FINAL
Site Inspection Report
Rochester Army Aviation Support Facility #2
Rochester, New York

Site Inspections for Perfluorooctanoic Acid (PFOA), Perfluorooctanesulfonic Acid (PFOS), Perfluorohexanesulfonic Acid (PFHxS), Perfluorononanoic Acid (PFNA), Hexafluoropropylene oxide dimer Acid (HFPO-DA) and Perfluorobutanesulfonic Acid (PFBS)
ARNG Installations, Nationwide

September 2023

Prepared for:

Army National Guard Headquarters
111 S. George Mason Drive
Arlington, VA 22204

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	Degrees Celsius
°F	Degrees Fahrenheit
%	Percent
µg/kg	Microgram(s) per kilogram
µg/L	Microgram(s) per liter
AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFFF	Aqueous film forming foam
amsl	Above mean sea level
AOI	Area of Interest
ARNG	Army National Guard
AST	Aboveground storage tank
bgs	Below ground surface
btoc	Below top of casing
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual site model
DoD	Department of Defense
DPT	Direct-push technology
DQO	Data quality objective
DUA	Data Usability Assessment
EA	EA Engineering, Science, and Technology, Inc., PBC
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
EB	Equipment Blank
FB	Field blank
FedEx	Federal Express
ft	Foot (feet)
gal	Gallon(s)
GIS	Geographic information system
GPS	Global positioning system
HDPE	High-density polyethylene
HFPO-DA	Hexafluoropropylene oxide-dimer acid
IDW	Investigation-derived waste
in.	Inch(es)
ITRC	Interstate Technology Regulatory Council

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

LC/MS/MS	Liquid Chromatography Tandem Mass Spectrometry
MS	Matrix spike
MSD	Matrix spike duplicate
NELAP	National Environmental Laboratory Accreditation Program
ng/L	Nanogram(s) per liter
No.	Number
NYARNG	New York Army National Guard
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSD	Office of the Secretary of Defense
PA	Preliminary Assessment
PFAS	Per- and polyfluoroalkyl substances
PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PID	Photoionization detector
PVC	Poly-vinyl chloride
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
RI	Remedial investigation
RPD	Relative percent difference
SI	Site Inspection
SL	Screening level
SOP	Standard Operating Procedure
TOC	Total organic carbon
TPP	Technical Project Planning
UFP	Uniform Federal Policy
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

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EXECUTIVE SUMMARY

The Army National Guard (ARNG) G9 is performing Preliminary Assessments (PAs) and Site Inspections (SIs) at ARNG facilities nationwide based on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on the six compounds presented in the memorandum from the Office of the Secretary of Defense (OSD) (Assistant Secretary of Defense) dated 6 July 2022. The six compounds listed in the OSD memorandum include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorobutanesulfonic acid (PFBS), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and hexafluoropropylene oxide dimer acid (HFPO-DA)[1]. These compounds are collectively referred to as "relevant compounds" throughout the document and the applicable Screening Levels (SLs) are provided below in **Table ES-1**.

The PA identified one Areas of Interest (AOI) where PFAS-containing materials may have been stored, disposed, or released historically (see table ES-2 for AOI location). The objective of the SI is to identify whether there has been a release to the environment from the AOI identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on a comparison of SI results to screening levels (SLs) for the relevant compounds. This SI was completed at the Rochester Army Aviation Support Facility #2 (AASF #2) in Rochester, New York, and determined further investigation is warranted for AOI 1: Hangar Release and Hazardous Waste Storage. Rochester AASF #2 will be referred to as the "Facility" throughout this document.

The Facility, operated by the New York ARNG (NYARNG), is located within the Greater Rochester International Airport in Monroe County, western New York, in the City of Rochester. Monroe County is a predominately suburban area largely consisting of plateaus in the Lake Ontario Lowlands of western New York. Rochester AASF #2 is located less than 5 miles south from the City of Rochester. The Facility was established in 1991, when a small airplane hangar was built, and is utilized as a NYARNG installation that is used for training, maintenance, and unit administration. Prior to 1991, the property was undeveloped. Approximately 500 ft to the east of the Facility is the Genesee River.

The PA Report identified three potential PFAS release areas that were grouped into one AOI at the Facility: the Old Hangar, the New Hangar, and the Hazardous Waste Storage Shed (AECOM Technical Services, Inc. 2020). SI sampling results from the AOI were compared to OSD SLs. **Table ES-2** summarizes the SI results for the AOI. Based on the results of this SI, a remedial investigation (RI) is warranted for AOI 1.

[1] Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the conceptual site model (CSM) developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of military specification (MIL-SPEC) aqueous film forming foam (AFFF) and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS

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

Analyte[2]	Residential (Soil) (µg/kg)[1]	Industrial / Commercial Composite Worker (Soil) (µg/kg) [1]	Tap Water (Groundwater) (ng/L) [1]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:

1. Assistant Secretary of Defense, 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 6 July 2022.
2. Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the CSM developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of MIL-SPEC AFFF and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS

ng/L = Nanogram(s) per liter

Table ES-2. Summary of Site Inspection Findings and Recommendations

AOI	Potential Release Area	Soil AOI	Groundwater AOI	Groundwater Facility Boundary	Future Action
1	Rochester AASF #2 Hangar Release and Hazardous Waste Storage	◐	●	●	Proceed to RI

Legend:

● = Detected; exceedance of screening levels

◐ = Detected; no exceedance of screening levels

○ = Not detected

1. INTRODUCTION

1.1 PROJECT AUTHORIZATION

The Army National Guard (ARNG) G9 is the lead agency in performing Preliminary Assessments (PAs) and Site Inspections (SIs) at ARNG facilities nationwide based on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on six compounds presented in the memorandum from the Office of the Secretary of Defense (OSD) dated 6 July 2022 (Assistant Secretary of Defense 2022). The six compounds listed in the OSD memorandum will be referred to as "relevant compounds" throughout this document and include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorobutanesulfonic acid (PFBS), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and hexafluoropropylene oxide-dimer acid (HFPO-DA)[2] at ARNG facilities nationwide. The ARNG performed this SI at the Rochester Army Aviation Support Facility #2 (AASF #2) in Rochester, New York. The Rochester AASF #2 will be referred to as the "Facility" throughout this document.

The SI project elements were performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (U.S. Environmental Protection Agency [USEPA] 1980), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300; USEPA 1994), and in compliance with U.S. Department of the Army (DA) requirements and guidance for field investigations.

1.2 SITE INVESTIGATION PURPOSE

A PA was performed at the Rochester Army Aviation Support Facility #2 (AECOM Technical Services, Inc. [AECOM] 2020) that identified one Area of Interest (AOI) where PFAS-containing materials may have been used, stored, disposed, or released historically. The objective of the SI is to identify whether there has been a release to the environment from the AOI identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on screening levels (SLs) for the relevant compounds.

[2] Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the conceptual site model (CSM) developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of military specification (MIL-SPEC) aqueous film forming foam (AFFF) and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS

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2. FACILITY BACKGROUND

2.1 FACILITY LOCATION AND DESCRIPTION

Rochester AASF #2 is located in Monroe County, western New York, in the City of Rochester **(Figure 2-1)**. Since the Facility's establishment in 1991, it has been located on the Greater Rochester International Airport and is leased to the National Guard for land use of the Facility. The Facility is accessed from Patriot Way on the southern side of the Greater Rochester International Airport. The Facility is located approximately 0.75 miles south of the airport terminal and 4 miles southwest from the Rochester City Center. Interstate 390 borders the airport property directly to the northeast.

Prior to 1991, the property was undeveloped. An airplane hangar (the Old Hangar) was built in 1991, which the New York (NYARNG) began operating shortly after. In 2008, a second hangar (the 'New Hangar') connected to the original hangar was constructed, with each hangar covering roughly 32,600 square feet. A separate detached storage building was also constructed (AECOM 2020) and is used for hazardous waste storage. The New Hangar is located on the western side of the Old Hangar; both hangars are located in the approximate center of the Facility, south of the helicopter apron and west of the support building. The Rochester AASF #2 hangars are located 0.70 miles northeast from the end of the southern runway. There is a small retention pond located on the southwestern side of the Facility. Further west of the retention pond (outside of the AASF #2 property) is a wetland area that bounds the active runway portion of the airport.

The property that is now the Greater Rochester International Airport was used for aviation purposes throughout most of the 20th century. The first development occurred in 1927 with the construction of a hangar and aviation field, formerly known as Britton Field. By 1948, the Monroe County took possession of the property and began making improvements on the existing runways, building a new runway and building a terminal complex. The Greater Rochester International Airport now covers 1,136 acres and has three runways.

2.2 FACILITY ENVIRONMENTAL SETTING

Monroe County is a predominately suburban area largely consisting of plateaus **(Figure 2-2)** in the Lake Ontario Lowlands of western New York. Monroe County has a total of 1,367 square miles, 52 percent (%) of which are water (National Association of Counties 2017). Rochester AASF #2 is located on the southwestern side of the City of Rochester, approximately 500 feet (ft) west of the Genesee River. The Facility is located in a mixed-use area, surrounded by a mix of industrial, residential, and commercial properties. Several industries are less than 1 mile to the south, west, and southwest of the Facility. Westgate Community Plaza is 2 miles to the west of the Facility. The terrain of the Facility is generally flat, consistent with the rest of Rochester.

2.2.1 Geology

Rochester AASF #2 is located west of the Genesee River, within the northwestern geological region of the Ontario Lowlands, which is a segment of the Erie and Ontario lowlands physiographic province (U.S. Geological Survey [USGS] 1988). This region forms part of the

plains that border the Great Lakes. The Ontario lowlands are an area of generally low and flat topography that was shaped from deglaciation.

Glacial meltwater deposited fluvial sand, gravel, and lacustrine clay, silt, and fine sand throughout the region. As a result, glacially-derived landforms are present near the Rochester AASF #2, including drumlins, eskers, kettles, moraines, and massive deposits of sand and gravel, known as kame, laid down at the periphery of ice sheets during glacial drainage (Isachsen et al. 2000). The Rochester AASF #2 lies at the southwestern edge of the Rochester Kame-Moraine, which is a part of the Brighton-division of the Pinnacle Hills; a system of three different kame-moraine divisions that create sporadic and unusual topographic highs for Rochester and the surrounding 4 miles (Fairchild 1896). The Pinnacle Hills rise approximately 740 ft above mean sea level (amsl), compared to the Rochester average mean sea level of 475 ft.

Both the surface and underlying material of Rochester AASF #2 are comprised of a mix of Pleistocene age unconsolidated glacial deposits, recent floodplain deposits, and lacustrine delta. These sediments consist of silts and clays underlain by fine sands and gravels of variable thicknesses ranging between 20 to nearly 300 ft (USGS 1982). Bedrock underlying the glacial deposits consists of limestone, dolostone, and shale deposits of Upper Silurian age (New York State Museum and Science Service 1970). Many of the drinking water wells in the Genesee River basin come from bedrock; however, they do not yield as much as unconsolidated sediments (USGS 1988).

Soils encountered during the SI activities consisted of tight silt and clay with some sand and gravel. In general, clayey silts were observed closer to the ground surface, transitioning to sandy silts or similar as explorations reached terminal depths (up to 18 ft below grade). In the general chemistry and grain size analyses, soil pH was noted to be 7.1 (neutral) and TOC was 3,900 milligrams per kilogram, indicating low organic-matter content in the soil. The grain size analysis of the sample within AOI 1 showed that the sample was comprised of 25% clay, 34% silt, 30% sand, and 11% gravel. This soil type is called a “clay loam.”

2.2.2 Hydrogeology

Based on review of USEPA’s map of Sole Source Aquifers, Rochester AASF #2 is not located over a sole source aquifer (USEPA 2022). Based on review of the New York State Department of Environmental Conservation’s (NYSDEC) Map of Principal and Primary Aquifers in New York State, the Rochester AASF #2 facility area is not located over a principal or primary aquifer (NYSDEC 2022). **Figure 2-3** shows potable wells, potential private wells, and USGS inactive monitoring wells. The principal preglacial buried-valley aquifer system underlies the Irondequoit and Genesee River valleys (USGS 1982) **(Figure 2-4)**. This unconsolidated aquifer spans the entire Rochester AASF #2, with precipitation and runoff being the sole source of recharge (USGS 1982).

The glacio-lacustrine silt and very fine sand, as well as kame deposits, create unique hydrogeological conditions. Unconsolidated glacial deposits of thick, permeable sand and gravel underlie floodplains and terraces of the less permeable silt loam, causing different zones of infiltration. This creates a challenge in predicting local groundwater flow direction as there is a high water table and low drainage potential. The unconsolidated deposits yield the largest supply

to wells in Monroe County, with yields as much as 10 million gallons (gal) per day across the entire aquifer (USGS 1985). More permeable material is present south of and on the Rochester AASF #2; and thus, infiltration and precipitation are the primary sources of recharge in these locations (USGS 1985).

Information gathered from the PA indicated that the groundwater flow direction in the Facility is generally from west to east, towards the Genesee River, which flows into Lake Ontario. However, localized flow at the AASF #2 appears to vary. Based on the observed depths to groundwater and surveyed well elevations collected during this SI, the groundwater contour map provided as **Figure 2-5** was generated. This flow map indicates that localized groundwater generally flows east to west across the Facility.

Within the PA, AECOM obtained an EDR™ Report that conducted a well search for a 1-mile radius surrounding the Facility. Using additional online resources, such as state and local geographic information system (GIS) databases, wells were researched to a 4-mile radius of the Facility. Data from the USGS National Water Information System Mapper indicated there are no active USGS monitoring wells and 418 inactive monitoring wells within a 4-mile radius of the Facility. Well data from New York State indicate there are six potable water wells within a 4-mile radius of the Facility boundary, one to the northwest (upgradient), one to the southwest (side- gradient), and four to the southeast beyond the Genesee River. Information regarding well screen depths was not available, but the total well depths of the 6 wells range between 53 and 400 ft below ground surface (bgs) (AECOM 2020).

There are several bedrock wells located side-gradient within 1.5 miles to the south-southeast and to the northwest of Rochester AASF #2 (**Figure 2-5**). The PA Report indicates that the average depth to groundwater in the Rochester area is between 16 and 37 ft bgs, with average well depths of 28 to 101 ft, and yield anywhere from 8 to 287 gal per minute (AECOM 2020). Depth to groundwater measured during the SI was between approximately 1 and 9 ft bgs, significantly shallower than expected based on the records reviewed during the PA development.

The Facility receives water from the Monroe County Water Authority. The majority of drinking water supplied within Monroe County and the City of Rochester comes from Lake Ontario and Hemlock Lake, though there are 4,500 privately-owned drinking water wells within the county. Hemlock Lake is located approximately 25 miles south of Rochester AASF #2. Lake Ontario is located approximately 12 miles north of Rochester AASF #2 (AECOM 2020).

