

AECOM
ELLE Sample #: SW 9564405
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.20	0.60	0.60	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.20	0.60	0.60	1
14478	Perfluorohexanesulfonate	355-46-4	0.20 J	0.20	0.60	0.60	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.20	0.60	0.60	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.73	0.20	0.60	0.60	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.20	0.60	0.60	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	2.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 06:34	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-620-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:05
SDG#: FSA94-02

AECOM
ELLE Sample #: SW 9564406
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.26	0.78	0.78	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.26	0.78	0.78	1
14478	Perfluorohexanesulfonate	355-46-4	0.40 J	0.26	0.78	0.78	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.26	0.78	0.78	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.26	0.78	0.78	1
14478	Perfluorooctanoic acid	335-67-1	0.27 J	0.26	0.78	0.78	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	24.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 06:49	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-620-SB03-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 07:50
SDG#: FSA94-03

AECOM
ELLE Sample #: SW 9564407
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.7	0.21	0.63	0.63	1
14478	Perfluorooctanoic acid	335-67-1	0.28 J	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:05	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-620-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:25
SDG#: FSA94-04

AECOM
ELLE Sample #: SW 9564408
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.0	0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	13.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:20	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-620-SB03-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 07:55
SDG#: FSA94-05

AECOM
ELLE Sample #: SW 9564409
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.64	0.64	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.64	0.64	1
14478	Perfluorohexanesulfonate	355-46-4	0.33 J	0.21	0.64	0.64	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.64	0.64	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.5	0.21	0.64	0.64	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.21	0.64	0.64	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	13.9	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:36	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-620-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 08:00
SDG#: FSA94-06

AECOM
ELLE Sample #: SW 9564410
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.20	0.61	0.61	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.20	0.61	0.61	1
14478	Perfluorohexanesulfonate	355-46-4	1.9	0.20	0.61	0.61	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.20	0.61	0.61	1
14478	Perfluoro-octanesulfonate	1763-23-1	13	0.20	0.61	0.61	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.20	0.61	0.61	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	3.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 07:51	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB03-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:20
SDG#: FSA94-07

AECOM
ELLE Sample #: SW 9564411
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.76	0.76	1
14478	Perfluoroheptanoic acid	375-85-9	0.60 J	0.25	0.76	0.76	1
14478	Perfluorohexanesulfonate	355-46-4	3.7	0.25	0.76	0.76	1
14478	Perfluorononanoic acid	375-95-1	0.71 J	0.25	0.76	0.76	1
14478	Perfluoro-octanesulfonate	1763-23-1	54	0.25	0.76	0.76	1
14478	Perfluorooctanoic acid	335-67-1	1.9	0.25	0.76	0.76	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 22:05	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-041718 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 14:09
SDG#: FSA94-08EB

AECOM
ELLE Sample #: WW 9564412
ELLE Group #: 1933201
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.92	0.92	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.92	0.92	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	2.8	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.92	0.92	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109005	04/26/2018 09:49	Marissa C Drexinger	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109005	04/19/2018 08:45	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FRB-041718 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:50
SDG#: FSA94-09FB

AECOM
ELLE Sample #: WW 9564413
ELLE Group #: 1933201
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.54	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/24/2018 21:51	Marissa C Drexinger	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/23/2018 16:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB03-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:15
SDG#: FSA94-10

AECOM
ELLE Sample #: SW 9564414
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	0.53 J	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	7.8	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	1.8	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	210	2.3	7.0	7.0	10
14478	Perfluorooctanoic acid	335-67-1	3.1	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	16.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 22:21	Joshua P Trost	1
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 01:12	Joshua P Trost	10
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF3-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 13:45
SDG#: FSA94-11

AECOM
ELLE Sample #: SW 9564415
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.36 J	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 22:36	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 10:00
SDG#: FSA94-12

AECOM
ELLE Sample #: SW 9564416
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.44 J	0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	0.49 J	0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	23	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	1.7	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	450	2.1	6.3	6.3	10
14478	Perfluorooctanoic acid	335-67-1	9.6	0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	8.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18123012	05/04/2018 12:25	Joshua P Trost	1
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18123012	05/04/2018 12:41	Joshua P Trost	10
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18123012	05/03/2018 16:30	Anthony C Polaski	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB-D Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 09:50
SDG#: FSA94-13FD

AECOM
ELLE Sample #: SW 9564417
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.25 J	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	1.4	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	17	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	8.9	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	1,000	2.3	7.0	7.0	10
14478	Perfluorooctanoic acid	335-67-1	10	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:07	Joshua P Trost	1
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 01:43	Joshua P Trost	10
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 10:05
SDG#: FSA94-14

AECOM
ELLE Sample #: SW 9564418
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.1	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	0.79	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	7.9	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	5.4	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	110	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	4.2	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:23	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 11:00
SDG#: FSA94-15

AECOM
ELLE Sample #: SW 9564419
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	0.41 J	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	15	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	0.30 J	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	140	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	1.3	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	17.2	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:38	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF3-SB-D Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 13:50
SDG#: FSA94-16FD

AECOM
ELLE Sample #: SW 9564420
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.41 J	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	21.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/01/2018 23:54	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF3-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 13:40
SDG#: FSA94-17

AECOM
ELLE Sample #: SW 9564421
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	0.33 J	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	1.3	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	0.25 J	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.6	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 00:10	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/18/2018 09:45
Collection Date/Time: 04/17/2018 11:05
SDG#: FSA94-18

AECOM
ELLE Sample #: SW 9564422
ELLE Group #: 1933201
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	2.0	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	0.81	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	18	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	5.6	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	100	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	5.6	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	20.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	05/02/2018 00:25	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18109006	04/19/2018 10:45	Courtney J Fatta	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18109820003B	04/19/2018 09:25	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: AECOM
Reported: 05/07/2018 13:09

Group Number: 1933201

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/g	ng/g	ng/g	ng/g
Batch number: 18109006	Sample number(s): 9564405-9564411,9564414-9564415,9564417-9564422			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60
Batch number: 18123012	Sample number(s): 9564416			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60
	ng/l	ng/l	ng/l	ng/l
Batch number: 18109005	Sample number(s): 9564412			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0
Batch number: 18113012	Sample number(s): 9564413			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: AECOM
Reported: 05/07/2018 13:09

Group Number: 1933201

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18109006	Sample number(s): 9564405-9564411,9564414-9564415,9564417-9564422								
Perfluorobutanesulfonate	1.20	1.12	1.20	1.06	94	89	70-130	5	30
Perfluoroheptanoic acid	1.36	1.40	1.36	1.24	103	91	70-130	12	30
Perfluorohexanesulfonate	1.29	1.22	1.29	1.17	95	91	70-130	4	30
Perfluorononanoic acid	1.36	1.27	1.36	1.32	93	97	70-130	4	30
Perfluoro-octanesulfonate	1.30	1.18	1.30	1.16	91	89	70-130	2	30
Perfluorooctanoic acid	1.36	1.34	1.36	1.39	99	103	70-130	4	30
Batch number: 18123012	Sample number(s): 9564416								
Perfluorobutanesulfonate	1.20	1.09	1.20	1.16	91	96	70-130	6	30
Perfluoroheptanoic acid	1.36	1.18	1.36	1.25	87	92	70-130	5	30
Perfluorohexanesulfonate	1.29	1.19	1.29	1.26	93	98	70-130	5	30
Perfluorononanoic acid	1.36	1.19	1.36	1.29	88	95	70-130	8	30
Perfluoro-octanesulfonate	1.30	1.20	1.30	1.26	93	97	70-130	4	30
Perfluorooctanoic acid	1.36	1.27	1.36	1.27	94	93	70-130	0	30
	ng/l	**ng/l**	**ng/l**	**ng/l**					
Batch number: 18109005	Sample number(s): 9564412								
Perfluorobutanesulfonate	4.81	3.89			81		70-130		
Perfluoroheptanoic acid	5.44	4.65			85		70-130		
Perfluorohexanesulfonate	5.14	4.50			87		70-130		
Perfluorononanoic acid	5.44	4.41			81		70-130		
Perfluoro-octanesulfonate	5.20	4.56			88		70-130		
Perfluorooctanoic acid	5.44	4.94			91		70-130		
Batch number: 18113012	Sample number(s): 9564413								
Perfluorobutanesulfonate	4.81	5.83	4.81	5.12	121	106	70-130	13	30
Perfluoroheptanoic acid	5.44	6.14	5.44	6.47	113	119	70-130	5	30
Perfluorohexanesulfonate	5.14	5.94	5.14	6.04	115	117	70-130	2	30
Perfluorononanoic acid	5.44	5.73	5.44	6.03	105	111	70-130	5	30
Perfluoro-octanesulfonate	5.20	6.17	5.20	5.58	119	107	70-130	10	30
Perfluorooctanoic acid	5.44	6.86	5.44	6.78	126	125	70-130	1	30
	%	**%**	**%**	**%**					
Batch number: 18109820003B	Sample number(s): 9564405-9564411,9564414-9564422								
Moisture	89.5	89.44			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: AECOM
Reported: 05/07/2018 13:09