2.2.3 Hydrology

Rochester AASF #2 is located within the Lower Genesee Watershed, which covers 1,100 square miles, drains over 8,000 square miles of streams, and covers Genesee, Livingston, Monroe, Ontario, and Wyoming counties (U.S. Department of Agriculture 2009). The Lower Genesee Watershed is a part of the 2,500 square mile Genesee River Watershed in the Great Lakes Basin. Little Black Creek, Red Creek, Allen Creek, Black Creek, and Town of Gates-Genesee River watersheds are all a part of the Lower Genesee Watershed (**Figure 2-4**).

Surface water resources near the Rochester AASF #2 include natural streams, rivers, and open water features. Surface water runoff from the Rochester AASF #2 area drains into the Genesee

River, located approximately 0.35 miles southeast of Rochester AASF #2's eastern and southern boundaries. The Genesee River converges with the Erie Canal, located approximately 0.75 miles north-northeast of the Facility across from Interstate 390, before continuing on to Lake Ontario.

On the western side of the Rochester AASF #2 is Little Black Creek, which runs south and connects to a drainage ditch below the southern runway (Runway 4) and travels east along Paul Road 252 before converging into the Genesee River. The wetland features located adjacent to the Facility on the west drain/connect to the aforementioned ditch. Another drainage ditch at the end of Runway 10 travels south and connects to Little Black Creek. Black Creek is 0.5 miles south of the Facility, which is less than 300 ft from Little Black Creek near Paul Road 252, where it also converges into the Genesee River.

Both the Genesee River and Lake Ontario are popular for recreational use. Some recreational uses include boating, fishing, and hiking (City of Rochester 2022).

2.2.4 Climate

The climate in the Rochester AASF #2 area and surrounding Greater Rochester International Airport is predominately continental, with cold and snowy winters and warm to hot summers. Temperatures vary from an average summer high of 70.2 degrees Fahrenheit (°F) to an average winter low of 28.5°F, with an average annual temperature of 49.5°F. The total mean annual precipitation is 35.09 inches (in.), and the total mean snowfall is 102 in. January experiences the most snowfall, with an average of 27.4 in., and July experiences the most rainfall, with an average of 3.56 in. (National Oceanic and Atmospheric Administration 2022).

2.2.5 Current and Future Land Use

Rochester AASF #2 is a private Facility with access only through a guarded security gate. The property is a NYARNG installation that is used for training, maintenance, and unit administration. The Facility is encircled by a fence and access is gained through a guarded entrance. There are no current expansion plans for the Facility, and in general, the future use of the Facility is not expected to change (AECOM 2020).

2.2.6 Sensitive Habitat and Threatened/Endangered Species

A wildlife survey has not occurred at the Facility, and the Facility does not have any significant areas of habitat. The following species have not been identified at the Facility but may be present in the surrounding area (U.S. Fish and Wildlife Service 2021):

- Insects: Monarch Butterfly – *Danaus plexippus* (Candidate).

2.3 HISTORY OF PFAS USE

Three potential PFAS release areas (Old Hangar, New Hangar, and Hazardous Waste Storage Shed) were identified at the Facility during the PA. Interviews and records obtained during the PA indicate that a release of an unknown amount of PFAS-containing aqueous film forming foam (AFFF) occurred in 2017 within the boiler room and into the Old Hangar. According to

interviews, no fire training areas were ever present at the Facility; however, PFAS-containing materials were stored on the property, and it is possible that unknown or undocumented releases have occurred at the Rochester AASF #2 (AECOM 2020). A description of each feature within the AOI and the potential release scenarios is presented in **Section 3**.

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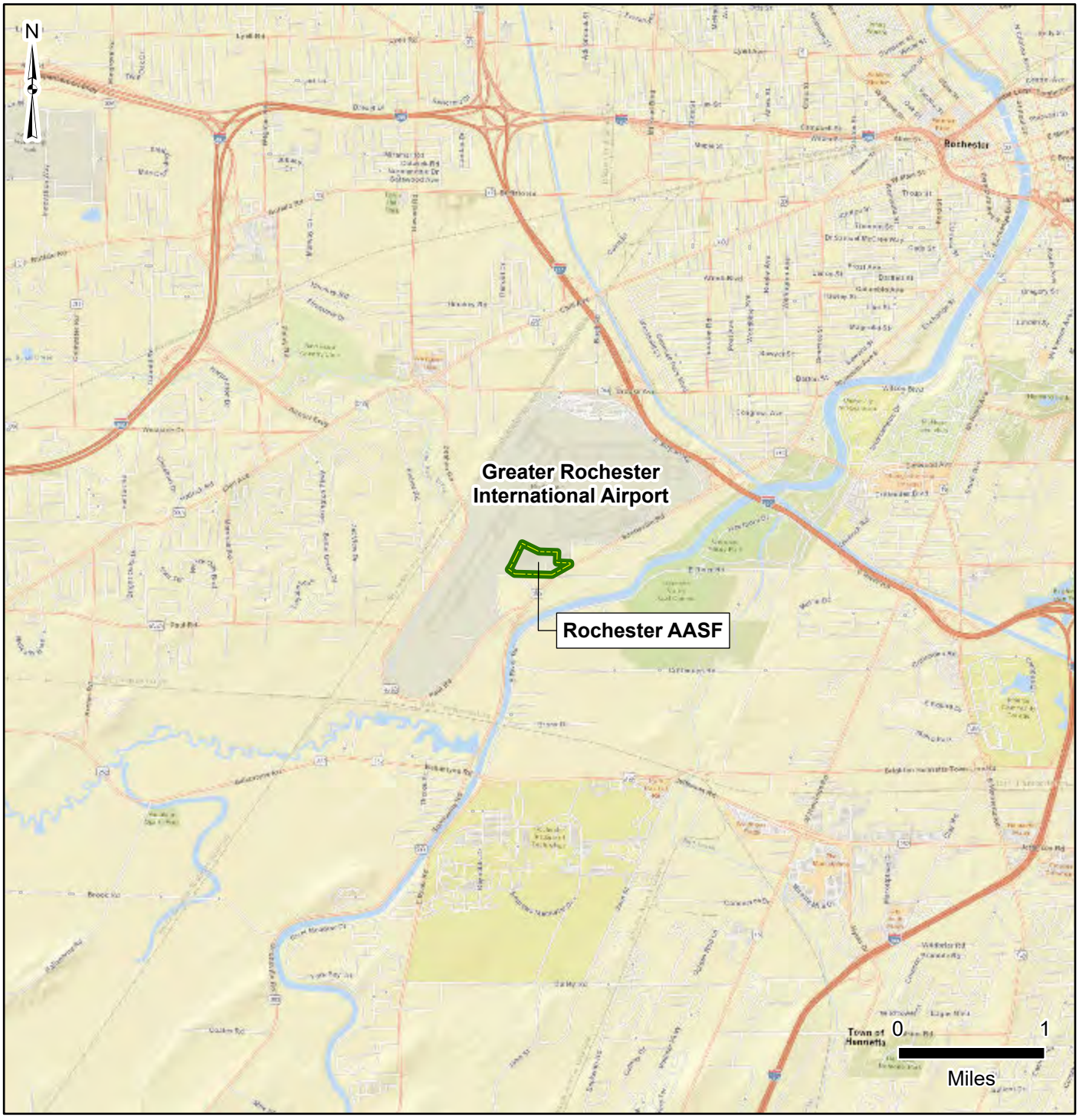
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 2-1
Facility Location



Facility Data

Facility Boundary

Data Sources:
ESRI 2020
AECOM 2020

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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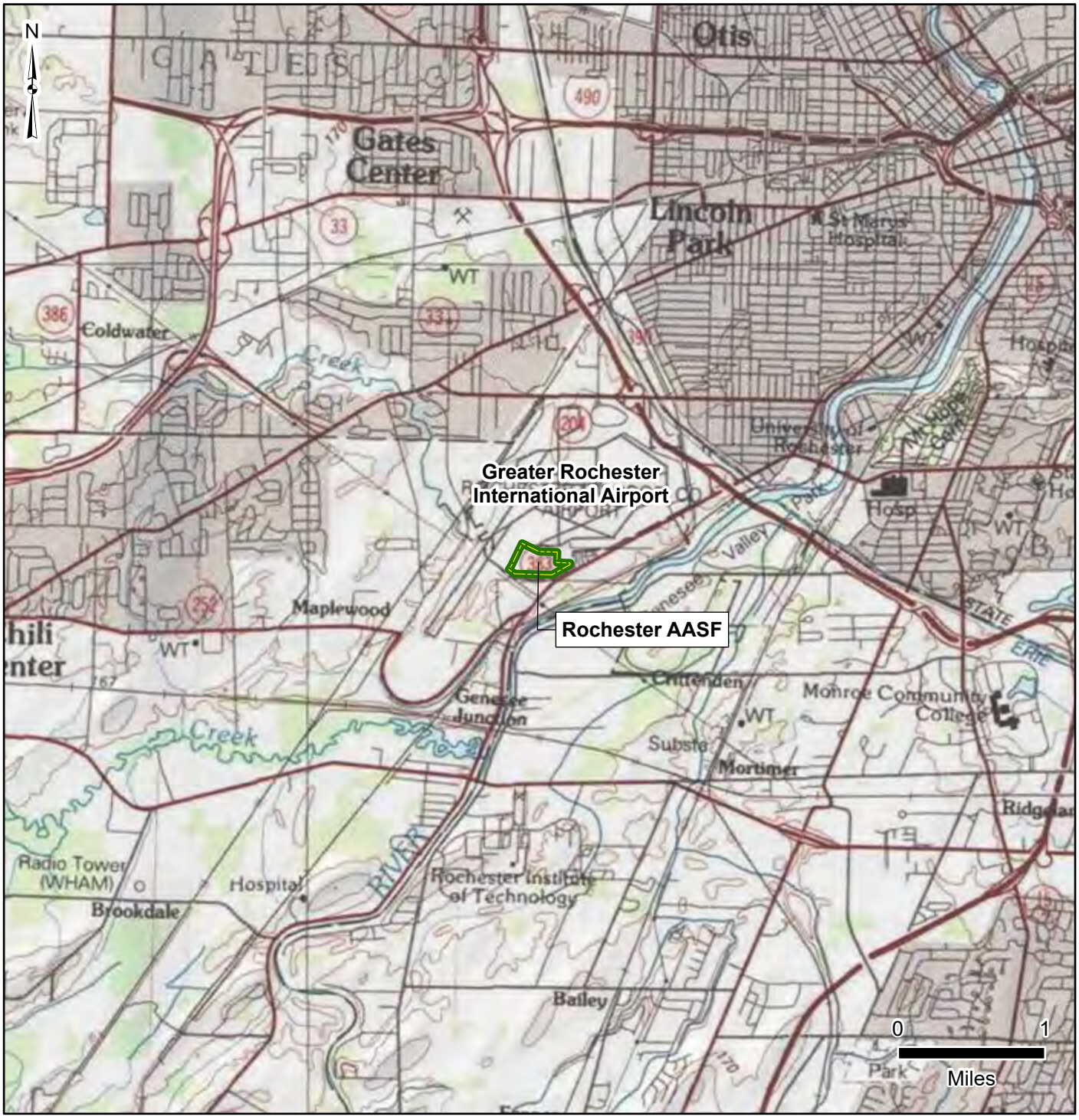
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 2-2
Facility Topography



Facility Data

Facility Boundary

Data Sources:
ESRI 2020
AECOM 2020

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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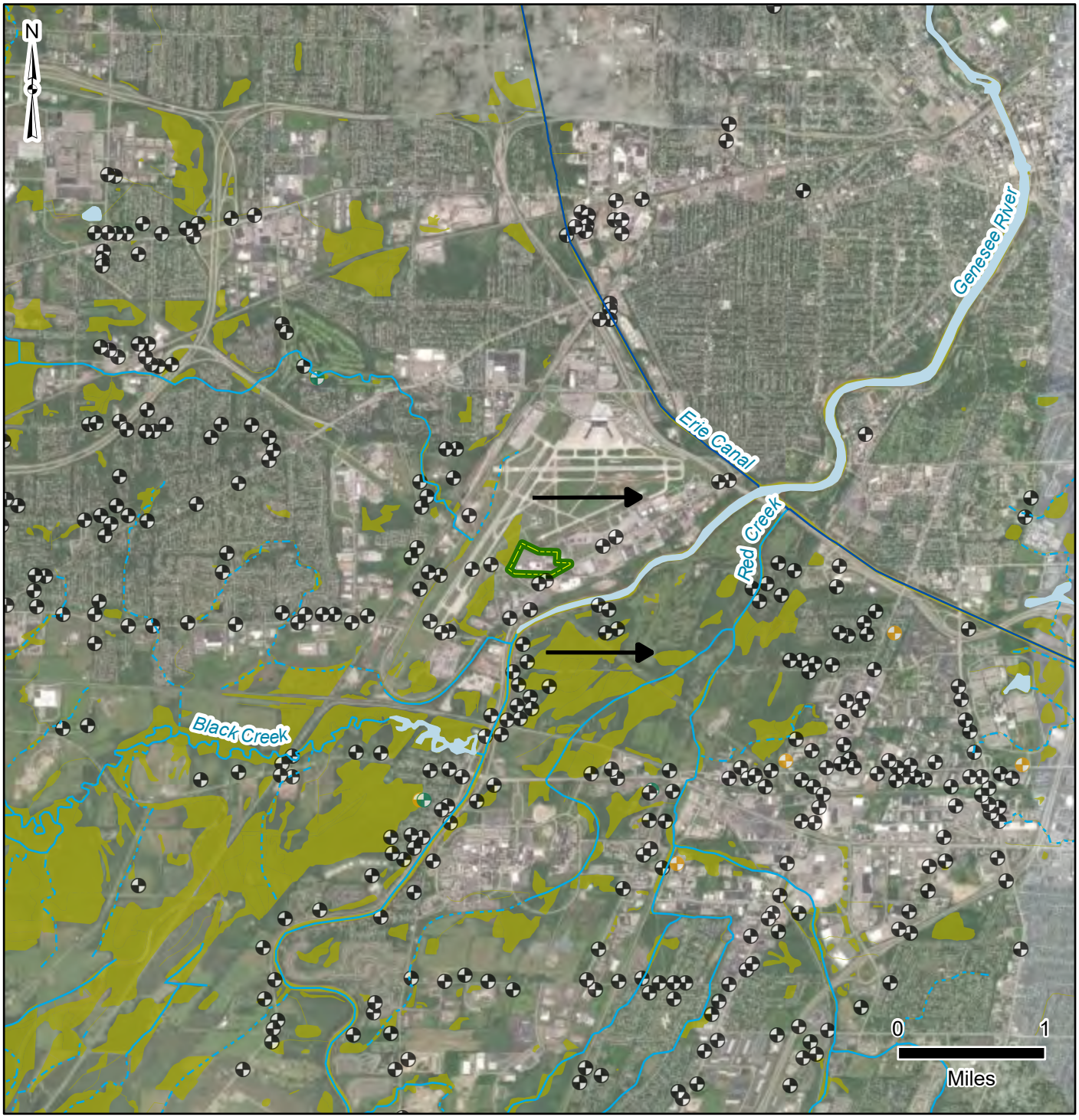
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 2-3
Groundwater Features



Facility Data
- Facility Boundary

Well Type
- Potable
- Potential Private Well
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Perennial Creek/Stream
- Intermittent Creek/Stream
- Canal/Ditch
- Waterbody
- Wetlands

Data Sources:
ESRI 2020
AECOM 2020

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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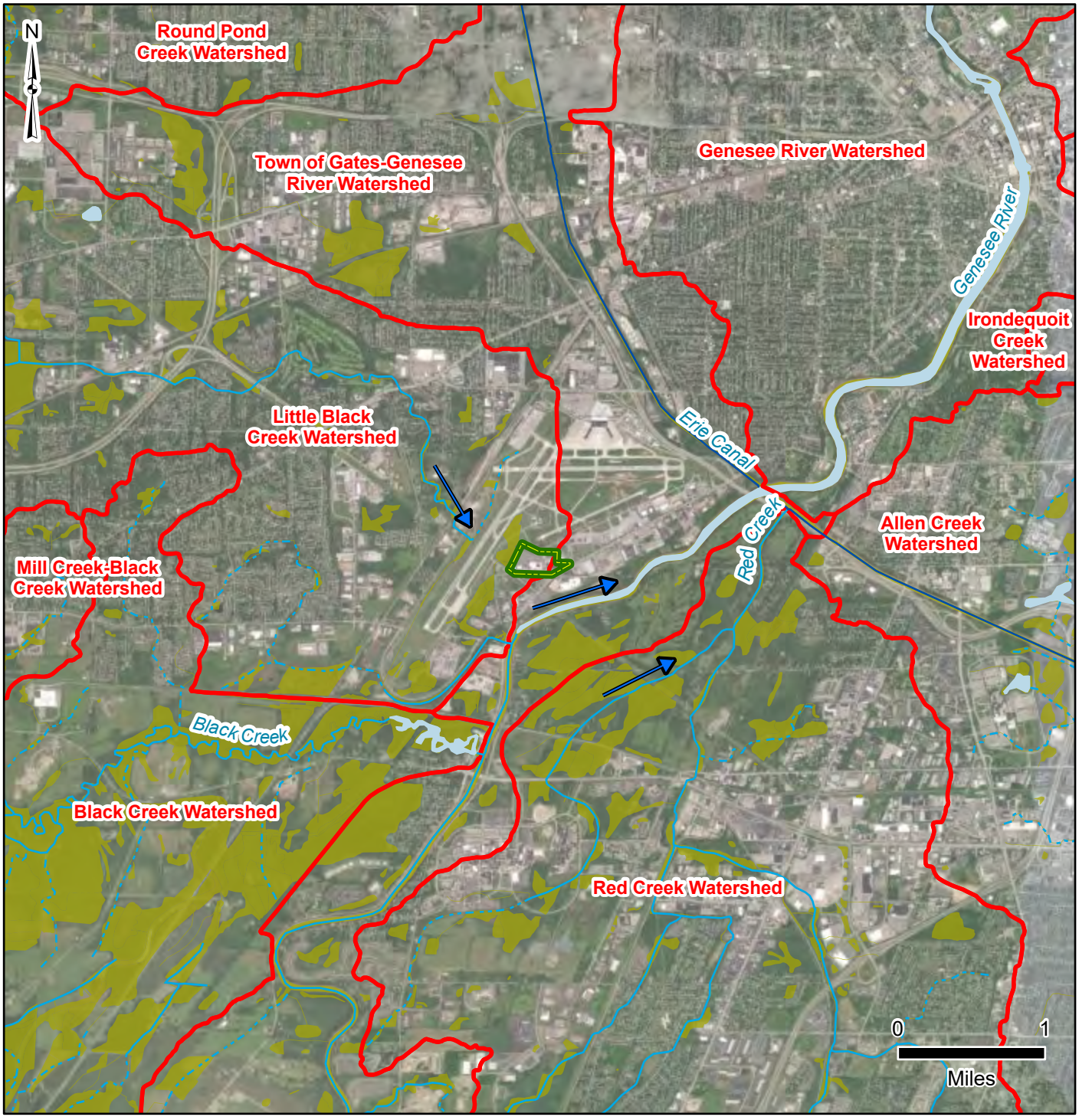
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 2-4
Surface Water Features



Facility Data
- Facility Boundary

Hydrology
- Surface Water Flow Direction
- Perennial Creek/Stream
- Intermittent Creek/Stream
- Canal/Ditch
- Waterbody
- Wetlands
- Watersheds

Data Sources:
ESRI 2020
AECOM 2020

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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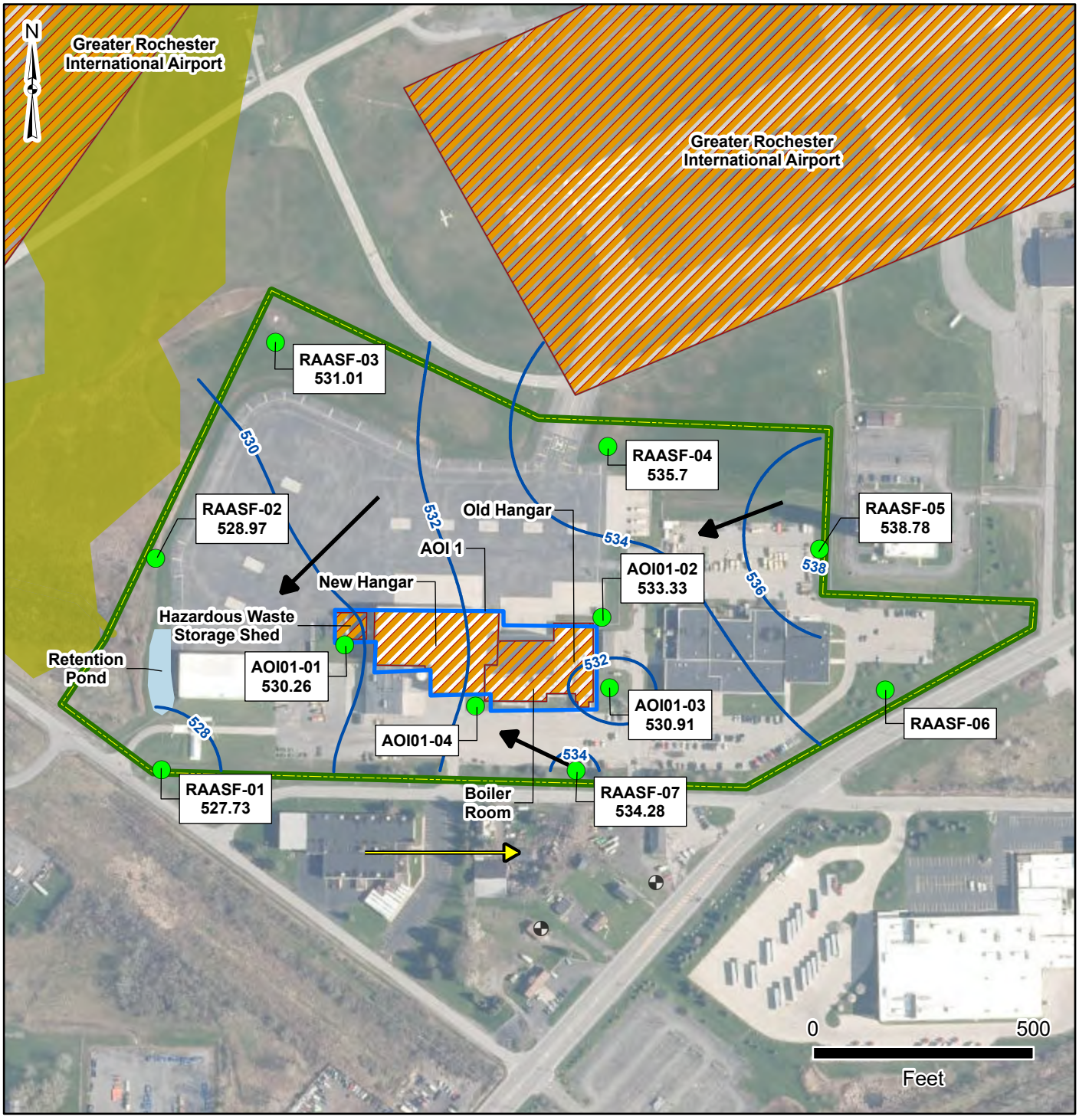
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 2-5
Groundwater Elevations, March 2022



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

*Depths in call out boxes expressed as feet above mean sea level

Sample Locations
- DPT

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Local Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Groundwater Elevation Contour Interval (2 foot)
- Waterbody
- Wetlands

Data Sources:
ESRI 2020
AECOM 2020

Date:..... September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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3. SUMMARY OF AREAS OF INTEREST

The PA evaluated areas where PFAS-containing materials may have been used, stored, disposed, or released historically. Based on the PA findings, three potential release areas were identified at Rochester AASF #2 and grouped into one AOI (AOI 1): Old Hangar, New Hangar, and Hazardous Waste Storage Shed. Additionally, there are off-Facility potential source areas as detailed in **Section 3.2**. The potential source areas are shown on **Figure 3-1** and described in subsequent sections.

3.1 AOI 1 – OLD HANGAR, NEW HANGAR, AND HAZARDOUS WASTE STORAGE SHED

AOI 1 consists of the Rochester AASF #2 Old Hangar, New Hangar, and Hazardous Waste Storage Shed, all of which are located in the south/central portion of the Facility adjacent to one another. Each of these areas is described below and shown on **Figure 3-1**.

3.1.1 AOI 1 – Old Hangar

The Old Hangar is located in the southeastern portion of the Greater Rochester International Airport and was built in 1991, in a roughly 32,600 square ft area; it is still active at the time of reporting. The Old Hangar has a boiler room on the eastern side containing two 500-gal 3% AFFF storage tanks connected to a deluge system. This system was previously reported to drain to a 25,000-gal aboveground storage tank (AST). Records research conducted by ARNG following SI field activities verified that the Old Hangar drains to a 25,000-gal underground storage tank (UST) located on the north side of the hangar. The AST previously reported is the water supply for the hangar deluge systems. While no initial test of the deluge system after its installation was reported, it has been common practice at the other AASF locations in the State of New York. There are also three 36-gal 3% AFFF manual tank units set up within the Old Hangar that are reported to have never had releases (AECOM 2020).

A 2018 September Record of Release notes a release of AFFF and water that occurred on 20 June 2017. The bladders on the two 500-gal 3% AFFF storage tanks in the boiler room malfunctioned, causing a release in the boiler room that flowed into the Old Hangar. Interviews with Rochester AASF #2 staff said it is unclear as to how much AFFF was released from the tanks. Interviews and documented reports state the spill was contained by the deluge system, and AFFF went into the drains and was completely contained by the 25,000-gal UST. Due to general hydraulics, the floor drains have a system (pump room) that pumps floor drainage into the UST. A retrofitting event occurred shortly after, during which, the 500-gal AFFF storage tanks were refilled with 3% AFFF. The 25,000-gal UST was later emptied and disposed of by a contractor without incident (AECOM 2020).

3.1.2 AOI 1 – New Hangar

A New Hangar was established in 2008. The 2020 PA reported that the New Hangar has a fire pump room containing one 300-gal 1.5% AFFF storage tank connected to a deluge system. Site visit and records research conducted by ARNG following SI field activities verified that the New Hangar's deluge system is equipped with a 300-gal 1.5% high expansion foam (HEF) tank, not

AFFF. Additionally, the system was verified to drain to a 35,000-gal UST[3] located to the northwest of the hangar. The AST previously reported is the water supply for the hangar deluge systems. A storage room contains seven 5-gal buckets of 3% AFFF left over from the 2017 retrofitting event. Two 36-gal 3% AFFF manual tank units are also set up within the New Hangar. Similar to the Old Hangar, no initial deluge system test was reported to have been conducted when the New Hangar was constructed. Testing of the hangar deluge system occurs annually but bypasses the HEF storage tank, using only water to conduct the tests. There have been no documented reports of AFFF releases at the New Hangar since its installation in 2008; however, due to the storage of AFFF, this location is considered a potential PFAS release area (AECOM 2020).

3.1.3 AOI 1 – Hazardous Waste Storage Shed

The Hazardous Waste Storage Shed is located approximately 300 ft to the west of the New Hangar. One 55-gal drum of 3% AFFF was found inside the Hazardous Waste Storage Shed. This drum is part of the extra material from the 2007 retrofitting event. There is no evidence to suggest any spills, leaks, or releases have occurred inside the storage shed; however, due to the storage of AFFF within the Hazardous Waste Storage Shed, this location is considered potential PFAS-release area (AECOM 2020).

3.2 ADJACENT SOURCES

Four potential off-Facility sources of PFAS are located adjacent to the Facility and are not under the control of the NYARNG. The adjacent potential sources are shown on **Figure 3-1** and described in the following sections for informational purposes only and will not be investigated as part of this SI.

3.2.1 Greater Rochester International Airport

The first development at what is now the Greater Rochester International Airport occurred in 1927 with the construction of a hangar and aviation field, formerly known as Britton Field. Over the years, operations at the airport have included passenger flights, cadet flight school, and civilian pilot training. Monroe County took over airport property ownership in 1948. Operations within private hangars located at the Greater Rochester International Airport include aircraft maintenance, air cargo handling, ground service equipment maintenance, private aircraft rentals, and a flight school. The Rochester AASF #2 is located on the southern side of the airport property (**Figure 3-1**). Although information was not available during the PA interviews regarding AFFF usage or storage at the airport, there could have been potential use of AFFF in association with typical airport operations at the airport terminal, along the flight lines, or within the associated hangars. Additionally, as it is unknown whether there are fire suppression systems in any of the private hangars, or if AFFF has been used for training or as a fire suppressant at any time, these hangars have been included as potential adjacent sources at the airport. Therefore, the Greater Rochester International Airport is considered a potential adjacent off-facility source of PFAS (AECOM 2020). The Greater Rochester International Airport is located upgradient, cross-gradient, and downgradient to the Facility.

[3] The old and new hangar systems each drain to separate USTs.