Group Number: 1933201

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18109006	Sample number(s): 9564405-9564411,9564414-9564415,9564417-9564422 UNSPK: 9564405									
Perfluorobutanesulfonate	N.D.	1.17	1.14			98		70-130		
Perfluoroheptanoic acid	N.D.	1.32	1.31			100		70-130		
Perfluorohexanesulfonate	0.195	1.25	1.68			119		70-130		
Perfluorononanoic acid	N.D.	1.32	1.40			106		70-130		
Perfluoro-octanesulfonate	0.707	1.26	4.00			261*		70-130		
Perfluorooctanoic acid	N.D.	1.32	1.41			107		70-130		
Batch number: 18123012	Sample number(s): 9564416 UNSPK: 9564416									
Perfluorobutanesulfonate	0.402	1.17	1.40			86		70-130		
Perfluoroheptanoic acid	0.446	1.32	1.49			79		70-130		
Perfluorohexanesulfonate	21.02	1.25	16.31			-376 (2)		70-130		
Perfluorononanoic acid	1.55	1.32	2.58			78		70-130		
Perfluoro-octanesulfonate	406.34	1.26	445.52			3105 (2)		70-130		
Perfluorooctanoic acid	8.75	1.32	6.18			-194 (2)		70-130		
	ng/l	ng/l	ng/l	ng/l	ng/l					
Batch number: 18109005	Sample number(s): 9564412 UNSPK: P561868									
Perfluorobutanesulfonate	0.458	4.38	4.67	4.37	4.21	96	86	70-130	11	30
Perfluoroheptanoic acid	N.D.	4.95	4.35	4.94	4.57	88	92	70-130	5	30
Perfluorohexanesulfonate	N.D.	4.69	4.57	4.67	4.58	98	98	70-130	0	30
Perfluorononanoic acid	N.D.	4.95	4.22	4.94	4.20	85	85	70-130	0	30
Perfluoro-octanesulfonate	N.D.	4.74	4.65	4.72	4.49	98	95	70-130	4	30
Perfluorooctanoic acid	N.D.	4.95	4.53	4.94	4.60	91	93	70-130	2	30

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 18109820003B	Sample number(s): 9564405-9564411,9564414-9564422 BKG: 9564415			
Moisture	19.34	21.06	9*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 05/07/2018 13:09

Group Number: 1933201

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18109005

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9564412	98	9.2	98	9.2	99	1.8	101	1.8	106	9.2	125	1.8
Blank	101	10	90	10	107	2.0	106	2.0	103	10	111	2.0
LCS	100	10	92	10	102	2.0	100	2.0	104	10	103	2.0
MS	117	9.1	91	9.1	99	1.8	97	1.8	90	9.1	111	1.8
MSD	127	9.1	94	9.1	102	1.8	102	1.8	94	9.1	109	1.8
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18109006

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
9564405	75	0.58	77	0.58	78	0.58	80	0.58	77	0.87	84	0.39
9564406	69	0.59	76	0.59	74	0.59	72	0.59	72	0.88	77	0.39
9564407	74	0.58	80	0.58	75	0.58	75	0.58	70	0.87	72	0.38
9564408	76	0.56	80	0.56	79	0.56	81	0.56	83	0.84	81	0.37
9564409	63	0.55	68	0.55	65	0.55	68	0.55	63	0.83	66	0.37
9564410	85	0.59	90	0.59	88	0.59	93	0.59	88	0.88	94	0.39
9564411	63	1.2	70	1.2	62	1.2	66	1.2	63	1.8	62	0.80
9564414	70	0.58	75	0.58	78	0.58	79	0.58	74	0.87	77	0.39
9564415	68	0.56	68	0.56	71	0.56	71	0.56	67	0.84	67	0.37
9564417	58	0.56	59	0.56	62	0.56	56	0.56	59	0.84	74	0.37
9564418	61	0.59	70	0.59	65	0.59	60	0.59	63	0.88	65	0.39
9564419	74	0.56	78	0.56	78	0.56	76	0.56	71	0.84	79	0.37
9564420	64	0.56	73	0.56	72	0.56	71	0.56	71	0.84	76	0.37
9564421	63	0.58	63	0.58	65	0.58	63	0.58	63	0.87	69	0.38
9564422	61	0.59	63	0.59	63	0.59	64	0.59	60	0.89	59	0.40
Blank	67	1.2	75	1.2	69	1.2	74	1.2	70	1.8	75	0.80
LCS	73	1.2	86	1.2	86	1.2	83	1.2	77	1.8	85	0.80
LCSD	66	1.2	67	1.2	71	1.2	68	1.2	70	1.8	74	0.80
MS	73	0.58	79	0.58	75	0.58	78	0.58	85	0.87	85	0.39
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18113012

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 05/07/2018 13:09

Group Number: 1933201

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18113012

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9564413	74	9.1	68	9.1	72	1.8	74	1.8	76	9.1	85	1.8
Blank	69	10	69	10	79	2.0	73	2.0	73	10	75	2.0
LCS	65	10	82	10	86	2.0	79	2.0	71	10	73	2.0
LCSD	65	10	73	10	76	2.0	70	2.0	69	10	67	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18123012

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
9564416	77	0.58	57	0.58	64	0.58	66	0.58	71	0.87	83	0.38
Blank	80	1.2	80	1.2	77	1.2	77	1.2	79	1.8	76	0.80
LCS	89	1.2	86	1.2	84	1.2	83	1.2	87	1.8	91	0.80
LCSD	78	1.2	76	1.2	74	1.2	75	1.2	74	1.8	79	0.80
MS	64	0.58	58	0.58	62	0.58	64	0.58	62	0.87	75	0.39
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 1933201 Sample # 9564465-23

COC # 546525 1 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐ Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested

Preservation Codes

PFAS in Soil by LCMS/MS
Moisture
PFAS in Water by LCMS/MS

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
HC-620-SB01-01	4-17-18	0820	X		2
HC-620-SB02-45	4-17-18	0805	X		2
HC-620-SB03-01	4-17-18	0750	X		2
HC-620-SB01-45	4-17-18	0825	X		2
HC-620-SB03-45	4-17-18	0755	X		2
HC-620-SB02-01	4-17-18	0800	X		2
HC-FTA-SB03-45	4-17-18	0920	X		2
HC-EB-~~041718~~ 041718	4-17-18	1409	X		2
HC-ERB-041718	4-17-18	0950	X		2
HC-FTA-SB03-01	4-17-18	0915	X		2

For Lab Use Only

FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 blue coolers

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-17-18	1600	Fed Ex	4-17-18	1600
			MR	4/18/18	0945

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 1.6/0.8 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 193320l Sample # 956446 - 23

COC # 546524 2 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☑ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil ☒ Sediment ☐ Tissue ☐ Water: Potable ☐ Ground ☐ Surface ☐ NPDES ☐ Other:	Total # of Containers	Analysis Requested: PFAS in Solby LC/MS/MS	Moisture
HC-OF3-SB01-45	4-17-18	1345	X		X	2	X	X
HC-FTA-SB01-01		1000	X		X	2	X	X
HC-FTA-SB-D		0950	X		X	2	X	X
HC-FTA-SB01-45		1005	X		X	2	X	X
HC-FTA-SB02-01		1100	X		X	2	X	X
HC-OF3-SB-D		1350	X		X	2	X	X
HC-OF3-SB01-01		1340	X		X	2	X	X
HC-FTA-SB02-45	↓	1105	X		X	2	X	X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill 4-17-18	4-17-18	1600	Fed Ex	4-17-18	1600
			Received by	4/18/18	945

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx Other

Temperature upon receipt 1.6/0.8 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 214039

Group Number(s): 1933201

Client: AECOM

Hancock ANGB

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/18/2018 9:45
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 15:56 on 04/18/2018

Samples Chilled Details: Hancock ANGB

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.6	DT	Wet	Y	Bagged	N
2	DT146	0.8	DT	Wet	Y	Bagged	N

Extra Sample Details: Hancock ANGB

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
PFC Free Blank Water	4	-- --	

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: May 03, 2018 11:05

Project: Hancock ANGB

Account #: 42343
Group Number: 1933839
SDG: FSA95
PO Number: 93872
State of Sample Origin: NY

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-OF4-SB01-45 Grab Soil	04/18/2018 08:55	9567185
HC-OF4-SB01-01 Grab Soil	04/18/2018 08:50	9567186
HC-OF4-SB01-01MS Grab Soil	04/18/2018 08:15	9567187
HC-OF4-SB01-01MSD Grab Soil	04/18/2018 08:15	9567188
HC-OF1-SB01-45 Grab Soil	04/18/2018 10:05	9567189
HC-OF1-SB01-01 Grab Soil	04/18/2018 10:00	9567190
HC-644-SB03-01 Grab Soil	04/18/2018 13:25	9567191
HC-644-SB03-45 Grab Soil	04/18/2018 13:30	9567192
HC-FRB-041818 Grab Water	04/18/2018 07:40	9567193
HC-EB-041818 Grab Water	04/18/2018 14:30	9567194
HC-APN-SB04-01 Grab Soil	04/18/2018 11:10	9567195
HC-APN-SB04-45 Grab Soil	04/18/2018 11:15	9567196
HC-644-SB02-01 Grab Soil	04/18/2018 13:50	9567197
HC-644-SB01-45 Grab Soil	04/18/2018 14:25	9567198
HC-644-SB01-01 Grab Soil	04/18/2018 14:20	9567199
HC-644-SB-D Grab Soil	04/18/2018 14:05	9567200
HC-644-SB02-45 Grab Soil	04/18/2018 13:55	9567201

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1933839

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9567185, 9567186, 9567187, 9567188, 9567189, 9567190, 9567191, 9567192, 9567193, 9567194, 9567195, 9567196, 9567197, 9567198, 9567199, 9567200, 9567201

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Batch #: 18114009 (Sample number(s): 9567185-9567192, 9567195-9567201 UNSPK: 9567186)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample Description: **HC-OF4-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 08:55
SDG#: FSA95-01

AECOM
ELLE Sample #: SW 9567185
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.30 J	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 14:20	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF4-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 08:50
SDG#: FSA95-02BKG

AECOM
ELLE Sample #: SW 9567186
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.76	0.76	1
14478	Perfluoroheptanoic acid	375-85-9	0.26 J	0.25	0.76	0.76	1
14478	Perfluorohexanesulfonate	355-46-4	2.0	0.25	0.76	0.76	1
14478	Perfluorononanoic acid	375-95-1	0.41 J	0.25	0.76	0.76	1
14478	Perfluoro-octanesulfonate	1763-23-1	9.3	0.25	0.76	0.76	1
14478	Perfluorooctanoic acid	335-67-1	0.77	0.25	0.76	0.76	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	22.9	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 14:36	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF4-SB01-01MS Grab Soil Hancock ANGB**