3.2.2 Greater Rochester International Airport Fire Department

The greater Rochester International Airport Fire Department is located less than 0.25 miles north of Rochester AASF #2 in a central area between the airport's three runways (**Figure 3-1**). Although information was not available during the PA interviews regarding AFFF usage or storage, according to current Federal Aviation Administration regulations (at the time of reporting), AFFF is required to be stored and used for any potential firefighting activities and firefighting training since commercial aviation activities occur at the airport. Therefore, the Greater Rochester International Airport Fire Department is considered a potential adjacent off-facility source of PFAS (AECOM 2020). The Greater Rochester International Airport Fire Department is located upgradient/cross-gradient to the Facility.

3.2.3 Gates Fire District

The closest local fire department, Gate Fire District, is located 1.5 miles northwest of Rochester AASF #2. This fire department would respond to emergencies at Rochester AASF #2. Information was not available during the PA interviews regarding AFFF usage or storage at this location. Because the presence or absence of AFFF cannot be confirmed, the Gates Fire District is considered a potential adjacent off-facility source of PFAS (AECOM 2020). The Gates Fire District is located cross-gradient to the Facility.

3.2.4 Rochester Fire Academy

The Rochester Fire Academy is located approximately 1-mile east northeast of Rochester AASF #2. Since 1954, the Rochester Fire Academy has been owned and operated by the City of Rochester as a training facility for the fire and police departments. During the period of 1954 to 1980, various chemicals from local hazardous waste generators were burned and/or disposed of during training exercises. It is unknown whether or not AFFF were used at the academy. Because the presence or absence of AFFF cannot be confirmed, the Rochester Fire Academy is considered a potential adjacent off-facility source of PFAS (AECOM 2020). The Rochester Fire Academy is located cross-gradient from the Facility.

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Army National Guard Site Inspections
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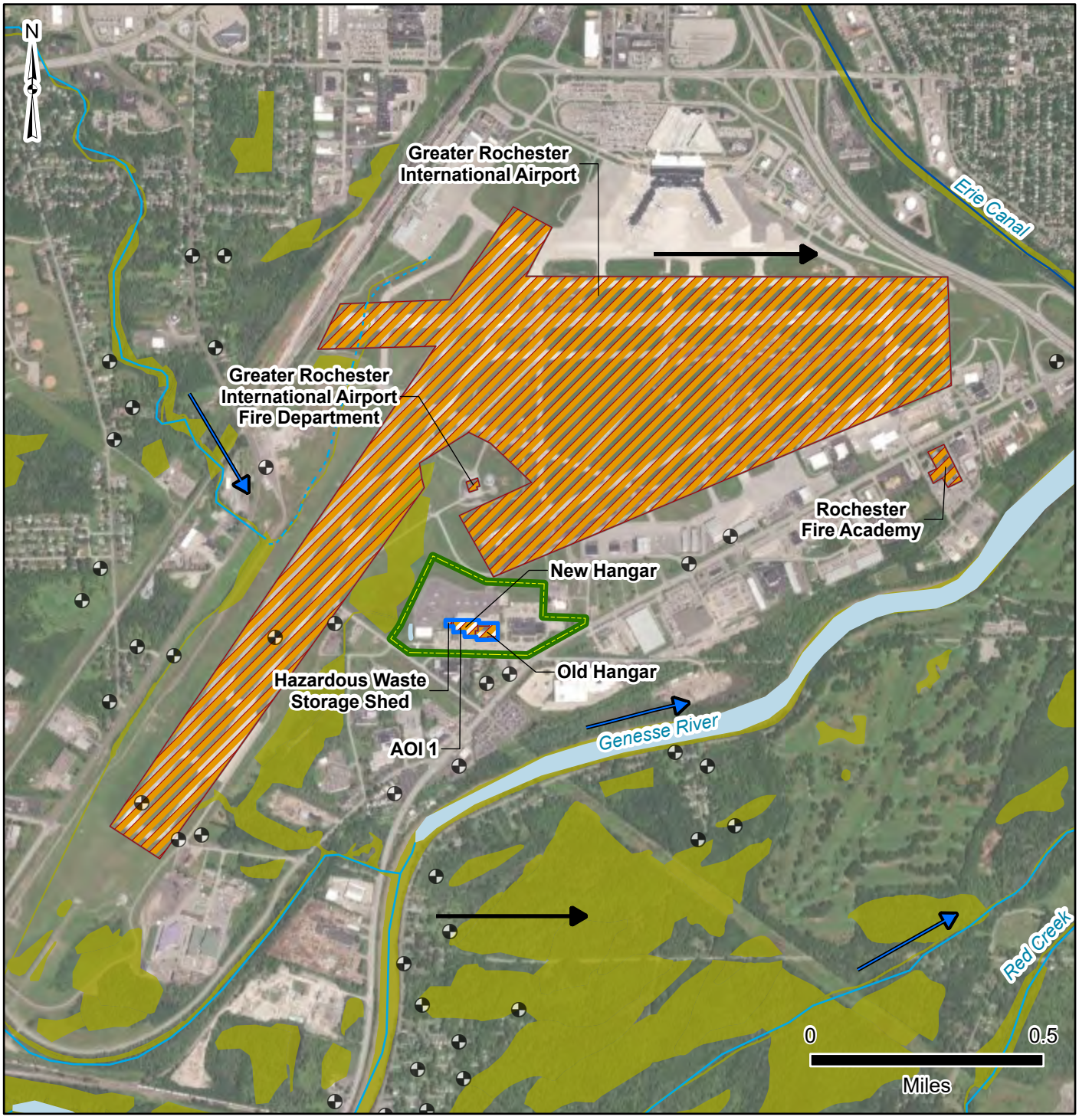
Figure 3-1
Areas of Interest



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well
- Potable
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Surface Water Flow Direction
- Groundwater Flow Direction
- Perennial Creek/Stream
- Intermittent Creek/Stream
- Canal/Ditch
- Waterbody
- Wetlands

Data Sources:
ESRI 2020
AECOM 2020

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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4. PROJECT DATA QUALITY OBJECTIVES

As identified during the data quality objective (DQO) process and outlined in the SI Uniform Federal Policy- (UFP) Quality Assurance Project Plan (QAPP) Addendum (EA Engineering, Science, and Technology, Inc., PBC [EA] 2021a), the objective of the SI is to identify whether there has been a release to the environment at the AOI identified in the PA. For the AOI, ARNG determines if further investigation is warranted, a removal action is required to address immediate threats, or whether no further action is warranted. This SI evaluated groundwater and soil for presence or absence of relevant compounds at the AOI.

4.1 PROBLEM STATEMENT

ARNG will recommend AOIs for remedial investigation (RI) if site-related soil and groundwater samples have concentrations of the relevant compounds above the OSD risk-based screening levels. The SLs are presented in **Section 6.1** of this report.

4.2 INFORMATION INPUTS

Primary information inputs for the SI include the following:

- The PA Report for the Rochester AASF #2 (AECOM 2020)
- Groundwater and soil sample data collected as part of this SI in accordance with the site-specific UFP-QAPP Addendum (EA 2021a)
- Field data collected including groundwater elevation and water quality parameters measured at the time of sampling.

4.3 STUDY BOUNDARIES

The scope of the SI was bounded horizontally by the property limits of the Facility (**Figure 2-2**). Off-Facility sampling was not included in the scope of this SI. If future off-Facility sampling is required, the proper stakeholders will be notified, and necessary rights-of-entry will be obtained by ARNG with property owner(s). The vertical boundaries of the subsurface investigation was based on the depth of target samples and advancement to achieve temporary well construction. The maximum depth of investigation was 20 ft below grade. Temporal boundaries were limited to the earliest available time field resources were available to complete the study.

4.4 ANALYTICAL APPROACH

Samples were analyzed by Eurofins Lancaster Laboratories Environmental LLC, accredited for PFAS analysis and is compliant with Table B-15 of the DoD QSM. PFAS data underwent 100% Stage 2B validation in accordance with the DoD General Data Validation Guidelines (2019a) and DoD Data Validation Guidelines Module 3: Data Validation Procedure of Per- and Polyfluoroalkyl Substances Analysis by Quality Systems Manual (QSM) Table B-15 (2020).

Data were compared to applicable SLs and decision rules as defined in the UFP-QAPP Addendum (EA 2021a).

4.5 DATA USABILITY SUMMARY

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

Based on the DUA, the environmental data collected during the SI were found to be acceptable and usable for this SI evaluation with the qualifications documented in the DUA and its associated data validation reports. These data are of sufficient quality to meet the objectives and requirements of the UFP-QAPP Addendum (EA 2021a).

5. SITE INSPECTION ACTIVITES

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

- *Final Preliminary Assessment Report, Rochester Army Aviation Support Facility #2, New York,* dated July 2020 (AECOM 2020)

- *Final Programmatic Uniform Federal Policy-Quality Assurance Project Plan, Site Inspections for Per- and Polyfluoroalkyl Substances Impacted Sites, ARNG Installations, Nationwide*, dated December 2020 (EA 2020a)

- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Rochester Army Aviation Support Facility #2, New York* dated October 2021 (EA 2021a)

- *Programmatic Accident Prevention Plan, Revision 1*, dated November 2020 (EA 2020b)

- *Final Accident Prevention Plan Site Safety and Health Plan, Rochester Army Aviation Support Facility #2, New York, Revision 1* dated October 2021 (EA 2021b).

The SI field activities were conducted from 21 to 25 March 2022 and consisted of direct-push technology (DPT) boring and soil sample collection, temporary monitoring well installation, and grab groundwater sample collection. Field activities were conducted in accordance with the UFP-QAPP Addendum (EA 2021a), except as noted in **Section 5.10**.

The following samples were collected during the SI and analyzed for a subset of 24 compounds via liquid chromatography tandem mass spectrometry (LC/MS/MS) compliant with QSM Version 5.3 Table B-15 to fulfill the project DQOs:

- Thirty-two (32) soil samples from 11 locations (soil borings locations)
- Eleven (11) grab groundwater samples from 11 temporary well locations
- Seventeen (17) various quality assurance/quality control samples.

Figure 5-1 provides the sample locations for all media across the Facility. **Table 5-1** presents the list of samples collected for each medium. Field documentation is provided in **Appendix B**. A log of Daily Notice of Field Activity was completed throughout the SI field activities, which is provided in **Appendix B1**. Additionally, a photographic log of field activities is provided in **Appendix C**.

5.1 PRE-INVESTIGATION ACTIVITIES

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

5.1.1 Technical Project Planning

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

A combined TPP Meeting 1 and 2 was held on 11 August 2021, prior to SI field activities. The combined TPP Meeting 1 and 2 was conducted in general accordance with EM 200-1-2. The stakeholders for this SI include the ARNG, NYARNG, USACE, NYSDEC, and New York State Department of Health (NYSDOH) representatives familiar with the facility, the regulations, and the community. Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the UFP-QAPP Addendum (EA 2021a).

A TPP Meeting 3 was held after the field event to discuss the results of the SI. Meeting minutes for TPP 3 are included in **Appendix D** of this report. Future TPP meetings will provide an opportunity to discuss the results and findings, and future actions, where warranted.

5.1.2 Utility Clearance

EA contacted the New York One-call 811 to notify them of intrusive work at the Facility. EA contracted Ravi Engineering and Land Surveying, P.C., a private utility location service, to perform utility clearance at the Facility. Utility clearance was performed at each of the proposed boring locations on 17 March 2022 with input from the EA field team and NYARNG facilities staff knowledgeable of on-Facility utilities. A combination of electromagnetic, radio frequency, and ground-penetrating radar scanning technologies were utilized to detect the existence and approximate horizontal location of subsurface utilities. Additionally, the first 5 ft of each boring were pre-cleared by EA's drilling subcontractor, Cascade Remediation Services, using a hand auger to verify utility clearance in shallow subsurface where utilities would typically be encountered.

5.1.3 Source Water and PFAS sampling Equipment Acceptability

A sample from a deionized water source at the EA Ecotoxicological Laboratory was collected on 31 March 2021, prior to mobilization. Results of the sample confirmed this source to be acceptable for use in this investigation; therefore, it was used throughout the field activities. Specifically, the samples were analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15. A discussion of the results is presented in the DUA (Appendix A).

Materials that were used within the sampling zone were confirmed as acceptable for use in the PFAS sampling environment. The checklist of acceptable materials for use in the PFAS sampling environment was provided in the Standard Operating Procedures appendix (Appendix A) to the Programmatic UFP-QAPP (EA 2020a).

5.2 SOIL BORINGS AND SOIL SAMPLING

Beyond 5 ft depth, soil samples were collected via DPT drilling methods in accordance with SOP 047 *Direct-Push Technology Sampling* (EA 2021a). A Geoprobe® 7822DT dual-tube sampling system was used to collect continuous soil cores to the target depth. A hand auger was used to collect soil from the top five feet of the boring, in accordance with EA utility clearance procedures. Drilling/soil sampling was initiated on 21 March 2022 and completed on 24 March 2022.

Three discrete soil samples were planned to be collected for chemical analysis from each soil boring; one sample at the surface (0 to 2 ft bgs) and two subsurface soil samples. One subsurface soil sample was to be collected approximately 1 ft above the groundwater table and one was to be collected at the mid-point between the surface and the groundwater table (not to exceed 15 ft bgs). Groundwater was encountered at depths ranging from 6 to 13 ft bgs during drilling based on soil saturation, though the fine-grained material made it difficult to determine the water table from the soil cores. Total boring completion depths to accommodate temporary well installation ranged from 10 to 20 ft bgs. One surface soil sample (0 to 2 ft bgs) was collected at each boring location, along with at least one subsurface sample, based on depths of observed groundwater. Borings RAASF-02 and RAASF-05 had only one subsurface sample collected.

All soil sample locations are shown on **Figure 5-1**, and boring sample depths are provided in **Table 5-1**. The soil boring locations were selected based on the AOI information provided in the PA (AECOM 2020) and as agreed upon by stakeholders during the TPP and review of the UFP-QAPP Addendum (EA 2021a).

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

The hand auger, post-hole digger, throw bar (where applicable), and cutting shoe were decontaminated between locations using a six-step, PFAS-free decontamination procedure with Liquinox, PFAS-free deionization water, and methyl alcohol (methanol). The drill casing was also rinsed with PFAS-free deionization water between locations, though the casing did not come in contact with soil samples due to the use of the acetate core liner.
Each sample was collected into a laboratory-supplied PFAS-free high-density polyethylene (HDPE) bottle and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via Federal Express (FedEx) under standard chain-of-custody procedures to the laboratory and analyzed for PFAS (LC/MS/MS compliant with QSM Version 5.3 Table B-15),

total organic carbon (TOC) (USEPA Method 9060A), pH (USEPA Method 9045D), and grain size (ASTM D422) in accordance with the UFP-QAPP Addendum (EA 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. Matrix spike (MS)/matrix spike duplicates (MSDs) were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. In instances when non-dedicated sampling equipment was used, such as a hand auger for the shallow soil samples, equipment blanks (EBs) were collected at a rate of 5% and analyzed for the same parameters as the soil samples. A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6 degrees Celsius (°C) during shipment.

DPT borings were converted to temporary wells, which were subsequently abandoned after sampling and surveying in accordance with the UFP-QAPP Addendum (EA 2021a). After removal of the casings, boreholes were abandoned using bentonite chips. Borings were installed in grass areas to avoid disturbing concrete or asphalt surfaces.

5.3 TEMPORARY WELL INSTALLATION AND GROUNDWATER GRAB SAMPLING

Temporary wells were installed using the DPT system as described in **Section 5.3**. Once the borehole was advanced to the desired depth, a temporary well was constructed of a 5-ft section of 1-in. Schedule 40 poly-vinyl chloride (PVC) screen with sufficient casing to reach the ground surface. New PVC pipe and screen were used at each location to avoid cross contamination between locations. The screen intervals for the temporary wells are provided in **Table 5-2**.

Purging and sampling of wells was completed in accordance with the SI QAPP Addendum (EA 2021a). Samples were collected via low-flow sampling methods using a combination of peristaltic and bladder pumps with disposable PFAS-free, HDPE tubing. New tubing was used at each well and the pumps were decontaminated between each well. The wells were purged at a rate determined in the field to reduce draw down prior to sampling. Water quality parameters (e.g., temperature, specific conductance, pH, DO, and ORP) were measured using a water quality meter and recorded on the field sampling form (**Appendix B2**). Water levels were measured to the nearest 0.01 inch and recorded. Additionally, a subsample of each groundwater sample was collected in a separate container and a shaker test was completed to identify if there was any foaming. No foaming was noted in any of the groundwater samples.

Samples were packaged on ice and transported via FedEx under standard chain-of-custody procedures to the laboratory and analyzed for PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 in accordance with the UFP-QAPP Addendum (EA 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. One field reagent blank was collected per day in accordance with the UFP-QAPP Addendum (EA 2021a). A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6°C during shipment.

Temporary wells were abandoned in accordance with the UFP-QAPP Addendum (EA 2021a) by removing the PVC and backfilling the hole with bentonite chips, drill cuttings from that boring, and clean sand. Surfaces were completed with clean sand to match the surrounding material.

5.4 SYNOPTIC WATER LEVEL MEASUREMENTS

Groundwater levels were used to monitor Facility-wide groundwater elevations and assess groundwater flow. Synoptic water level elevation measurements were collected from the newly installed temporary monitoring wells, taken from the survey mark on the northern side of the well casing. Groundwater elevation data is provided in **Table 5-3**, and the resulting groundwater contours are depicted on **Figure 2-5**.

5.5 SURVEYING

The northern side of each well casing was surveyed by EA's subcontractor Ravi Engineering on 25 March 2022, prior to well abandonment. Horizontal locations of each temporary well location were collected utilizing global positioning system (GPS) techniques. Topcon HiPer V GPS Network receivers were used in this collection. Satisfactory checks were made to on-Facility survey control before continuing to locate sample points. Vertical locations of the northern side of each temporary monitoring well was collected utilizing differential leveling techniques. A Topcon DL-103 digital level was used for this collection. A closed level loop was performed to ensure the desired accuracy standard was met. Survey data was collected in the applicable Universal Transverse Mercator zone projection with World Geodetic System 1984 datum (horizontal) and North American Vertical Datum 1988 (vertical). Results of the survey are provided in **Appendix B3** and utilized in the figures associated with this report.

5.6 DUST MONITORING

In accordance with the UFP-QAPP Addendum (EA 2021a), a Community Air Monitoring Plan (CAMP) was instituted during ground disturbing activities at the Facility. The CAMP was performed in general accordance with the NYSDOH Generic CAMP, Attachment 1A of the NYSDEC Division of Environmental Remediation-10 Technical Guidance for Site Investigation and Remediation. A TSI 8530 Dust Trak II was used to monitor particulate levels continuously downwind of the drill rig when operating. Readings were recorded for reference approximately every 30 minutes during drill rig operation and are included in **Appendix B2**. A background (upwind) ambient reading was also collected at least daily. All recorded dust concentrations were well below the 100 milligrams per cubic meter threshold in the CAMP for instituting dust suppression techniques. No visible dust was observed during the DPT drilling.

5.7 INVESTIGATION-DERIVED WASTE

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

Soil IDW (i.e., soil cuttings) generated during SI activities was left in place at the point of the source and distributed on the downgradient side of the borehole. Liquid IDW (i.e., purge water, development water, and decontamination fluids) generated during the SI activities was containerized in one 55-gal drums and secured on-Facility.

Other solids such as spent personal protective equipment, plastic sheeting, tubing, rope, unused monitoring well construction materials, and other consumables generated during the field activities were disposed of at a licensed solid waste landfill.

5.8 LABORATORY ANALYTICAL METHODS

Samples were analyzed PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 at Eurofins Lancaster Laboratories Environmental LLC, in Lancaster, Pennsylvania, a DoD ELAP- and NELAP-certified laboratory.

One soil sample per AOI from a location in the source area were also analyzed for TOC using USEPA Method 9060A and pH by USEPA Method 9045D. Additionally, one soil sample, AOI01-03-SB-3-5, was submitted for grain size analysis (ASTM D-422) (i.e., clay content). The grain size analysis was performed where extensive horizontal and vertical clay units were identified by the field geologist.

5.9 DEVIATIONS FROM UFP-QAPP ADDENDUM

Deviations from the UFP-QAPP Addendum occurred based on conditions encountered during the field investigation activities. These deviations were discussed between EA, ARNG, USACE, and NYARNG. Two deviations from the UFP-QAPP Addendum are noted below and were submitted to stakeholders on a field change request form (**Appendix B4)**:

- Sand was added around the temporary slotted screen of well AOI01-02. An attempt was made to sample water at temporary well AOI01-02; however, it was not successful due to an abundance of fines migrating through the screen, resulting in a slurry-like sample. Sand was added to the boring around the slotted screen to act as a sand pack and the well was resampled successfully on 24 March 2022.

- Stiff silt refusal was encountered at the proposed soil boring/temporary monitoring well location AOI01-04 at a depth of 15 ft bgs. As such, per the UFP-QAPP Addendum, two offsets were performed. Based on the small grass area and the presence of several utilities in the vicinity of the boring, offset options were limited to areas approximately 8 ft to the east and west of the original location. At both offsets, refusal was encountered at approximately 15 ft bgs. A well was set in the original boring as some moisture was present. A sample was collected from AOI01-04 the following day.

Additionally, field conditions were such that the water table was both much shallower than expected (estimated at 30–40 ft in the UFP-QAPP) and difficult to estimate from soil observations based on the fine-grained silts and clays encountered, i.e., moist instead of fully saturated soils were indeed indicative of the groundwater table. Due to these challenges,

monitoring wells were generally set at an elevation where the screen was fully submerged below the water table instead of capturing the top of the phreatic surface.

Table 5-1. Samples by Media
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Sample Identification	Sample Collection Date	Sample Depth (ft bgs)	PFAS LC/MS/MS compliant with QSM Version 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method	Grain Size (ASTM D-422)	Comments
Soil Samples							
AOI-01-SB-0-2	3/21/2022	0-2	X				
RAASF-FD-SB-02	3/22/2022		X				Field Duplicate
AOI-01-SB-6-7	3/22/2022	6-7	X				
AOI-01-SB-11-12	3/22/2022	11-12	X				
AOI01-02-SB-0-2	3/22/2022	0-2	X				
RAASF-FD-SB-03	3/22/2022		X				Field Duplicate
AOI01-02-SB-5-6	3/22/2022	5-6	X				
AOI01-02-SB-10-11	3/22/2022	10-11	X				
AOI01-03-SB-0-2	3/23/2022	0-2	X				
AOI01-03-SB-3-4	3/24/2022	3-4	X				
AOI01-03-SB-3-5	3/23/2022	3-5		X	X	X	
AOI01-03-SB-6-7	3/24/2022	6-7	X				
AOI01-04-SB-0-2	3/24/2022	0-2	X				
AOI01-04-SB-4-5	3/24/2022	4-5	X				
AOI01-04-SB-9-10	3/24/2022	9-10	X				
RAASF-01-SB-0-2	3/21/2022	0-2	X				
RAASF-01-SB-5-6	3/21/2022	5-6	X				
RAASF-01-SB-9-10	3/21/2022	9-10	X				
RAASF-02-SB-0-2	3/21/2022	0-2	X				
RAASF-FD-SB-01	3/21/2022		X				Field Duplicate
RAASF-02-SB-2-3	3/21/2022	2-3	X				
RAASF-03-SB-0-2	3/22/2022	0-2	X				MS/MSD
RAASF-03-SB-6-7	3/22/2022	6-7	X				
RAASF-03-SB-11-12	3/22/2022	11-12	X				
RAASF-04-SB-0-2	3/22/2022	0-2	X				
RAASF-04-SB-3-4	3/22/2022	3-4	X				
RAASF-04-SB-5-6	3/22/2022	5-6	X				
RAASF-05-SB-0-2	3/23/2022	0-2	X				MS/MSD
RAASF-05-SB-5-6	3/23/2022	5-6	X				
RAASF-06-SB-0-2	3/23/2022	0-2	X				
RAASF-FD-SB-04	3/23/2022		X				Field Duplicate
RAASF-06-SB-4-5	3/23/2022	4-5	X				
RAASF-06-SB-8-9	3/23/2022	8-9	X				
RAASF-07-SB-0-2	3/23/2022	0-2	X				
RAASF-07-SB-3-4	3/23/2022	3-4	X				

Sample Identification	Sample Collection Date	Sample Depth (ft bgs)	PFAS LC/MS/MS compliant with QSM Version 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method	Grain Size (ASTM D-422)	Comments
RAASF-07-SB-5-6	3/23/2022	5-6	X				
Groundwater Samples							
AOI01-01-GW	3/22/2022	-	X				
AOI01-02-GW	3/24/2022	-	X				
AOI01-03-GW	3/24/2022	-	X				
AOI01-04-GW	3/25/2022	-	X				
RAASF-01-GW	3/21/2022	-	X				Field Duplicate of RAASF-01-GW
RAASF-FD-GW-01	3/21/2022	-	X				
RAASF-02-GW	3/22/2022	-	X				MS/MSD
RAASF-03-GW	3/22/2022	-	X				
RAASF-04-GW	3/23/2022	-	X				
RAASF-05-GW	3/23/2022	-	X				Field Duplicate of RAASF-05-GW
RAASF-FD-GW-02	3/23/2022	-	X				
RAASF-06-GW	3/24/2022	-	X				
RAASF-07-GW	3/24/2022	-	X				
Blank Samples							
RAASF-FB-01	3/21/2022	-	X				Field Blank
RAASF-EB-01	3/21/2022	-	X				EB
RAASF-EB-02	3/21/2022	-	X				EB
RAASF-FB-02	3/22/2022	-	X				Field Blank
RAASF-EB-03	3/22/2022	-	X				EB
RAASF-EB-04	3/22/2022	-	X				EB
RAASF-EB-05	3/23/2022	-	X				EB
RAASF-EB-06	3/23/2022	-	X				EB
RAASF-FB-03	3/23/2022	-	X				Field Blank
RAASF-FB-04	3/24/2022	-	X				Field Blank
RAASF-EB-07	3/24/2022	-	X				EB

Table 5-2. Soil Boring Depths and Temporary Well Screen Intervals
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AOI	Boring ID	Soil Boring Depth (ft bgs)	Temporary Well Screen Interval (ft bgs)
1	AOI-01	20	15-20
	AOI-02	18	13-18
	AOI-03	13	8-13
	AOI-04	15	10-15
AASF Boundary	RAASF-01	20	13-18
	RAASF-02	10	5-10
	RAASF-03	20	15-20
	RAASF-04	13	8-13
	RAASF-05	13	8-13
	RAASF-06	18	13-18
	RAASF-07	18	13-18

Table 5-3. Groundwater Elevation
Rochester Army Aviation Support Facility #2
Site Inspection Report

Monitoring Well ID	Top of Casing Elevation (ft amsl)	Depth to Water (ft btoc)	Groundwater Elevation (ft amsl)
AOI01-01	538.72	8.46	530.26
AOI01-02	541.87	8.54	533.33
AOI01-03	539.55	8.64	530.91
AOI01-04	538.79	14.2	524.59
RAASF-01	533.66	5.93	527.73
RAASF-02	529.72	0.75	528.97
RAASF-03	535.73	4.72	531.01
RAASF-04	541.15	5.45	535.7
RAASF-05	541.68	2.90	538.78
RAASF-06	533.5	8.64	524.86
RAASF-07	541.08	6.80	534.28

Notes:
btoc = Below top of casing
ID = Identification

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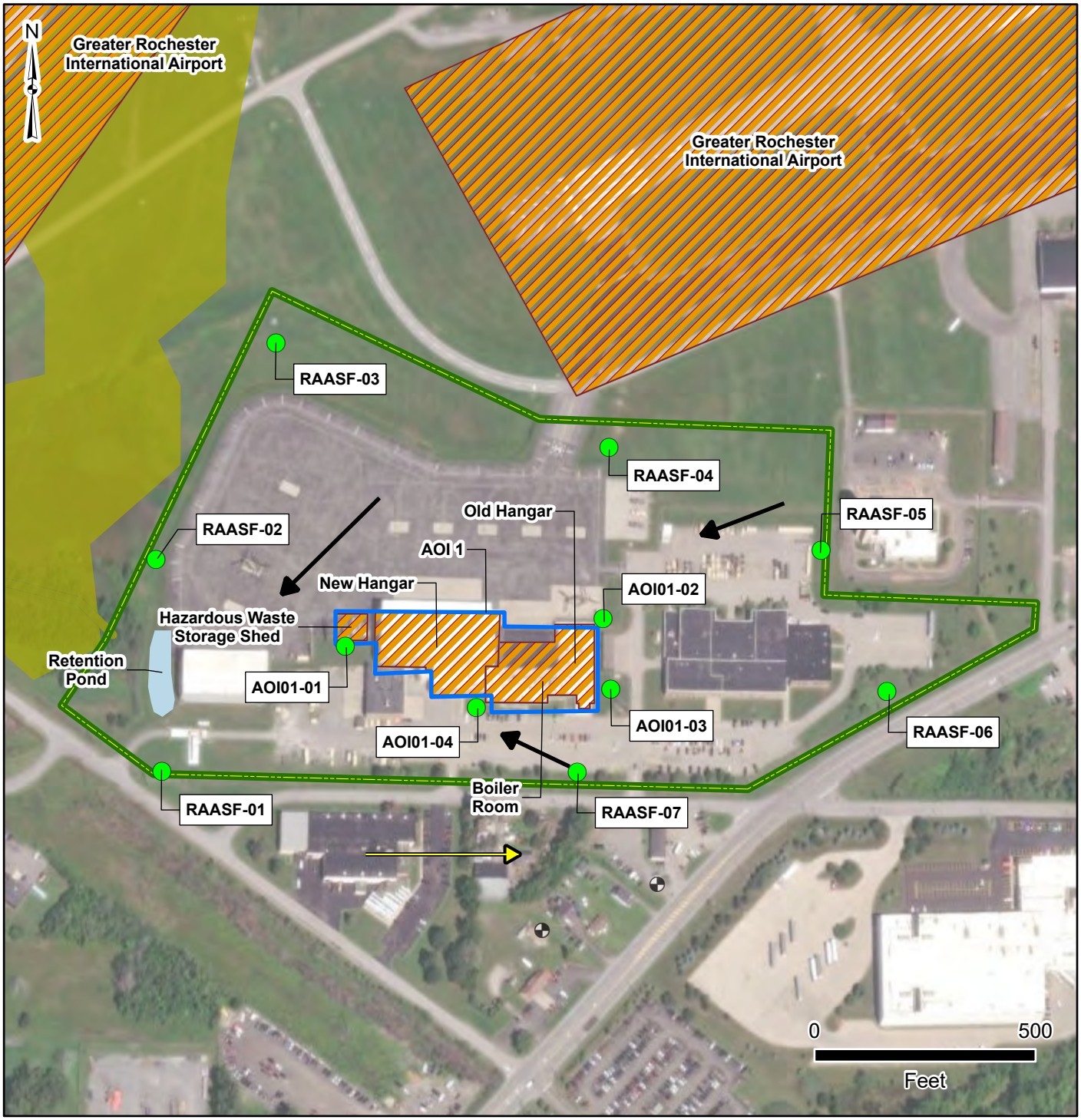
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 5-1
Site Inspection Sample Locations