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 08:15
SDG#: FSA95-02MS

AECOM
ELLE Sample #: SW 9567187
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.8	0.25	0.75	0.75	1
14478	Perfluoroheptanoic acid	375-85-9	2.4	0.25	0.75	0.75	1
14478	Perfluorohexanesulfonate	355-46-4	3.1	0.25	0.75	0.75	1
14478	Perfluorononanoic acid	375-95-1	2.5	0.25	0.75	0.75	1
14478	Perfluoro-octanesulfonate	1763-23-1	6.1	0.25	0.75	0.75	1
14478	Perfluorooctanoic acid	335-67-1	2.7	0.25	0.75	0.75	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00118	Moisture	n.a.	22.9	0.50	0.50	0.50	1

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 13:18	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF4-SB01-01MSD Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 08:15
SDG#: FSA95-02MSD

AECOM
ELLE Sample #: SW 9567188
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	1.7	0.24	0.72	0.72	1
14478	Perfluoroheptanoic acid	375-85-9	2.3	0.24	0.72	0.72	1
14478	Perfluorohexanesulfonate	355-46-4	2.9	0.24	0.72	0.72	1
14478	Perfluorononanoic acid	375-95-1	2.3	0.24	0.72	0.72	1
14478	Perfluoro-octanesulfonate	1763-23-1	5.5	0.24	0.72	0.72	1
14478	Perfluorooctanoic acid	335-67-1	2.6	0.24	0.72	0.72	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00118	Moisture	n.a.	22.9	0.50	0.50	0.50	1
00121	Moisture Duplicate	n.a.	22.5	0.50	0.50	0.50	1
	The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 13:33	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00118	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF1-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 10:05
SDG#: FSA95-03

AECOM
ELLE Sample #: SW 9567189
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.70	0.70	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.23	0.70	0.70	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.23	0.70	0.70	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.23	0.70	0.70	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.48 J	0.23	0.70	0.70	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.23	0.70	0.70	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	21.1	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 14:51	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF1-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 10:00
SDG#: FSA95-04

AECOM
ELLE Sample #: SW 9567190
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**		**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.		0.21	0.63	0.63	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.		0.21	0.63	0.63	1
14478	Perfluorohexanesulfonate	355-46-4	0.26	J	0.21	0.63	0.63	1
14478	Perfluorononanoic acid	375-95-1	0.24	J	0.21	0.63	0.63	1
14478	Perfluoro-octanesulfonate	1763-23-1	4.5		0.21	0.63	0.63	1
14478	Perfluorooctanoic acid	335-67-1	N.D.		0.21	0.63	0.63	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.							
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	**%**	
00111	Moisture	n.a.	12.8		0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/30/2018 15:07	Marissa C Drexinger	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB03-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:25
SDG#: FSA95-05

AECOM
ELLE Sample #: SW 9567191
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	3.8	0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	11.0	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 02:25	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB03-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:30
SDG#: FSA95-06

AECOM
ELLE Sample #: SW 9567192
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	14.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 02:41	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FRB-041818 Grab Water Hancock ANGB**

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 07:40
SDG#: FSA95-07FB

AECOM
ELLE Sample #: WW 9567193
ELLE Group #: 1933839
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous EPA 537 mod QSM 5.1 table B-15			**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.27	0.91	0.91	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.27	0.91	0.91	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.36	1.8	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.8	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.55	1.8	1.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.27	0.91	0.91	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/24/2018 23:24	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18113012	04/23/2018 16:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-041818 Grab Water**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:30
SDG#: FSA95-08EB

AECOM
ELLE Sample #: WW 9567194
ELLE Group #: 1933839
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Detection Limit*	Limit of Detection	Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	0.93	0.93	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	0.93	0.93	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.9	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.9	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.56	1.9	1.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	0.93	0.93	1

The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18117008	04/30/2018 10:11	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18117008	04/27/2018 07:35	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB04-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 11:10
SDG#: FSA95-09

AECOM
ELLE Sample #: SW 9567195
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.66	0.66	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.66	0.66	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.22	0.66	0.66	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.66	0.66	1
14478	Perfluoro-octanesulfonate	1763-23-1	2.5	0.22	0.66	0.66	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.22	0.66	0.66	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	10.4	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 02:56	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-SB04-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 11:15
SDG#: FSA95-10

AECOM
ELLE Sample #: SW 9567196
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.21	0.62	0.62	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.21	0.62	0.62	1
14478	Perfluorohexanesulfonate	355-46-4	N.D.	0.21	0.62	0.62	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.21	0.62	0.62	1
14478	Perfluoro-octanesulfonate	1763-23-1	0.48 J	0.21	0.62	0.62	1
14478	Perfluorooctanoic acid	335-67-1	0.37 J	0.21	0.62	0.62	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:12	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB02-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:50
SDG#: FSA95-11

AECOM
ELLE Sample #: SW 9567197
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.22	0.67	0.67	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.22	0.67	0.67	1
14478	Perfluorohexanesulfonate	355-46-4	4.4	0.22	0.67	0.67	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.22	0.67	0.67	1
14478	Perfluoro-octanesulfonate	1763-23-1	74	0.22	0.67	0.67	1
14478	Perfluorooctanoic acid	335-67-1	0.29 J	0.22	0.67	0.67	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	9.8	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:27	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB01-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:25
SDG#: FSA95-12

AECOM
ELLE Sample #: SW 9567198
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**		**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.		0.22	0.65	0.65	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.		0.22	0.65	0.65	1
14478	Perfluorohexanesulfonate	355-46-4	0.58	J	0.22	0.65	0.65	1
14478	Perfluorononanoic acid	375-95-1	0.29	J	0.22	0.65	0.65	1
14478	Perfluoro-octanesulfonate	1763-23-1	70		0.22	0.65	0.65	1
14478	Perfluorooctanoic acid	335-67-1	N.D.		0.22	0.65	0.65	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.							
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**		**%**	**%**	**%**	
00111	Moisture	n.a.	13.2		0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:43	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB01-01 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:20
SDG#: FSA95-13

AECOM
ELLE Sample #: SW 9567199
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.68	0.68	1
14478	Perfluoroheptanoic acid	375-85-9	0.67 J	0.23	0.68	0.68	1
14478	Perfluorohexanesulfonate	355-46-4	1.9	0.23	0.68	0.68	1
14478	Perfluorononanoic acid	375-95-1	0.67 J	0.23	0.68	0.68	1
14478	Perfluoro-octanesulfonate	1763-23-1	48	0.23	0.68	0.68	1
14478	Perfluorooctanoic acid	335-67-1	0.81	0.23	0.68	0.68	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	18.7	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 03:58	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB-D Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 14:05
SDG#: FSA95-14

AECOM
ELLE Sample #: SW 9567200
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.23	0.69	0.69	1
14478	Perfluoroheptanoic acid	375-85-9	0.60 J	0.23	0.69	0.69	1
14478	Perfluorohexanesulfonate	355-46-4	3.0	0.23	0.69	0.69	1
14478	Perfluorononanoic acid	375-95-1	0.91	0.23	0.69	0.69	1
14478	Perfluoro-octanesulfonate	1763-23-1	110	0.23	0.69	0.69	1
14478	Perfluorooctanoic acid	335-67-1	0.99	0.23	0.69	0.69	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	19.5	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 04:14	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-SB02-45 Grab Soil**
Hancock ANGB

Project Name: **Hancock ANGB**

Submittal Date/Time: 04/19/2018 10:20
Collection Date/Time: 04/18/2018 13:55
SDG#: FSA95-15

AECOM
ELLE Sample #: SW 9567201
ELLE Group #: 1933839
Matrix: Soil

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Detection Limit*	Dry Limit of Detection	Dry Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/g**	**ng/g**	**ng/g**	**ng/g**	
14478	Perfluorobutanesulfonate	375-73-5	N.D.	0.25	0.74	0.74	1
14478	Perfluoroheptanoic acid	375-85-9	N.D.	0.25	0.74	0.74	1
14478	Perfluorohexanesulfonate	355-46-4	4.2	0.25	0.74	0.74	1
14478	Perfluorononanoic acid	375-95-1	N.D.	0.25	0.74	0.74	1
14478	Perfluoro-octanesulfonate	1763-23-1	130	0.25	0.74	0.74	1
14478	Perfluorooctanoic acid	335-67-1	N.D.	0.25	0.74	0.74	1
	The laboratory's DoD Scope of Accreditation does not include the following method: EPA 537 mod QSM 5.1 table B-15.						
Wet Chemistry	**SM 2540 G-1997 %Moisture Calc**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	25.3	0.50	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14478	PFAS in Soil by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	05/01/2018 04:29	Joshua P Trost	1
14510	PFAS Solid Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18114009	04/24/2018 12:25	Pamela Rothharpt	1
00111	Moisture	SM 2540 G-1997 %Moisture Calc	1	18110820003B	04/20/2018 10:34	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: AECOM
Reported: 05/03/2018 11:05