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Sample Locations
- DPT

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Data Sources:
ESRI 2020
AECOM 2020

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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6. SITE INSPECTION RESULTS

This section presents the analytical results of the SI. The SLs used in this evaluation are presented in **Section 6.1**. A discussion of the results for the AOI and boundary areas is provided in **Sections 6.3** and **6.4**. **Tables 6-2** through **6-5** present PFAS results for the relevant compounds in soil and groundwater. Tables that contain all results are provided in **Appendix F** and the laboratory reports are provided in **Appendix G**.

6.1 SCREENING LEVELS

The DoD has adopted a policy to retain facilities in the CERCLA process based on risk-based SLs for soil and groundwater, as described in a memorandum from the OSD dated XX 6 June July 2022 (Assistant Secretary of Defense, 2022). The ARNG program under which this SI was performed follows this DoD policy. Should the maximum site concentration for sampled media exceed the SLs established in the OSD memorandum, the AOI will proceed to the next phase under CERCLA. The SLs established in the OSD memorandum apply to the five compounds presented on **Table 6-1** below.

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

Analyte[2]	Residential 0 to 2 ft bgs (Soil) (µg/kg)[1]	Industrial/Commercial Composite Worker 2 to 15 ft bgs (Soil) (µg/kg)[1]	Tap Water (Groundwater) (ng/L)[1]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:
1. Assistant Secretary of Defense, 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. SLs for soil are based on incidental ingestion and SLs for ground water are based on direct ingestion. Hazard Quotient (HQ) = 0.1. 6 July 2022.
2. Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the CSM developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of MIL-SPEC AFFF and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

µg/kg = Microgram(s) per kilogram

The data in the subsequent sections are compared against the SLs presented in **Table 6-1**. The SLs for groundwater are based on direct ingestion. The SLs for soil are based on incidental ingestion and are applied to the depth intervals reasonably anticipated to be encountered by the receptors identified at the Facility: the residential scenario is applied to surface soil results (0 to 2 ft bgs) and the industrial/commercial worker scenario is applied to all subsurface soil results (2 to 15 ft bgs).

6.2 SOIL PHYSICOCHEMICAL ANALYSES

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

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

6.3 AOI 1 – OLD HANGAR/NEW HANGAR/HAZARDOUS WASTE STORAGE SHED

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1, which includes the Old Hangar, New Hangar, and Hazardous Waste Storage Shed. The soil and groundwater results are summarized on **Tables 6-2** through **6-5**. Soil and groundwater results are presented on **Figures 6-1** through **6-7**.

6.3.1 AOI 1 – Soil Analytical Results

Tables 6-2 through **6-4** summarize the detected compounds in soil. **Figures 6-1** through **6-5** present the ranges of detections in soil.

Soil was sampled at four boring locations associated with the potential release areas within AOI 1. Soil was sampled from three depth intervals at four locations (AOI01-01, AOI01-02, AOI01-03, and AOI01-04). PFOA, PFOS, PFNA, and PFHxS were detected in surface soil at AOI 1 during the SI but did not exceed the applicable residential or industrial/commercial SLs. The maximum concentrations detected for each compound were 0.63 J, 1.4, 0.31 J, and 0.24 J µg/kg, respectively, below their SLs of 19, 13, 19, and 130 µg/kg, respectively. The detections were found in surface soil samples from AOI01-02 (and its duplicate) and AOI01-04. There were no detections of PFOA, PFOS, PFNA, and PFHxS in shallow or deep subsurface soils. PFBS was not detected at any locations.

6.3.2 AOI 1 – Groundwater Analytical Results

Figure 6-6 and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-5** summarizes the groundwater results.

Groundwater samples were collected from four temporary wells associated with the potential release area AOI 1. All five relevant compounds (PFOA, PFOS, PFBS, PFHxS, and PFNA) were

detected in groundwater at AOI 1. Each temporary wells had at least one compound detected. PFOA was the only compound where the detected concentration exceeded the SL. Temporary monitoring well AOI01-03 had a PFOA detection of 8.1 ng/L which exceeded the associated SL of 6 ng/L; PFOA was detected at each of the other AOI 1 temporary wells at concentrations ranging from 0.63 J to 1.3 J ng/L. The remaining four relevant compounds (PFOS, PFBS, PFHxS, and PFNA) were detected in AOI 1 at maximum concentrations of 1.8 J+, 1.1 J, 1.8, and 1.4 ng/L, respectively, below their SLs of 4, 601, 39, and 6 ng/L, respectively.

6.3.3 AOI 1 – Conclusions

Based on the results of the SI, four relevant compounds (PFOA, PFOS, PFHxS, and PFNA) were detected in the AOI 1 potential release area below the soil SLs. All five relevant compounds (PFOA, PFOS, PFHxS, PFNA, and PFBS) were detected in groundwater at AOI 1. There was a single exceedance of the SLs (for PFOA) in groundwater occurring at AOI01-03. Based on the exceedance of the SL, further evaluation at AOI 1 is warranted.

6.4 BOUNDARY SAMPLE LOCATIONS

This section presents the analytical results for soil and groundwater in comparison to SLs for samples collected at the Facility boundary. The detected compounds are summarized in **Tables 6-2** through **6-5**. Soil and groundwater results are presented on **Figures 6-1** through **6-7**.

6.4.1 Boundary Sample Locations – Soil Analytical Results

Tables 6-2 through **6-4** summarize the detected compounds in soil. **Figures 6-1** through **6-5** present the ranges of detections in soil.

Soil boundary sample locations were comprised of seven soil boring locations RAASF-01 through RAASF-07 around the perimeter of the Facility. Soil was sampled from three intervals at locations RAASF-01, RAASF-03, RAASF-04, RAASF-06, and RAASF-07; and from two intervals at RAASF-02 and RAASF-05. PFOA was the only relevant compound detected in surface soil at the boundary locations during the SI; the detected concentration of 0.25 J did not exceed the SL of 19 µg/kg. The detection was found in the surface soil sample from location RAASF-06. There were no detections in the shallow or deep subsurface soil samples.

6.4.2 Boundary Sample Locations – Groundwater Analytical Results

Figure 6-6 and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-5** summarizes the groundwater results.

Groundwater samples were collected from seven temporary wells around the Facility perimeter. All five relevant compounds (PFOA, PFOS, PFBS, PFHxS, and PFNA) were detected in groundwater at the boundary sample locations, with PFOA and PFOS concentrations exceeding the SLs at one location (RAASF-02). RAASF-02 concentrations of PFOA (7.5 ng/L) and PFOS (5.2 ng/L) exceeded the SLs of 6 ng/L and 4 ng/L, respectively. The remaining compounds (PFBS, PFHxS, and PFNA) were detected at the boundary locations at maximum concentrations

of 2.3, 12, and 1.3 J ng/L, respectively, below their SLs of 601, 39, and 6 ng/L. Boundary locations RAASF-03 and RAASF-07 had no detections of relevant compounds.

6.4.3 Boundary Sample Locations – Conclusions

Based on the results of the SI, one relevant compound (PFOA) was detected in soil samples from the boundary at concentrations below the applicable SLs. Additionally, all five of the relevant compounds were detected in groundwater. PFOA and PFOS concentrations exceeded the SLs in groundwater at one boundary well location (RAASF-02). RAASF-02 is located on western side of the Rochester AASF #2, just north of a retention pond, in an area that run-off from the AASF and apron was observed. Based on the exceedances of the SLs for groundwater, further evaluation is warranted.

Table 6-2. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	AOI01-01		AOI01-02		AOI01-02		AOI01-03		AOI01-04		RAASF-01		RAASF-02	
	Sample Name	AOI01-01-SB-0-2		AOI01-02-SB-0-2		RAASF-FD-SB-03		AOI01-03-SB-0-2		AOI01-04-SB-0-2		RAASF-01-SB-0-2		RAASF-02-SB-0-2	
	Parent Sample ID					AOI01-02-SB-0-2									
	Sample Date	3/21/2022		3/22/2022		3/22/2022		3/23/2022		3/24/2022		3/21/2022		3/21/2022	
	Depth (ft bgs)	0-2		0-2		0-2		0-2		0-2		0-2		0-2	
Analyte	**Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)															
Perfluorobutanesulfonic acid (PFBS)	1900	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	130	ND	U	ND	U	ND	U	ND	U	0.24	J	ND	U	ND	U
Perfluorononanoic acid (PFNA)	19	ND	U	ND	U	0.31	J	ND	U	ND	U	ND	U	ND	U
Perfluorooctanesulfonic acid (PFOS)	13	ND	U	ND	U	1	J+	ND	U	1.4		ND	U	ND	U
Perfluorooctanoic acid (PFOA)	19	ND	U	0.36	J	0.63	J	ND	U	0.29	J	ND	U	ND	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
µg/kg = Microgram(s) per kilogram.
ft bgs = Feet below ground surface.
Qual = Qualifier.
ND = Analyte not detected above the LOD (LOD values are presented in Appendix F).
1. The Screening Levels for soil are based on a residential scenario for incidental ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-2. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	RAASF-02		RAASF-03		RAASF-04		RAASF-05		RAASF-06		RAASF-06		RAASF-07	
	Sample Name	RAASF-FD-SB-01		RAASF-03-SB-0-2		RAASF-04-SB-0-2		RAASF-05-SB-0-2		RAASF-06-SB-0-2		RAASF-FD-SB-04		RAASF-07-SB-0-2	
	Parent Sample ID	RAASF-02-SB-0-2										RAASF-06-SB-0-2			
	Sample Date	3/21/2022		3/22/2022		3/22/2022		3/23/2022		3/23/2022		3/23/2022		3/23/2022	
	Depth (ft bgs)	0-2		0-2		0-2		0-2		0-2		0-2		0-2	
Analyte	**Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)															
Perfluorobutanesulfonic acid (PFBS)	1900	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	130	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorononanoic acid (PFNA)	19	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanesulfonic acid (PFOS)	13	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanoic acid (PFOA)	19	ND	U	ND	U	ND	U	ND	U	0.25	J	ND	U	ND	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
µg/kg = Microgram(s) per kilogram.
ft bgs = Feet below ground surface.
Qual = Qualifier.
ND = Analyte not detected above the LOD (LOD values are presented in Appendix F).
1. The Screening Levels for soil are based on a residential scenario for incidental ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-3. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Shallow Subsurface Soil
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		AOI01-01		AOI01-02		AOI01-03		AOI01-04		RAASF-01		RAASF-02	
Sample Name		AOI01-01-SB-6-7		AOI01-02-SB-5-6		AOI01-03-SB-3-4		AOI01-04-SB-4-5		RAASF-01-SB-5-6		RAASF-02-SB-2-3	
Parent Sample ID													
Sample Date		3/22/2022		3/22/2022		3/24/2022		3/24/2022		3/21/2022		3/21/2022	
Depth (ft bgs)		6-7		5-6		3-4		4-5		5-6		2-3	
Analyte	**Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)													
Perfluorobutanesulfonic acid (PFBS)	25000	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	1600	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorononanoic acid (PFNA)	250	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanesulfonic acid (PFOS)	160	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanoic acid (PFOA)	250	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
µg/kg = Microgram(s) per kilogram.
ft bgs = Feet below ground surface.
ND = Analyte not detected above the LOD (LOD values are presented in Appendix F).
Qual = Qualifier.
1. The Screening Levels for soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-3. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Shallow Subsurface Soil
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		RAASF-03		RAASF-04		RAASF-05		RAASF-06		RAASF-07	
Sample Name		RAASF-03-SB-6-7		RAASF-04-SB-3-4		RAASF-05-SB-5-6		RAASF-06-SB-4-5		RAASF-07-SB-3-4	
Parent Sample ID											
Sample Date		3/22/2022		3/22/2022		3/23/2022		3/23/2022		3/23/2022	
Depth (ft bgs)		6-7		3-4		5-6		4-5		3-4	
Analyte	**Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)											
Perfluorobutanesulfonic acid (PFBS)	25000	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	1600	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorononanoic acid (PFNA)	250	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanesulfonic acid (PFOS)	160	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanoic acid (PFOA)	250	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
µg/kg = Microgram(s) per kilogram.
ft bgs = Feet below ground surface.
ND = Analyte not detected above the LOD (LOD values are presented in Appendix F).
Qual = Qualifier.
1. The Screening Levels for soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-4. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Deep Subsurface Soil
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	AOI01-01		AOI01-01		AOI01-02		AOI01-03		AOI01-04	
	Sample Name	AOI01-01-SB-11-12		RAASF-FD-SB-02		AOI01-02-SB-10-11		AOI01-03-SB-6-7		AOI01-04-SB-9-10	
	Parent Sample ID			AOI01-SB-11-12							
	Sample Date	3/22/2022		3/22/2022		3/22/2022		3/24/2022		3/24/2022	
	Depth (ft bgs)	11-12		11-12		10-11		6-7		9-10	
Analyte	**Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)											
Perfluorobutanesulfonic acid (PFBS)	25000	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	1600	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorononanoic acid (PFNA)	250	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanesulfonic acid (PFOS)	160	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanoic acid (PFOA)	250	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
µg/kg = Microgram(s) per kilogram.
ft bgs = Feet below ground surface.
Qual = Qualifier.
ND = Analyte not detected above the LOD (LOD values are presented in Appendix F).
1. The Screening Levels for soil are based on a residential scenario for incidental ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-4. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Deep Subsurface Soil
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		RAASF-01		RAASF-03		RAASF-04		RAASF-06		RAASF-07	
Sample Name		RAASF-01-SB-9-10		RAASF-03-SB-11-12		RAASF-04-SB-5-6		RAASF-06-SB-8-9		RAASF-07-SB-5-6	
Parent Sample ID											
Sample Date		3/21/2022		3/22/2022		3/22/2022		3/23/2022		3/23/2022	
Depth (ft bgs)		9-10		11-12		5-6		8-9		5-6	
Analyte	**Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)											
Perfluorobutanesulfonic acid (PFBS)	25000	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	1600	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorononanoic acid (PFNA)	250	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanesulfonic acid (PFOS)	160	ND	U	ND	U	ND	U	ND	U	ND	U
Perfluorooctanoic acid (PFOA)	250	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
µg/kg = Microgram(s) per kilogram.
ft bgs = Feet below ground surface.
Qual = Qualifier.
ND = Analyte not detected above the LOD (LOD values are presented in Appendix F).
1. The Screening Levels for soil are based on a residential scenario for incidental ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-5. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	AOI01-01		AOI01-02		AOI01-03		AOI01-04		RAASF-01		RAASF-01		RAASF-02	
	Sample Name	AOI01-01-GW		AOI01-02-GW		AOI01-03-GW		AOI01-04-GW		RAASF-01-GW		RAASF-FD-GW-01		RAASF-02-GW	
	Parent Sample ID											RAASF-01-GW			
	Sample Date	3/22/2022		3/24/2022		3/24/2022		3/25/2022		3/21/2022		3/21/2022		3/22/2022	
Analyte	**Screening Level[1]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15															
Perfluorobutanesulfonic acid (PFBS)	601	ND	U	ND	U	1.10	J	ND	U	0.89	J	0.77	J	2.3	
Perfluorohexanesulfonic acid (PFHxS)	39	ND	U	1.8		1	J	ND	U	ND	U	ND	U	12	
Perfluorononanoic acid (PFNA)	6	ND	U	ND	U	1.40	J	ND	U	0.67	J	0.79	J	1.3	J
Perfluorooctanesulfonic acid (PFOS)	4	ND	U	ND	U	1.80	J+	ND	U	ND	U	ND	U	5.2	
Perfluorooctanoic acid (PFOA)	6	0.63	J	1.3	J	8.1		0.86	J	4.8		5.4		7.5	