Group Number: 1933839

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/g	ng/g	ng/g	ng/g
Batch number: 18114009	Sample number(s): 9567185-9567192,9567195-9567201			
Perfluorobutanesulfonate	N.D.	0.20	0.60	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60	0.60
Perfluorohexanesulfonate	N.D.	0.20	0.60	0.60
Perfluorononanoic acid	N.D.	0.20	0.60	0.60
Perfluoro-octanesulfonate	N.D.	0.20	0.60	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60	0.60
	ng/l	ng/l	ng/l	ng/l
Batch number: 18113012	Sample number(s): 9567193			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0
Batch number: 18117008	Sample number(s): 9567194			
Perfluorobutanesulfonate	N.D.	0.30	1.0	1.0
Perfluoroheptanoic acid	N.D.	0.30	1.0	1.0
Perfluorohexanesulfonate	N.D.	0.40	2.0	2.0
Perfluorononanoic acid	N.D.	0.40	2.0	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.0	2.0
Perfluorooctanoic acid	N.D.	0.30	1.0	1.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18114009	Sample number(s): 9567185-9567192,9567195-9567201								
Perfluorobutanesulfonate	1.20	1.45			121		70-130		
Perfluoroheptanoic acid	1.36	1.77			130		70-130		
Perfluorohexanesulfonate	1.29	1.47			114		70-130		
Perfluorononanoic acid	1.36	1.75			129		70-130		
Perfluoro-octanesulfonate	1.30	1.48			114		70-130		
Perfluorooctanoic acid	1.36	1.73			127		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: AECOM
Reported: 05/03/2018 11:05

Group Number: 1933839

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18113012	Sample number(s): 9567193								
Perfluorobutanesulfonate	4.81	5.83	4.81	5.12	121	106	70-130	13	30
Perfluoroheptanoic acid	5.44	6.14	5.44	6.47	113	119	70-130	5	30
Perfluorohexanesulfonate	5.14	5.94	5.14	6.04	115	117	70-130	2	30
Perfluorononanoic acid	5.44	5.73	5.44	6.03	105	111	70-130	5	30
Perfluoro-octanesulfonate	5.20	6.17	5.20	5.58	119	107	70-130	10	30
Perfluorooctanoic acid	5.44	6.86	5.44	6.78	126	125	70-130	1	30
Batch number: 18117008	Sample number(s): 9567194								
Perfluorobutanesulfonate	4.81	5.21	4.81	5.08	108	106	70-130	3	30
Perfluoroheptanoic acid	5.44	5.95	5.44	6.26	109	115	70-130	5	30
Perfluorohexanesulfonate	5.14	5.51	5.14	5.17	107	100	70-130	6	30
Perfluorononanoic acid	5.44	6.31	5.44	5.83	116	107	70-130	8	30
Perfluoro-octanesulfonate	5.20	5.69	5.20	5.73	109	110	70-130	1	30
Perfluorooctanoic acid	5.44	5.92	5.44	6.19	109	114	70-130	5	30
	%	%	%	%					
Batch number: 18110820003B	Sample number(s): 9567185-9567192,9567195-9567201								
Moisture	89.5	89.33			100		99-101		
Moisture	89.5	89.33			100		99-101		
Moisture Duplicate	89.5	89.33			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/g	MS Spike Added ng/g	MS Conc ng/g	MSD Spike Added ng/g	MSD Conc ng/g	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18114009	Sample number(s): 9567185-9567192,9567195-9567201 UNSPK: 9567186									
Perfluorobutanesulfonate	N.D.	1.16	1.40	1.11	1.34	121	120	70-130	4	30
Perfluoroheptanoic acid	0.201	1.31	1.86	1.26	1.76	127	124	70-130	6	30
Perfluorohexanesulfonate	1.53	1.24	2.36	1.19	2.21	67*	58*	70-130	6	30
Perfluorononanoic acid	0.318	1.31	1.90	1.26	1.77	121	115	70-130	7	30
Perfluoro-octanesulfonate	7.16	1.25	4.71	1.20	4.28	-195 (2)	-239 (2)	70-130	10	30
Perfluorooctanoic acid	0.590	1.31	2.12	1.26	2.01	117	113	70-130	5	30

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
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Quality Control Summary

Client Name: AECOM
Reported: 05/03/2018 11:05

Group Number: 1933839

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 18110820003B	Sample number(s): 9567185-9567192,9567195-9567201 BKG: 9567186, P567186			
Moisture	22.89	22.51	2	5
Moisture	22.89	22.51	2	5
Moisture Duplicate	22.89	22.51	2	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18113012

	13C3-PFBS %Rec	LOD (ng/l)	13C3-PFHxS %Rec	LOD (ng/l)	13C4-PFHpA %Rec	LOD (ng/l)	13C8-PFOA %Rec	LOD (ng/l)	13C8-PFOS %Rec	LOD (ng/l)	13C9-PFNA %Rec	LOD (ng/l)
9567193	67	9.1	70	9.1	68	1.8	73	1.8	74	9.1	98	1.8
Blank	69	10	69	10	79	2.0	73	2.0	73	10	75	2.0
LCS	65	10	82	10	86	2.0	79	2.0	71	10	73	2.0
LCSD	65	10	73	10	76	2.0	70	2.0	69	10	67	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18114009

	13C3-PFBS %Rec	LOD (ng/g)	13C3-PFHxS %Rec	LOD (ng/g)	13C4-PFHpA %Rec	LOD (ng/g)	13C8-PFOA %Rec	LOD (ng/g)	13C8-PFOS %Rec	LOD (ng/g)	13C9-PFNA %Rec	LOD (ng/g)
9567185	72	0.55	78	0.55	77	0.55	81	0.55	77	0.83	81	0.37
9567186	63	0.59	74	0.59	71	0.59	72	0.59	70	0.88	75	0.39
9567187	76	0.58	77	0.58	80	0.58	78	0.58	78	0.87	79	0.38
9567188	74	0.56	78	0.56	80	0.56	76	0.56	80	0.83	83	0.37
9567189	63	0.56	74	0.56	72	0.56	71	0.56	72	0.83	74	0.37
9567190	61	0.55	72	0.55	65	0.55	68	0.55	63	0.82	64	0.36
9567191	63	0.58	70	0.58	70	0.58	69	0.58	68	0.87	73	0.39
9567192	64	0.57	73	0.57	74	0.57	76	0.57	65	0.86	74	0.38
9567195	69	0.59	78	0.59	67	0.59	76	0.59	68	0.88	70	0.39
9567196	59	0.57	67	0.57	66	0.57	67	0.57	61	0.85	68	0.38
9567197	64	1.2	76	1.2	71	1.2	71	1.2	68	1.8	68	0.80
9567198	56	0.56	65	0.56	62	0.56	67	0.56	61	0.84	67	0.37
9567199	70	0.55	71	0.55	73	0.55	71	0.55	74	0.83	75	0.37
9567200	66	0.56	72	0.56	73	0.56	69	0.56	67	0.83	69	0.37
9567201	69	0.55	72	0.55	71	0.55	70	0.55	75	0.83	83	0.37

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P####### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 05/03/2018 11:05

Group Number: 1933839

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Soil by LC/MS/MS-DoD
Batch number: 18114009

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)	%Rec	LOD (ng/g)
Blank	62	1.2	65	1.2	69	1.2	70	1.2	70	1.8	70	0.80
LCS	61	1.2	69	1.2	71	1.2	67	1.2	68	1.8	66	0.80
MS	76	0.58	77	0.58	80	0.58	78	0.58	78	0.87	79	0.38
MSD	74	0.56	78	0.56	80	0.56	76	0.56	80	0.83	83	0.37
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18117008

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9567194	84	9.3	84	9.3	82	1.9	87	1.9	88	9.3	95	1.9
Blank	83	10	87	10	87	2.0	81	2.0	89	10	84	2.0
LCS	75	10	79	10	75	2.0	83	2.0	77	10	81	2.0
LCSD	78	10	92	10	84	2.0	86	2.0	79	10	87	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 193389 Sample # 9567185-201

COC # 546527 1 of 2

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Water	Other	Total # of Containers	Analysis Requested: PFAS in Soil by LCMS/MS	Moisture	PFAS in Water LCMS/MS
HC-OF4-SB01-01MSD	4-18-18	0815	X		X			2	X	X	
HC-OF4-SB01-45		0855			X			2	X	X	
HC-OF4-SB01-01		0850			X			2	X	X	
HC-OF4-SB01-01MS		0815			X			2	X	X	
HC-OF1-SB01-45		1005			X			2	X	X	
HC-OF1-SB01-01		1000			X			2	X	X	
HC-644-SB03-01		1325			X			2	X	X	
HC-644-SB03-45		1330			X			2	X	X	
HC-FRB-041818		0740				X		2			X
HC-EB-041818	↓	1430	↓			X		2			X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-18-18	1600	FedEx	4-18-18	1600

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 1.2 2.5 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 42343 Group # 193389 Sample # 9567185-201

COC # 546526

For Lab Use Only 2 of 2
FSC:
SCR#:

Client Information

Client: AECOM	Acct. #: 60520893
Project Name/#: Hancock ANGB	PWSID #:
Project Manager: J. Santacroce	P.O. #:
Sampler: M. ONeill	Quote #:
State where samples were collected: NY	For Compliance: Yes ☒ No ☐

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks
2 Blue Coolers

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil/Sediment	Water	Other	Total # of Containers	PFAS in Soil LCMSMS	Moisture
HC-APN-SB04-01	4-18-18	1110	X		X			2	X	X
HC-APN-SB04-45		1115	X		X			2	X	X
HC-644-SB02-01		1350	X		X			2	X	X
HC-644-SB01-45		1425	X		X			2	X	X
HC-644-SB01-01		1420	X		X			2	X	X
HC-644-SB-D		1405	X		X			2	X	X
HC-644-SB02-45		1355	X		X			2	X	X

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
M. ONeill	4-18-18	1600	FedEx	4-18-18	1600
			Edwin	4-19-18	1020

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx Other

Temperature upon receipt 1.2-2.5°C

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Sample Administration Receipt Documentation Log

Doc Log ID: 214166

Group Number(s): 1933839

Client: AECOM

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	04/19/2018 10:20
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	No
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Melvin Sanchez (8 943) at 14:53 on 04/19/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.2	DT	Wet	Y	Bagged	N
2	DT131	2.5	DT	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
HC-0F4-SB01-01MSD	4/18/2018 08:20	