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
ng/L = Nanogram(s) per liter.
ND = Analyte not detected above the LOD.
Qual = Qualifier.
1. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Table 6-5. PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

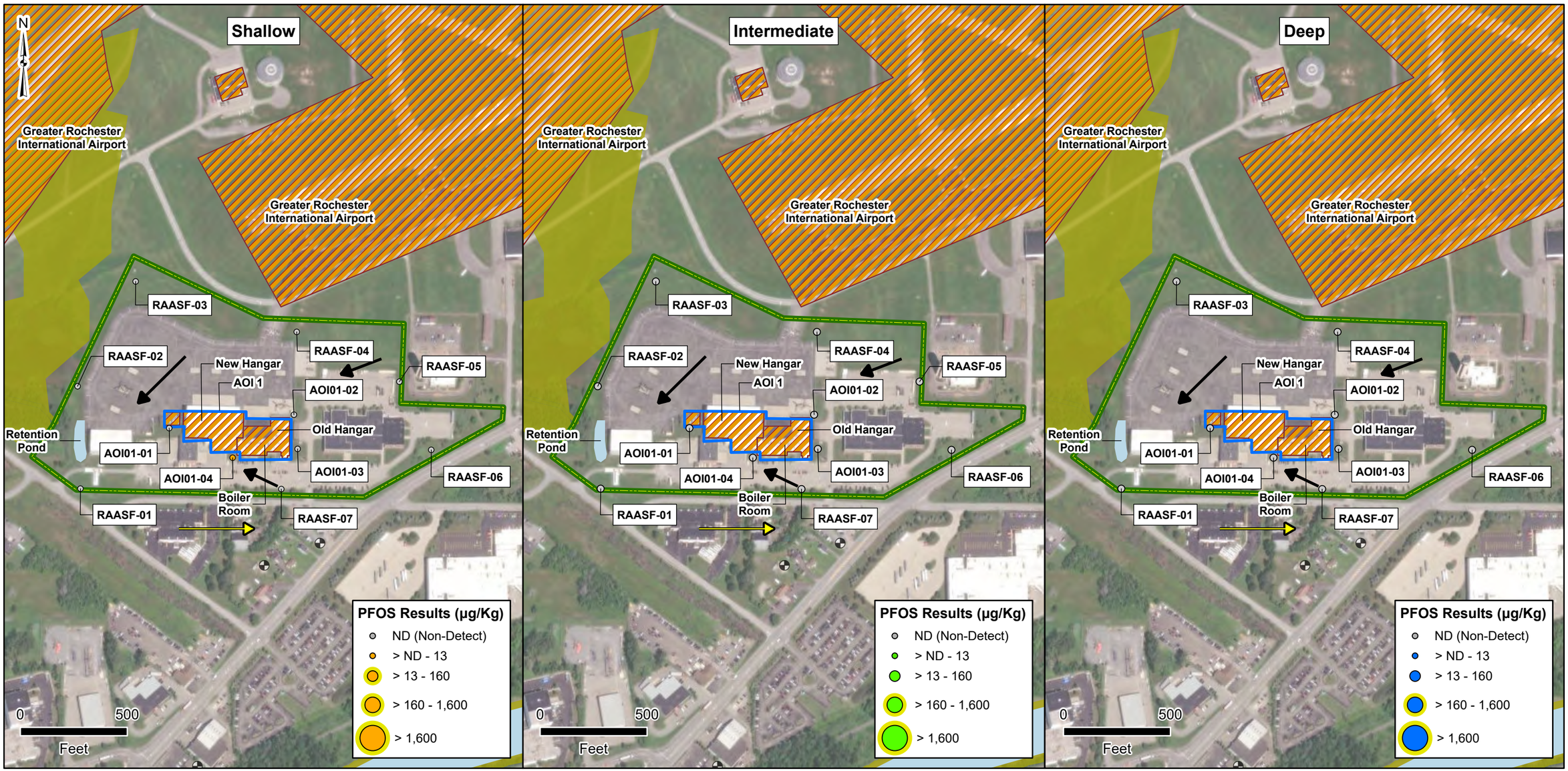
	Location ID	RAASF-03		RAASF-04		RAASF-05		RAASF-05		RAASF-06		RAASF-07	
	Sample Name	RAASF-03-GW		RAASF-04-GW		RAASF-05-GW		RAASF-FD-GW-02		RAASF-06-GW		RAASF-07-GW	
	Parent Sample ID							RAASF-05-GW					
	Sample Date	3/22/2022		3/23/2022		3/23/2022		3/23/2022		3/24/2022		3/24/2022	
Analyte	**Screening Level[1]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15													
Perfluorobutanesulfonic acid (PFBS)	601	ND	U	0.82	J	0.51	J	0.47	J	ND	U	ND	U
Perfluorohexanesulfonic acid (PFHxS)	39	ND	U	3.8		ND	U	ND	U	1.3	J	ND	U
Perfluorononanoic acid (PFNA)	6	ND	U	ND	U	ND	U	ND	U	0.48	J	ND	U
Perfluorooctanesulfonic acid (PFOS)	4	ND	U	2.9	J+	ND	U	ND	U	ND	U	ND	U
Perfluorooctanoic acid (PFOA)	6	ND	U	1	J	ND	U	ND	U	1.9		ND	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
ng/L = Nanogram(s) per liter.
ND = Analyte not detected above the LOD.
Qual = Qualifier.
1. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 6-1
AOI 1
PFOS Detections in Soil



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFOS = Perfluorooctanesulfonic acid
1. Exceedances of the OSD SL are depicted with a yellow halo.
2. Depth intervals shown represent respective sampling position within a given soil boring location.
3. The Screening Levels for shallow soil are based on a residential scenario for incidental ingestion of contaminated soil.
4. The Screening Levels for intermediate and deep soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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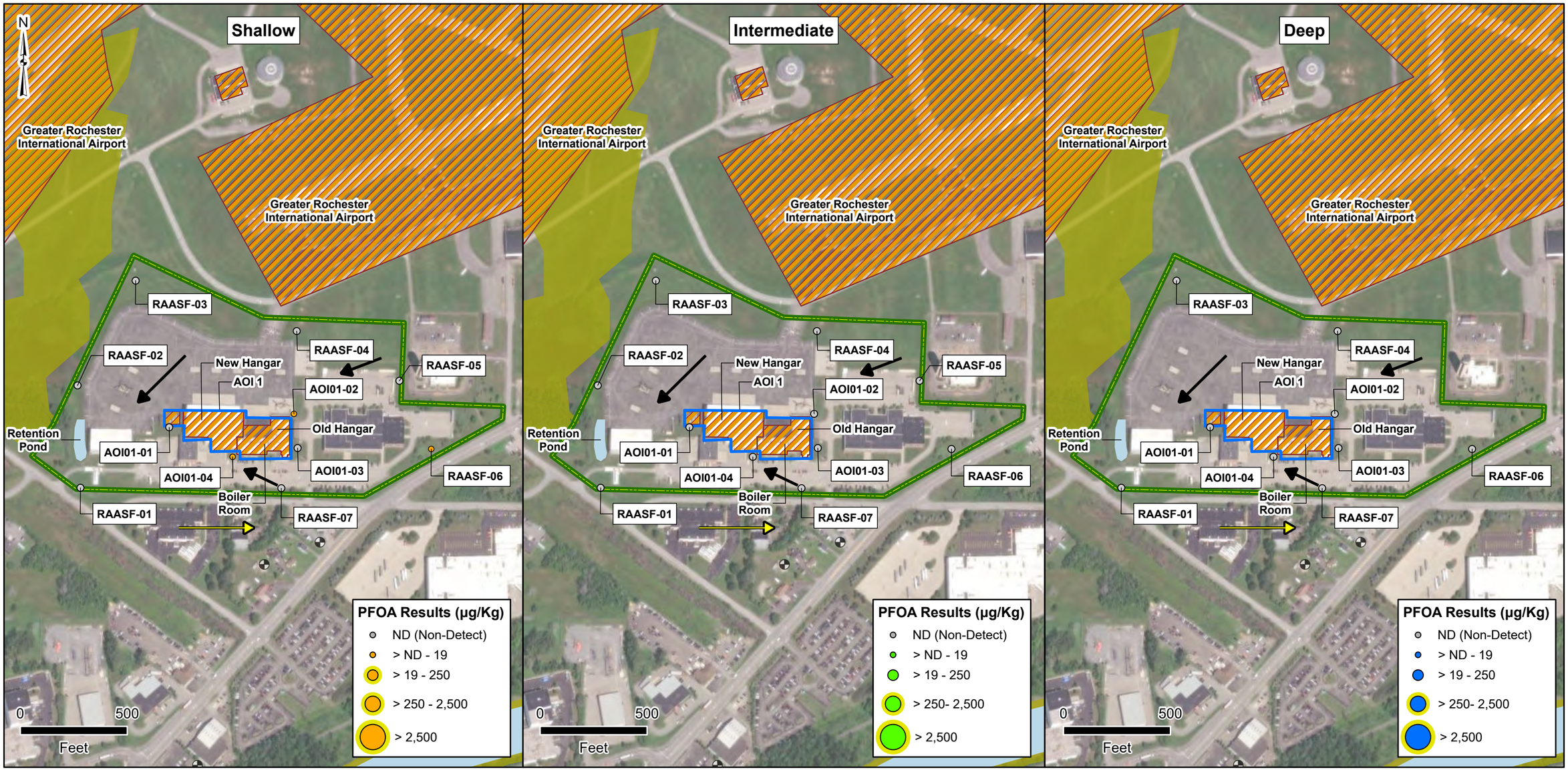
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 6-2
AOI 1
PFOA Detections in Soil



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFOA = Perfluorooctanoic acid
1. Exceedances of the OSD SL are depicted with a yellow halo.
2. Depth intervals shown represent respective sampling position within a given soil boring location.
3. The Screening Levels for shallow soil are based on a residential scenario for incidental ingestion of contaminated soil.
4. The Screening Levels for intermediate and deep soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
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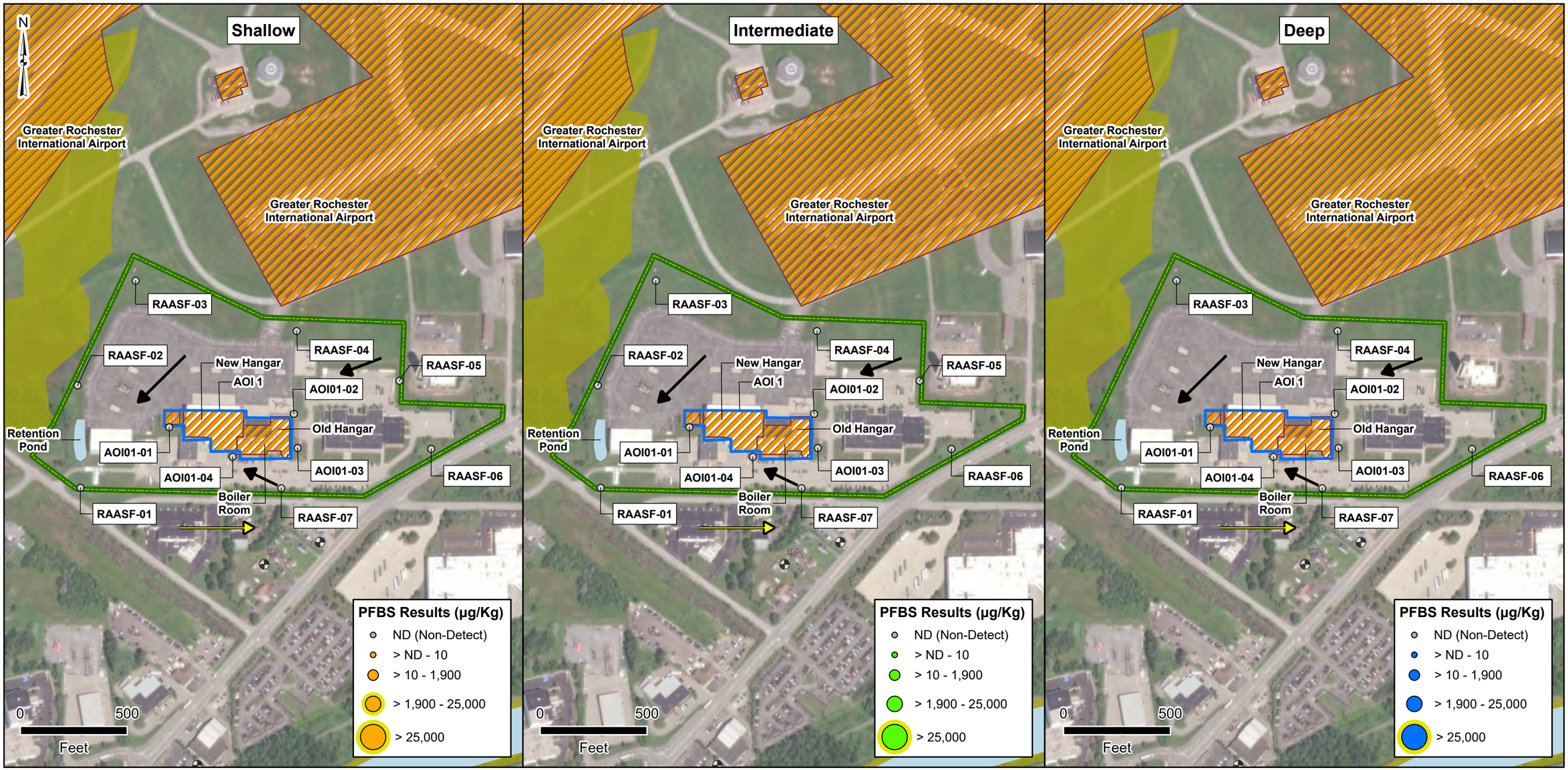
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 6-3
AOI 1
PFBS Detections in Soil