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Lancaster, PA 17605-2425
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F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
Suite 150
12420 Milestone Center Drive
Germantown MD 20876

Report Date: May 29, 2018 11:10

Project: Hancock ANGB

Account #: 42343
Group Number: 1942359
SDG: FSA99
PO Number: 93872
State of Sample Origin: AR

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	AECOM	Attn: John Santacroce
Electronic Copy To	AECOM	Attn: Naoum Tavantzis
Electronic Copy To	AECOM	Attn: Mike Myers

Respectfully Submitted,

Kay Hower

(717) 556-7364



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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
HC-646-MW01 Grab Groundwater	05/09/2018 09:45	9604425
HC-TU019-MW001 Grab Groundwater	05/09/2018 10:21	9604426
HC-BBW-01 Grab Groundwater	05/09/2018 11:05	9604427
HC-BBW-01 MS Grab Groundwater	05/09/2018 11:05	9604428
HC-BBW-01 MSD Grab Groundwater	05/09/2018 11:05	9604429
HC-APN-MW02 Grab Groundwater	05/09/2018 14:00	9604430
HC-FB-050918 Grab Water	05/09/2018 13:30	9604431
HC-EB-050918 Grab Water	05/09/2018 13:40	9604432
HC-610-MW01 Grab Groundwater	05/09/2018 14:35	9604433
HC-FTA-D Grab Groundwater	05/09/2018	9604434
HC-FTA-MW02 Grab Groundwater	05/09/2018 16:00	9604435
HC-FTA-MW01 Grab Groundwater	05/09/2018 16:20	9604436
HC-FTA-MW03 Grab Groundwater	05/09/2018 16:45	9604437
HC-OF3-MW01 Grab Groundwater	05/09/2018 17:15	9604438
HC-APN-MW03 Grab Groundwater	05/10/2018 08:15	9604439
HC-APN-MW01 Grab Groundwater	05/10/2018 07:50	9604440
HC-FB-051018 Grab Water	05/10/2018 07:30	9604441
HC-EB-051018 Grab Water	05/10/2018 07:35	9604442
HC-608-MW01 Grab Groundwater	05/10/2018 08:25	9604443
HC-618-MW01 Grab Groundwater	05/10/2018 08:50	9604444
HC-620-MW01 Grab Groundwater	05/10/2018 09:30	9604445
HC-OF1-MW01 Grab Groundwater	05/10/2018 10:05	9604446
HC-OF4-MW01 Grab Groundwater	05/10/2018 10:35	9604447
HC-644-MW01 Grab Groundwater	05/10/2018 12:00	9604448
HC-APN-MW04 Grab Groundwater	05/10/2018 11:15	9604449
HC-APN-D Grab Groundwater	05/10/2018	9604450

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Hancock ANGB
ELLE Group #: 1942359

General Comments:

All analyses have been performed in accordance with DOD QSM Version 5.0 unless otherwise noted below.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.
Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

EPA 537 mod QSM 5.1 table B-15, LC/MS/MS Miscellaneous

Sample #s: 9604428, 9604441, 9604442, 9604448

The following analytes were manually integrated due to incorrect integrations:
Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604438

The following analytes were manually integrated due to incorrect integrations:
Perfluoro-octanesulfonate

Sample #s: 9604439, 9604445, 9604446

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604427, 9604429, 9604432, 9604440, 9604444, 9604447, 9604449, 9604450

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604431

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluoro-octanesulfonate

Sample #s: 9604433, 9604434, 9604437

Reporting limits were raised due to interference from the sample matrix.

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The following analytes were manually integrated due to incorrect integrations:
Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604435, 9604443

Reporting limits were raised due to interference from the sample matrix.

The following analytes were manually integrated due to incorrect integrations:
Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604430

Reporting limits were raised due to interference from the sample matrix.

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604426, 9604436

Reporting limits were raised due to interference from the sample matrix.

The following analytes were manually integrated due to incorrect integrations:
Perfluorooctanoic acid, Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Sample #s: 9604425

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

The following analytes were manually integrated due to incorrect integrations:
Perfluorohexanesulfonate, Perfluoro-octanesulfonate

Batch #: 18137006 (Sample number(s): 9604425-9604443 UNSPK: 9604427)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorobutanesulfonate, Perfluorohexanesulfonate

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9604425

Sample Description: **HC-646-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 09:45
SDG#: FSA99-01

AECOM
ELLE Sample #: GW 9604425
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	21	0.28	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	29	2.8	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	130	3.7	10	18	10
14434	Perfluorononanoic acid	375-95-1	28	0.37	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	530	5.5	21	28	10
14434	Perfluorooctanoic acid	335-67-1	95	0.28	1.1	1.8	1

The recovery for the sample labeled compound(s) used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted within the holding time and comparable results were observed. The data is reported from the original extraction. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 11:57	Joshua P Trost	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 12:13	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-TU019-MW001 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 10:21
SDG#: FSA99-02

AECOM
ELLE Sample #: GW 9604426
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	860	5.0	18	33	10
14434	Perfluoroheptanoic acid	375-85-9	1,000	5.0	20	33	10
14434	Perfluorohexanesulfonate	355-46-4	6,300	6.6	18	33	10
14434	Perfluorononanoic acid	375-95-1	19 J	6.6	20	33	10
14434	Perfluoro-octanesulfonate	1763-23-1	1,100	10	38	50	10
14434	Perfluorooctanoic acid	335-67-1	2,800	5.0	20	33	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 12:44	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-BBW-01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 11:05
SDG#: FSA99-03BKG

AECOM
ELLE Sample #: GW 9604427
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	13	0.28	1.0	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	1.4 J	0.28	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	8.1	0.38	1.0	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	2.4 J	0.57	2.2	2.8	1
14434	Perfluorooctanoic acid	335-67-1	0.88 J	0.28	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 13:46	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-BBW-01 MS Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 11:05
SDG#: FSA99-03MS

AECOM
ELLE Sample #: GW 9604428
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	22	0.29	1.0	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	6.8	0.29	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	15	0.38	1.0	1.9	1
14434	Perfluorononanoic acid	375-95-1	5.8	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	6.7	0.57	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	7.3	0.29	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 14:02	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-BBW-01 MSD Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 11:05
SDG#: FSA99-03MSD

AECOM
ELLE Sample #: GW 9604429
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	20	0.28	1.0	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	6.8	0.28	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	14	0.37	1.0	1.9	1
14434	Perfluorononanoic acid	375-95-1	5.9	0.37	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	5.8	0.56	2.2	2.8	1
14434	Perfluorooctanoic acid	335-67-1	6.6	0.28	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 14:17	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-MW02 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 14:00
SDG#: FSA99-04

AECOM
ELLE Sample #: GW 9604430
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	29		2.7	10	18	10
14434	Perfluoroheptanoic acid	375-85-9	56		2.7	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	390		3.6	10	18	10
14434	Perfluorononanoic acid	375-95-1	17	J	3.6	11	18	10
14434	Perfluoro-octanesulfonate	1763-23-1	66		5.4	21	27	10
14434	Perfluorooctanoic acid	335-67-1	77		2.7	11	18	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/24/2018 00:17	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FB-050918 Grab Water**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 13:30
SDG#: FSA99-05FB

AECOM
ELLE Sample #: GW 9604431
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.38	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	N.D.	0.57	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.29	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 14:48	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-050918 Grab Water**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 13:40
SDG#: FSA99-06EB

AECOM
ELLE Sample #: GW 9604432
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.38	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	1.1 J	0.57	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	0.34 J	0.29	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 15:04	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-610-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 14:35
SDG#: FSA99-07

AECOM
ELLE Sample #: GW 9604433
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	130	2.8	10	19	10
14434	Perfluoroheptanoic acid	375-85-9	48	2.8	11	19	10
14434	Perfluorohexanesulfonate	355-46-4	2,100	3.8	10	19	10
14434	Perfluorononanoic acid	375-95-1	N.D.	3.8	11	19	10
14434	Perfluoro-octanesulfonate	1763-23-1	3,000	56	220	280	100
14434	Perfluorooctanoic acid	335-67-1	350	2.8	11	19	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 15:35	Joshua P Trost	10
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 15:50	Joshua P Trost	100
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-D Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018
SDG#: FSA99-08FD

AECOM
ELLE Sample #: GW 9604434
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	1,800	29	110	190	100
14434	Perfluoroheptanoic acid	375-85-9	3,700	29	120	190	100
14434	Perfluorohexanesulfonate	355-46-4	23,000	39	110	190	100
14434	Perfluorononanoic acid	375-95-1	1,100	39	120	190	100
14434	Perfluoro-octanesulfonate	1763-23-1	57,000	580	2,200	2,900	1000
14434	Perfluorooctanoic acid	335-67-1	8,800	29	120	190	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 16:37	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/24/2018 00:48	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-MW02 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 16:00
SDG#: FSA99-09

AECOM
ELLE Sample #: GW 9604435
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	5,700	50	180	330	100
14434	Perfluoroheptanoic acid	375-85-9	1,400	50	200	330	100
14434	Perfluorohexanesulfonate	355-46-4	42,000	67	180	330	100
14434	Perfluorononanoic acid	375-95-1	8,500	67	200	330	100
14434	Perfluoro-octanesulfonate	1763-23-1	63,000	1,000	3,800	5,000	1000
14434	Perfluorooctanoic acid	335-67-1	7,300	50	200	330	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:08	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:23	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 16:20
SDG#: FSA99-10

AECOM
ELLE Sample #: GW 9604436
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	3,600	50	180	330	100
14434	Perfluoroheptanoic acid	375-85-9	3,500	50	200	330	100
14434	Perfluorohexanesulfonate	355-46-4	23,000	67	180	330	100
14434	Perfluorononanoic acid	375-95-1	8,200	67	200	330	100
14434	Perfluoro-octanesulfonate	1763-23-1	130,000	1,000	3,800	5,000	1000
14434	Perfluorooctanoic acid	335-67-1	9,200	50	200	330	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:39	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 17:54	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FTA-MW03 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 16:45
SDG#: FSA99-11

AECOM
ELLE Sample #: GW 9604437
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	1,700	28	100	190	100
14434	Perfluoroheptanoic acid	375-85-9	4,100	28	110	190	100
14434	Perfluorohexanesulfonate	355-46-4	25,000	38	100	190	100
14434	Perfluorononanoic acid	375-95-1	1,300	38	110	190	100
14434	Perfluoro-octanesulfonate	1763-23-1	69,000	560	2,200	2,800	1000
14434	Perfluorooctanoic acid	335-67-1	9,500	28	110	190	100

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 18:26	Joshua P Trost	100
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/24/2018 01:03	Joshua P Trost	1000
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF3-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/09/2018 17:15
SDG#: FSA99-12

AECOM
ELLE Sample #: GW 9604438
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.2	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.38	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.38	1.2	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	1.0 J	0.58	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.29	1.2	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 18:41	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-MW03 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 08:15
SDG#: FSA99-13

AECOM
ELLE Sample #: GW 9604439
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	8.7		0.50	1.8	3.3	1
14434	Perfluoroheptanoic acid	375-85-9	3.3	J	0.50	2.0	3.3	1
14434	Perfluorohexanesulfonate	355-46-4	130		0.66	1.8	3.3	1
14434	Perfluorononanoic acid	375-95-1	13		0.66	2.0	3.3	1
14434	Perfluoro-octanesulfonate	1763-23-1	4.9	J	1.0	3.8	5.0	1
14434	Perfluorooctanoic acid	335-67-1	8.6		0.50	2.0	3.3	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:12	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 07:50
SDG#: FSA99-14

AECOM
ELLE Sample #: GW 9604440
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	5.8	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	3.0	0.29	1.2	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	110	0.39	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	0.82 J	0.39	1.2	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	47	0.58	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	31	0.29	1.2	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:28	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-FB-051018 Grab Water**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 07:30
SDG#: FSA99-15FB

AECOM
ELLE Sample #: GW 9604441
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.28	1.0	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.28	1.1	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	N.D.	0.37	1.0	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.37	1.1	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	3.8	0.56	2.1	2.8	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.28	1.1	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:43	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-EB-051018 Grab Water**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 07:35
SDG#: FSA99-16EB

AECOM
ELLE Sample #: GW 9604442
ELLE Group #: 1942359
Matrix: Water

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	N.D.	0.29	1.1	1.9	1
14434	Perfluoroheptanoic acid	375-85-9	N.D.	0.29	1.2	1.9	1
14434	Perfluorohexanesulfonate	355-46-4	0.41 J	0.39	1.1	1.9	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.39	1.2	1.9	1
14434	Perfluoro-octanesulfonate	1763-23-1	4.4	0.58	2.2	2.9	1
14434	Perfluorooctanoic acid	335-67-1	N.D.	0.29	1.2	1.9	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 19:59	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-608-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 08:25
SDG#: FSA99-17

AECOM
ELLE Sample #: GW 9604443
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	76	2.9	11	20	10
14434	Perfluoroheptanoic acid	375-85-9	170	2.9	12	20	10
14434	Perfluorohexanesulfonate	355-46-4	1,100	3.9	11	20	10
14434	Perfluorononanoic acid	375-95-1	31	3.9	12	20	10
14434	Perfluoro-octanesulfonate	1763-23-1	470	5.9	23	29	10
14434	Perfluorooctanoic acid	335-67-1	330	2.9	12	20	10

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18137006	05/19/2018 20:30	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	2	18137006	05/17/2018 07:15	Pamela Rothharpt	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-618-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 08:50
SDG#: FSA99-18

AECOM
ELLE Sample #: GW 9604444
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	13	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	3.5	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	200	0.36	1.0	1.8	1
14434	Perfluorononanoic acid	375-95-1	N.D.	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	24	0.54	2.1	2.7	1
14434	Perfluorooctanoic acid	335-67-1	12	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 08:20	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-620-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 09:30
SDG#: FSA99-19

AECOM
ELLE Sample #: GW 9604445
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	62	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	80	2.7	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	670	3.6	10	18	10
14434	Perfluorononanoic acid	375-95-1	15	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	1,300	5.4	21	27	10
14434	Perfluorooctanoic acid	335-67-1	120	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 08:35	Joshua P Trost	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/23/2018 22:59	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF1-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 10:05
SDG#: FSA99-20

AECOM
ELLE Sample #: GW 9604446
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**		**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	5.6		0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	3.9		0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	21		0.36	1.0	1.8	1
14434	Perfluorononanoic acid	375-95-1	4.4		0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	2.7	J	0.55	2.1	2.7	1
14434	Perfluorooctanoic acid	335-67-1	12		0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 08:51	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-OF4-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 10:35
SDG#: FSA99-21

AECOM
ELLE Sample #: GW 9604447
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	1.6 J	0.27	0.99	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	3.5	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	42	0.36	0.99	1.8	1
14434	Perfluorononanoic acid	375-95-1	1.1 J	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	17	0.54	2.1	2.7	1
14434	Perfluorooctanoic acid	335-67-1	6.3	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 09:07	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-644-MW01 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 12:00
SDG#: FSA99-22

AECOM
ELLE Sample #: GW 9604448
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous EPA 537 mod QSM 5.1 table B-15			**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	19	0.27	1.0	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	150	2.7	11	18	10
14434	Perfluorohexanesulfonate	355-46-4	380	3.6	10	18	10
14434	Perfluorononanoic acid	375-95-1	27	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	2,000	5.5	21	27	10
14434	Perfluorooctanoic acid	335-67-1	100	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 09:22	Joshua P Trost	1
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/23/2018 23:14	Joshua P Trost	10
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-MW04 Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018 11:15
SDG#: FSA99-23

AECOM
ELLE Sample #: GW 9604449
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	3.9 J	0.76	2.8	5.1	1
14434	Perfluoroheptanoic acid	375-85-9	3.7 J	0.76	3.0	5.1	1
14434	Perfluorohexanesulfonate	355-46-4	140	1.0	2.8	5.1	1
14434	Perfluorononanoic acid	375-95-1	1.8 J	1.0	3.0	5.1	1
14434	Perfluoro-octanesulfonate	1763-23-1	220	1.5	5.8	7.6	1
14434	Perfluorooctanoic acid	335-67-1	18	0.76	3.0	5.1	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 09:38	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: **HC-APN-D Grab Groundwater**
Hancock ANGB 60520893

Project Name: **Hancock ANGB**

Submittal Date/Time: 05/11/2018 07:50
Collection Date/Time: 05/10/2018
SDG#: FSA99-24FD

AECOM
ELLE Sample #: GW 9604450
ELLE Group #: 1942359
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Detection Limit*	As Received Limit of Detection	As Received Limit of Quantitation	DF
LC/MS/MS Miscellaneous	**EPA 537 mod QSM 5.1 table B-15**		**ng/l**	**ng/l**	**ng/l**	**ng/l**	
14434	Perfluorobutanesulfonate	375-73-5	4.5	0.27	0.98	1.8	1
14434	Perfluoroheptanoic acid	375-85-9	4.2	0.27	1.1	1.8	1
14434	Perfluorohexanesulfonate	355-46-4	230	0.36	0.98	1.8	1
14434	Perfluorononanoic acid	375-95-1	1.5 J	0.36	1.1	1.8	1
14434	Perfluoro-octanesulfonate	1763-23-1	230	0.54	2.1	2.7	1
14434	Perfluorooctanoic acid	335-67-1	21	0.27	1.1	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14434	PFAS in Water by LC/MS/MS-DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/19/2018 10:09	Joshua P Trost	1
14465	PFAS Water Prep - DoD	EPA 537 mod QSM 5.1 table B-15	1	18135005	05/15/2018 09:05	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: AECOM
Reported: 05/29/2018 11:10

Group Number: 1942359

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	DL**	LOD	LOQ
	ng/l	ng/l	ng/l	ng/l
Batch number: 18135005	Sample number(s): 9604444-9604450			
Perfluorobutanesulfonate	N.D.	0.30	1.1	2.0
Perfluoroheptanoic acid	N.D.	0.30	1.2	2.0
Perfluorohexanesulfonate	N.D.	0.40	1.1	2.0
Perfluorononanoic acid	N.D.	0.40	1.2	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.3	3.0
Perfluorooctanoic acid	N.D.	0.30	1.2	2.0
Batch number: 18137006	Sample number(s): 9604425-9604443			
Perfluorobutanesulfonate	N.D.	0.30	1.1	2.0
Perfluoroheptanoic acid	N.D.	0.30	1.2	2.0
Perfluorohexanesulfonate	N.D.	0.40	1.1	2.0
Perfluorononanoic acid	N.D.	0.40	1.2	2.0
Perfluoro-octanesulfonate	N.D.	0.60	2.3	3.0
Perfluorooctanoic acid	N.D.	0.30	1.2	2.0

LCS/LCSD

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18135005	Sample number(s): 9604444-9604450								
Perfluorobutanesulfonate	4.81	4.79	4.81	4.97	100	103	70-130	4	30
Perfluoroheptanoic acid	5.44	5.36	5.44	5.08	99	93	70-130	5	30
Perfluorohexanesulfonate	5.14	5.35	5.14	5.09	104	99	70-130	5	30
Perfluorononanoic acid	5.44	5.40	5.44	5.51	99	101	70-130	2	30
Perfluoro-octanesulfonate	5.20	5.84	5.20	4.49	112	86	70-130	26	30
Perfluorooctanoic acid	5.44	5.84	5.44	5.74	107	106	70-130	2	30
Batch number: 18137006	Sample number(s): 9604425-9604443								
Perfluorobutanesulfonate	4.81	5.12			106		70-130		
Perfluoroheptanoic acid	5.44	5.26			97		70-130		
Perfluorohexanesulfonate	5.14	5.55			108		70-130		
Perfluorononanoic acid	5.44	6.07			112		70-130		
Perfluoro-octanesulfonate	5.20	5.68			109		70-130		
Perfluorooctanoic acid	5.44	6.00			110		70-130		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 05/29/2018 11:10

Group Number: 1942359

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18137006	Sample number(s): 9604425-9604443 UNSPK: 9604427									
Perfluorobutanesulfonate	13.38	4.58	21.53	4.50	19.62	178*	139*	70-130	9	30
Perfluoroheptanoic acid	1.43	5.18	6.79	5.09	6.84	104	106	70-130	1	30
Perfluorohexanesulfonate	8.11	4.90	15.41	4.81	13.81	149*	118	70-130	11	30
Perfluorononanoic acid	N.D.	5.18	5.75	5.09	5.87	111	115	70-130	2	30
Perfluoro-octanesulfonate	2.41	4.95	6.73	4.86	5.85	87	71	70-130	14	30
Perfluorooctanoic acid	0.876	5.18	7.33	5.09	6.57	125	112	70-130	11	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18135005

	13C3-PFBS %Rec	13C3-PFBS LOD (ng/l)	13C3-PFHxS %Rec	13C3-PFHxS LOD (ng/l)	13C4-PFHpA %Rec	13C4-PFHpA LOD (ng/l)	13C8-PFOA %Rec	13C8-PFOA LOD (ng/l)	13C8-PFOS %Rec	13C8-PFOS LOD (ng/l)	13C9-PFNA %Rec	13C9-PFNA LOD (ng/l)
9604444	110	9.1	82	9.1	80	1.8	79	1.8	88	9.1	87	1.8
9604445	112	9.1	73	9.1	70	1.8	79	1.8	81	9.1	79	1.8
9604446	144	9.1	86	9.1	82	1.8	84	1.8	90	9.1	92	1.8
9604447	95	9.0	88	9.0	84	1.8	88	1.8	79	9.0	78	1.8
9604448	123	9.1	83	9.1	77	1.8	82	1.8	83	9.1	70	1.8
9604449	100	25	93	25	85	5.1	89	5.1	91	25	91	5.1
9604450	110	8.9	81	8.9	80	1.8	86	1.8	84	8.9	86	1.8
Blank	86	10	96	10	93	2.0	90	2.0	87	10	95	2.0
LCS	86	10	84	10	82	2.0	85	2.0	80	10	84	2.0
LCSD	86	10	92	10	86	2.0	79	2.0	79	10	82	2.0
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18137006

	13C3-PFBS %Rec	13C3-PFBS LOD (ng/l)	13C3-PFHxS %Rec	13C3-PFHxS LOD (ng/l)	13C4-PFHpA %Rec	13C4-PFHpA LOD (ng/l)	13C8-PFOA %Rec	13C8-PFOA LOD (ng/l)	13C8-PFOS %Rec	13C8-PFOS LOD (ng/l)	13C9-PFNA %Rec	13C9-PFNA LOD (ng/l)
9604425	36*	9.2	27*	9.2	28*	1.8	28*	1.8	32*	9.2	28*	1.8
9604426	89	170 (3)	99	170 (3)	90	33 (3)	84	33 (3)	88	170 (3)	100	33 (3)
9604427	115	9.4	91	9.4	84	1.9	84	1.9	79	9.4	83	1.9
9604428	119	9.5	89	9.5	92	1.9	82	1.9	78	9.5	90	1.9

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM
Reported: 05/29/2018 11:10

Group Number: 1942359

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PFAS in Water by LC/MS/MS-DoD
Batch number: 18137006

	13C3-PFBS		13C3-PFHxS		13C4-PFHpA		13C8-PFOA		13C8-PFOS		13C9-PFNA	
	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)	%Rec	LOD (ng/l)
9604429	112	9.4	83	9.4	79	1.9	77	1.9	83	9.4	79	1.9
9604430	92	91 (3)	82	91 (3)	76	18 (3)	81	18 (3)	84	91 (3)	81	18 (3)
9604431	84	9.6	91	9.6	87	1.9	80	1.9	80	9.6	83	1.9
9604432	92	9.6	91	9.6	84	1.9	88	1.9	85	9.6	90	1.9
9604433	100	94 (3)	82	94 (3)	80	19	82	19	89	94 (3)	83	19
9604434	92	970 (3)	93	970 (3)	90	190 (3)	90	190 (3)	94	970 (3)	89	190 (3)
9604435	89	1,700 (3)	87	1,700 (3)	82	330 (3)	87	330 (3)	89	1,700 (3)	83	330 (3)
9604436	78	1,700 (3)	77	1,700 (3)	71	330 (3)	72	330 (3)	75	1,700 (3)	67	330 (3)
9604437	91	940 (3)	95	940 (3)	86	190 (3)	87	190 (3)	97	940 (3)	84	190 (3)
9604438	110	9.6	87	9.6	83	1.9	81	1.9	79	9.6	76	1.9
9604439	103	17	88	17	87	3.3	88	3.3	83	17	93	3.3
9604440	121	9.7	73	9.7	78	1.9	78	1.9	89	9.7	91	1.9
9604441	82	9.3	89	9.3	78	1.9	81	1.9	79	9.3	94	1.9
9604442	81	9.6	83	9.6	79	1.9	78	1.9	90	9.6	88	1.9
9604443	104	98 (3)	90	98 (3)	90	20 (3)	89	20 (3)	90	98 (3)	93	20 (3)
Blank	90	10	93	10	96	2.0	88	2.0	85	10	93	2.0
LCS	95	10	90	10	90	2.0	84	2.0	84	10	88	2.0
MS	119	9.5	89	9.5	92	1.9	82	1.9	78	9.5	90	1.9
MSD	112	9.4	83	9.4	79	1.9	77	1.9	83	9.4	79	1.9
Limits:	50-150		50-150		50-150		50-150		50-150		50-150	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
(3) The surrogate spike amount was less than the LOD.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 42343 Group # 174259 Sample # 960425-50

COC # 546528

Client Information

Client: AECOM	Acct. #:
Project Name/#: Hancock ANGB 60520893	PWSID #:
Project Manager: John Santacroce	P.O. #:
Sampler: Ross McCurdy	Quote #:
State where samples were collected: NY	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water ☑ Potable ☐ Ground ☑ NPDES ☐ Surface ☐ | Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	537 Modified PFC	Remarks
HC-646-MW01	5/9/18	945	✓		2	X	
HC-TV019-MW001		1021	✓		2	X	
HC-BBW-01		1105	✓		2	X	
HC-BBW-01 MS		1105	✓		2	X	MS
HC-BBW-01 MSD		1105	✓		2	X	MSD
HC-APN-MW02		1400	✓		2	X	
HC-FB-050918		1330	✓		2	X	
HC-EB-050918		1340	✓		2	X	
HC-610-MW01		1435	✓		2	X	
HC-FTA-D		-	✓		2	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: STANDARD

E-mail address: John.Santacroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	5/10/18	1600			
				5/11/18	0750

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 3.6 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 42343 Group # 1942359 Sample # 760475-50

COC # 547825

Client Information

Client: AECOM

Acct. #:

Project Name/#: Hancock ANGB 60520893

PWSID #:

Project Manager: John Santacroce

P.O. #:

Sampler: Russ McCall

Quote #:

State where samples were collected:

For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water ☑ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#: 223615

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	EPA 537 Modified PFC
HC-FTA-MW02	5/9/18	1600	X		2	X
HC-FTA-MW01		1620	X		2	X
HC-FTA-MW03		1645	X		2	X
HC-OF3-MW01		1715	X		2	X
HC-APN-MW03	5/10/18	815	X		2	X
HC-APN-MW01		750	X		2	X
HC-FB-051018		730	X		2	X
HC-EB-051018		735	X		2	X
HC-608-MW01		825	X		2	X
HC-618-MW01		850	X		2	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.SantacroceAecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)

Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	4/16/18	13:15			
	5/10/18	1600			
			MMR	5/11/18	0750

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 3.6 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 42343 Group # 442359 Sample # 9604425-50

COC # 546530

Client Information

Client: AECOM	Acct. #:
Project Name/#: Hancock ANGB 60520893	PWSID #:
Project Manager: John Santacroce	P.O. #:
Sampler: Ross McCall	Quote #:
State where samples were collected:	For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water ☑ Ground ☐ Potable ☐ Surface ☐ NPDES ☐ | Other: ____

Analysis Requested — Preservation Codes

For Lab Use Only
FSC: ____
SCR#: ____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix	Total # of Containers	EPA 537 Mod. PFC	Remarks
HC-620-MW01	5/10/18	930	X		GW	2	X	
HC-OF1-MW01		1005	X		GW	2	X	
HC-OF4-MW01		1035	X		GW	2	X	
HC-644-MW01		1200	X		GW	2	X	
~~TRIP BLANK~~ HC-APN-MW04	5-10-18	1115	X		GW	2	X	
HC-APN-D	5/10/18	-	X		GW	2	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: John.SantaCroce@aecom.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) NJ DKQP TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	5/10/18	1600			
			MMP	5/11/18	0750

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 216157

Group Number(s): 1942359

Client: Aecom

Hancock NGB 60520893

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/11/2018 7:50
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	NY		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25684) at 09:42 on 05/11/2018

Samples Chilled Details: Hancock NGB 60520893

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	3.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

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Appendix E: Investigation-Derived Waste Management

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1112713

WORK ORDER NO. _____

DOCUMENT NO.

STRAIGHT BILL OF LADING

TRANSPORTER 1 _____ VEHICLE ID # _____

EPA ID # _____ TRANS. 1 PHONE _____

TRANSPORTER 2 _____ VEHICLE ID # _____

EPA ID # _____ TRANS. 2 PHONE _____

DESIGNATED FACILITY			SHIPPER		
FACILITY EPA ID #			SHIPPER EPA ID #		
ADDRESS			ADDRESS		
CITY	STATE	ZIP	CITY	STATE	ZIP

CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
4X55	DM		A.	900	P
2X55	DM		B.	800	P
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		

SPECIAL HANDLING INSTRUCTIONS

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

	PRINT	SIGN	DATE
SHIPPER	[illegible]	[signature]	10-24-18
TRANSPORTER 1	PRINT	SIGN	DATE
	[illegible]	[signature]	10-25-18
TRANSPORTER 2	PRINT	SIGN	DATE
RECEIVED BY	PRINT	SIGN	DATE

4

CHI 107

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1723173

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION #

GENERATOR CODE (Assigned by Clean Harbors) *NE26317*

GENERATOR NAME: *New York Air National Guard*

ADDRESS *6001 E Molloy Road (Hancock ANGB)* CITY *Syracuse* STATE/PROVINCE *NY* ZIP/POSTAL CODE *13211*

PHONE: *(703) 399-3920*

CUSTOMER CODE (Assigned by Clean Harbors) *AE12881*

CUSTOMER NAME: *AECOM*

ADDRESS *12420 Milestone Dr Ste 150* CITY *Germantown* STATE/PROVINCE *MD* ZIP/POSTAL CODE *20876*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *IDW Water*

PROCESS GENERATING WASTE: **Water sampling**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- [x] LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
- % FREE LIQUID
- % SETTLED SOLID
- % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS

[x] 1 2 3

% BY VOLUME (Approx.)

TOP *0.00*

MIDDLE *0.00*

BOTTOM *0.00*

VISCOSITY (If liquid present)
- [x] 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR

clear

ODOR
- [x] NONE
- MILD
- STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- [x] >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- [x] > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- [x] 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- [x] < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	–	MAX	UOM
POLYFLUOROALKYL SUBSTANCES	0.0000000	–	500.0000000	PPM
WATER	100.0000000	–	100.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [x] NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [x] NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G12*

SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W101*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ☑ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				☑
D005	BARIUM	100.0				☑
D006	CADMIUM	1.0				☑
D007	CHROMIUM	5.0				☑
D008	LEAD	5.0				☑
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0				☑
D011	SILVER	5.0				☑

	VOLATILE COMPOUNDS	
D018	BENZENE	0.5
D019	CARBON TETRACHLORIDE	0.5
D021	CHLOROBENZENE	100.0
D022	CHLOROFORM	6.0
D028	1,2-DICHLOROETHANE	0.5
D029	1,1-DICHLOROETHYLENE	0.7
D035	METHYL ETHYL KETONE	200.0
D039	TETRACHLOROETHYLENE	0.7
D040	TRICHLOROETHYLENE	0.5
D043	VINYL CHLORIDE	0.2
	SEMI-VOLATILE COMPOUNDS	
D023	o-CRESOL	200.0
D024	m-CRESOL	200.0
D025	p-CRESOL	200.0
D026	CRESOL (TOTAL)	200.0
D027	1,4-DICHLOROBENZENE	7.5
D030	2,4-DINITROTOLUENE	0.13
D032	HEXACHLOROBENZENE	0.13
D033	HEXACHLOROBUTADIENE	0.5
D034	HEXACHLOROETHANE	3.0
D036	NITROBENZENE	2.0
D037	PENTACHLOROPHENOL	100.0
D038	PYRIDINE	5.0
D041	2,4,5-TRICHLOROPHENOL	400.0
D042	2,4,6-TRICHLOROPHENOL	2.0
	PESTICIDES AND HERBICIDES	
D012	ENDRIN	0.02
D013	LINDANE	0.4
D014	METHOXYCHLOR	10.0
D015	TOXAPHENE	0.5
D016	2,4-D	10.0
D017	2,4,5-TP (SILVEX)	1.0
D020	CHLORDANE	0.03
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

NONE
☑ < 1000 PPM
>= 1000 PPM

PCBs

☑ NONE
< 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	☑ NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: ***Not subject to LDR***
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NON D.O.T. REGULATED, (WATER, PFAS)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☑ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

☑ **CONTAINERIZED**

3 CONTAINERS/SHIPMENT

STORAGE CAPACITY:

CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX ☑ DRUM

OTHER:

DRUM SIZE: *55*

BULK LIQUID

GALLONS/SHIPMENT: ***0 Min -0 Max*** GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: ***0 Min - 0 Max***

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
	Jason Preston	SRO	10/10/2018

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1723176

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION #

GENERATOR CODE (Assigned by Clean Harbors) *NE26317* GENERATOR NAME: *New York Air National Guard*

ADDRESS *6001 E Molloy Road (Hancock ANGB)* CITY *Syracuse* STATE/PROVINCE *NY* ZIP/POSTAL CODE *13211*

PHONE: (703) 399-3920

CUSTOMER CODE (Assigned by Clean Harbors) *AE12881* CUSTOMER NAME: *AECOM*

ADDRESS *12420 Milestone Dr Ste 150* CITY *Germantown* STATE/PROVINCE *MD* ZIP/POSTAL CODE *20876*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *Soil w/ PFAS*

PROCESS GENERATING WASTE: **Soil sampling**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- [x] SOLID WITHOUT FREE LIQUID
- [ ] POWDER
- [ ] MONOLITHIC SOLID
- [ ] LIQUID WITH NO SOLIDS
- [ ] LIQUID/SOLID MIXTURE
- [ ] % FREE LIQUID
- [ ] % SETTLED SOLID
- [ ] % TOTAL SUSPENDED SOLID
- [ ] SLUDGE
- [ ] GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 2 3

% BY VOLUME (Approx.)

TOP *0.00*
MIDDLE *0.00*
BOTTOM *0.00*

VISCOSITY (If liquid present)
- 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR: *brown*

ODOR
- [x] NONE
- [ ] MILD
- [ ] STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- [x] > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- [x] > 20
- Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
POLYFLUOROALKYL SUBSTANCES	0.0000000	--	500.0000000	PPM
SOIL	100.0000000	--	100.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES [ ] NO [x]

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [ ] NO [x]

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [ ] NO [x]

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G39*

SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W301*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ☑ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				☑
D005	BARIUM	100.0				☑
D006	CADMIUM	1.0				☑
D007	CHROMIUM	5.0				☑
D008	LEAD	5.0				☑
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0				☑
D011	SILVER	5.0				☑

	VOLATILE COMPOUNDS	
D018	BENZENE	0.5
D019	CARBON TETRACHLORIDE	0.5
D021	CHLOROBENZENE	100.0
D022	CHLOROFORM	6.0
D028	1,2-DICHLOROETHANE	0.5
D029	1,1-DICHLOROETHYLENE	0.7
D035	METHYL ETHYL KETONE	200.0
D039	TETRACHLOROETHYLENE	0.7
D040	TRICHLOROETHYLENE	0.5
D043	VINYL CHLORIDE	0.2
	SEMI-VOLATILE COMPOUNDS	
D023	o-CRESOL	200.0
D024	m-CRESOL	200.0
D025	p-CRESOL	200.0
D026	CRESOL (TOTAL)	200.0
D027	1,4-DICHLOROBENZENE	7.5
D030	2,4-DINITROTOLUENE	0.13
D032	HEXACHLOROBENZENE	0.13
D033	HEXACHLOROBUTADIENE	0.5
D034	HEXACHLOROETHANE	3.0
D036	NITROBENZENE	2.0
D037	PENTACHLOROPHENOL	100.0
D038	PYRIDINE	5.0
D041	2,4,5-TRICHLOROPHENOL	400.0
D042	2,4,6-TRICHLOROPHENOL	2.0
	PESTICIDES AND HERBICIDES	
D012	ENDRIN	0.02
D013	LINDANE	0.4
D014	METHOXYCHLOR	10.0
D015	TOXAPHENE	0.5
D016	2,4-D	10.0
D017	2,4,5-TP (SILVEX)	1.0
D020	CHLORDANE	0.03
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

NONE
☑ < 1000 PPM
>= 1000 PPM

PCBs

☑ NONE
< 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES | EXPLOSIVE | FUMING | OSHA REGULATED CARCINOGENS
POLYMERIZABLE | RADIOACTIVE | REACTIVE MATERIAL | ☑ NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: ***Not subject to LDR***
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NON D.O.T. REGULATED, (SOIL, PFAS)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☑ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

☑ CONTAINERIZED

4 CONTAINERS/SHIPMENT

STORAGE CAPACITY:

CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX ☑ DRUM

OTHER: DRUM SIZE: *55*

BULK LIQUID

GALLONS/SHIPMENT: ***0 Min -0 Max*** GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: ***0 Min - 0 Max***

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

Profile is written as worst case analysis.

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
	Josef Preisel	SEO	10/10/2018


U.S. D.O.T. SHIPPING DESCRIPTION
NON D.O.T. REGULATED, (WATER, PFAS)
THIS WASTE IS NOT REGULATED
AS A HAZARDOUS WASTE
UNDER 40 CFR PART 261
OR APPLICABLE STATE REGULATIONS
N/A
CAUTION
CAUTION
BILL OF LADING
B0L1112713
SHIPPER
New York Air National Guard
ADDRESS
6001 E Molloy RoadHancock ANGB
CITY
Syracuse
ST
NY
ZIP
13211
NY3570025475
PROFILE#
CH123173
DESCRIPTION
IDW WATER


THIS CONTAINER
PENDING ANALYSIS