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFBS = Perfluorobutanesulfonic acid
1. Exceedances of the OSD SL are depicted with a yellow halo.
2. Depth intervals shown represent respective sampling position within a given soil boring location.
3. The Screening Levels for shallow soil are based on a residential scenario for incidental ingestion of contaminated soil.
4. The Screening Levels for intermediate and deep soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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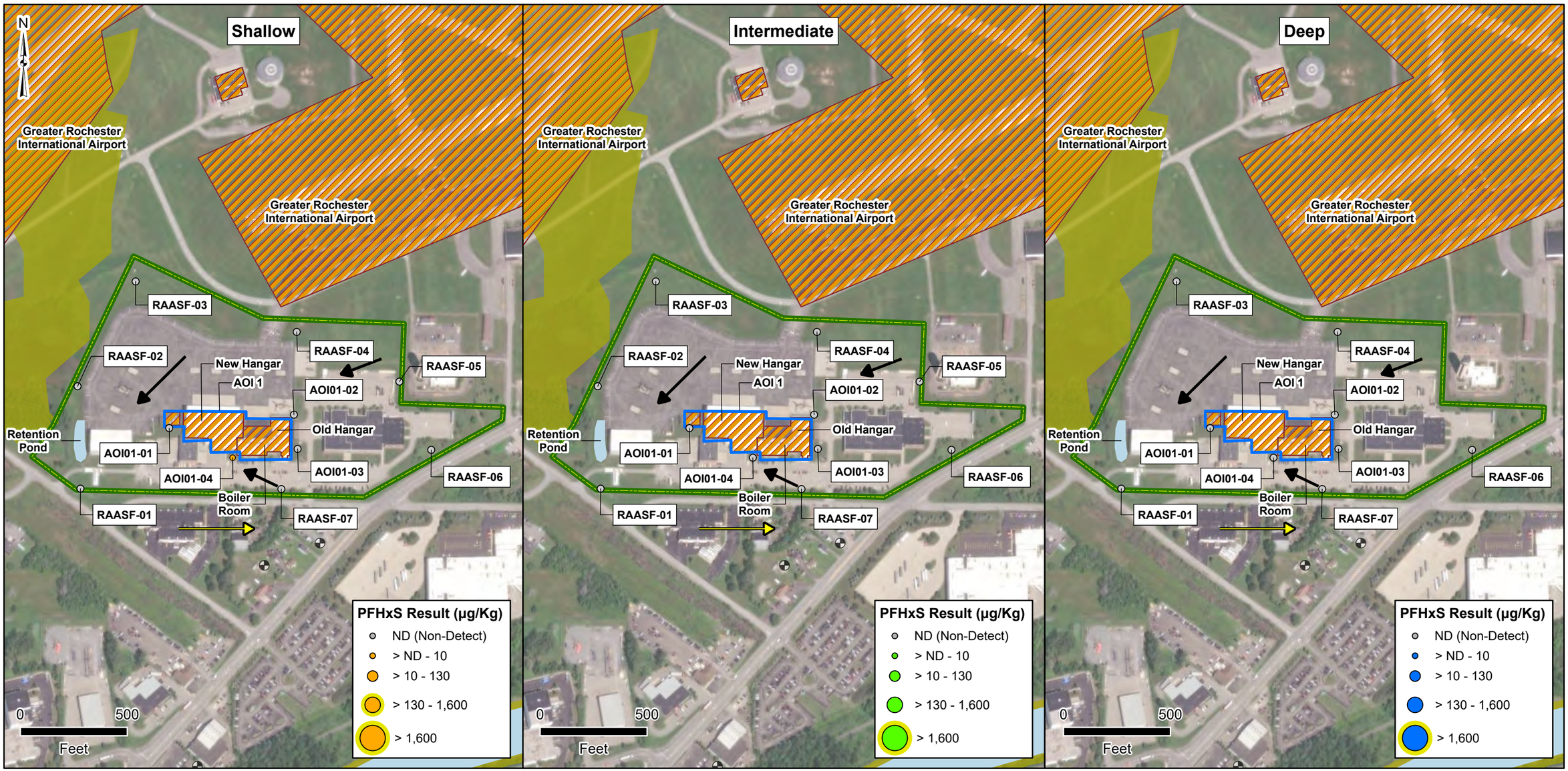
Figure 6-4
AOI 1
PFHxS Detections in Soil



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFHxS = Perfluorohexanesulfonic acid
1. Exceedances of the OSD SL are depicted with a yellow halo.
2. Depth intervals shown represent respective sampling position within a given soil boring location.
3. The Screening Levels for shallow soil are based on a residential scenario for incidental ingestion of contaminated soil.
4. The Screening Levels for intermediate and deep soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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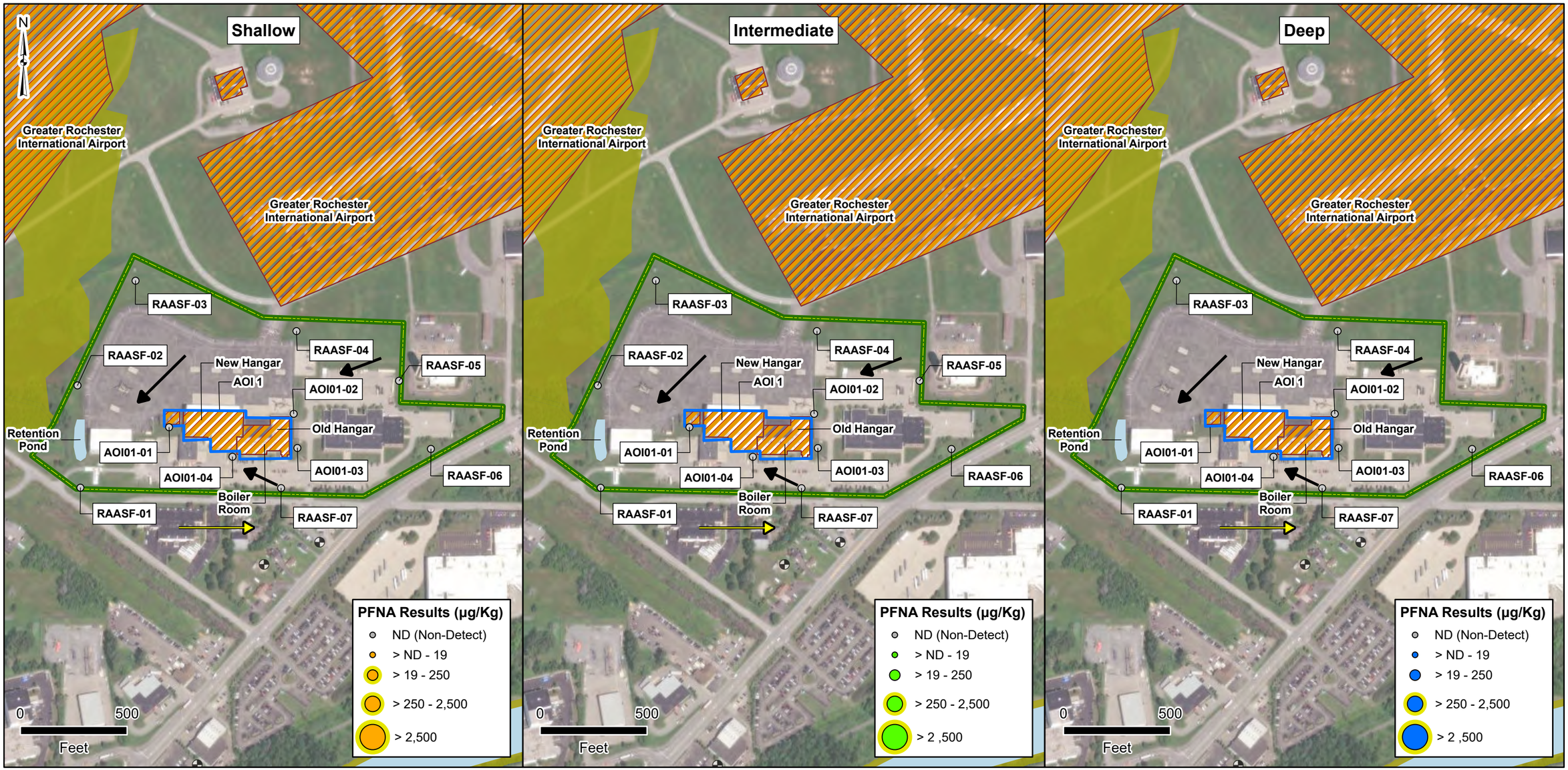
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 6-5
AOI 1
PFNA Detections in Soil



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFNA = Perfluorononanoic acid
1. Exceedances of the OSD SL are depicted with a yellow halo.
2. Depth intervals shown represent respective sampling position within a given soil boring location.
3. The Screening Levels for shallow soil are based on a residential scenario for incidental ingestion of contaminated soil.
4. The Screening Levels for intermediate and deep soil are based on an industrial/commercial worker scenario for incidental ingestion of contaminated soil.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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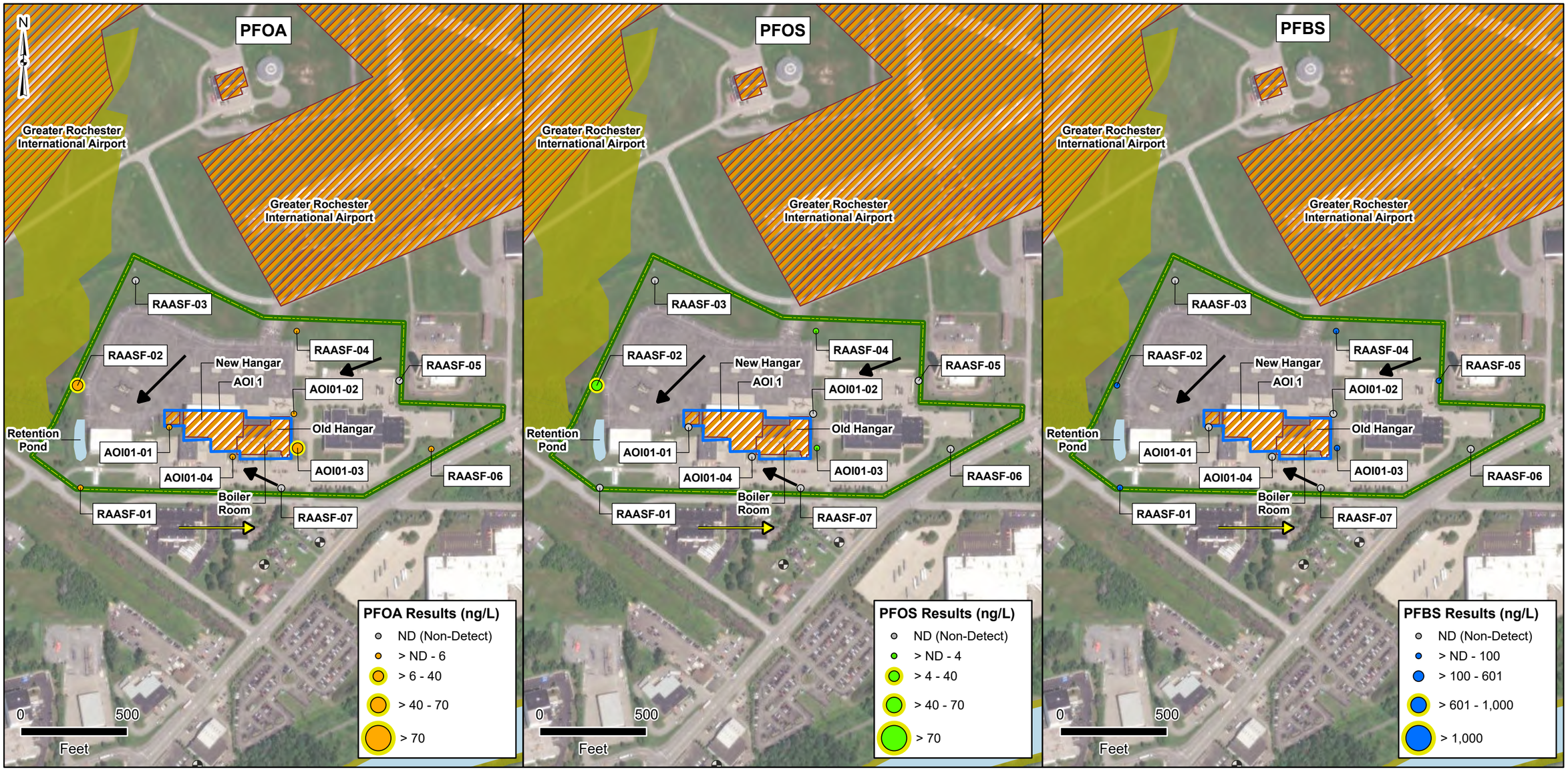
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 6-6
AOI 1
PFOA, PFOS and PFBS Detections in Groundwater



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFOA = Perfluorooctanesulfonic acid
PFOS = Perfluorooctanoic acid
PFBS = Perfluorobutanesulfonic acid
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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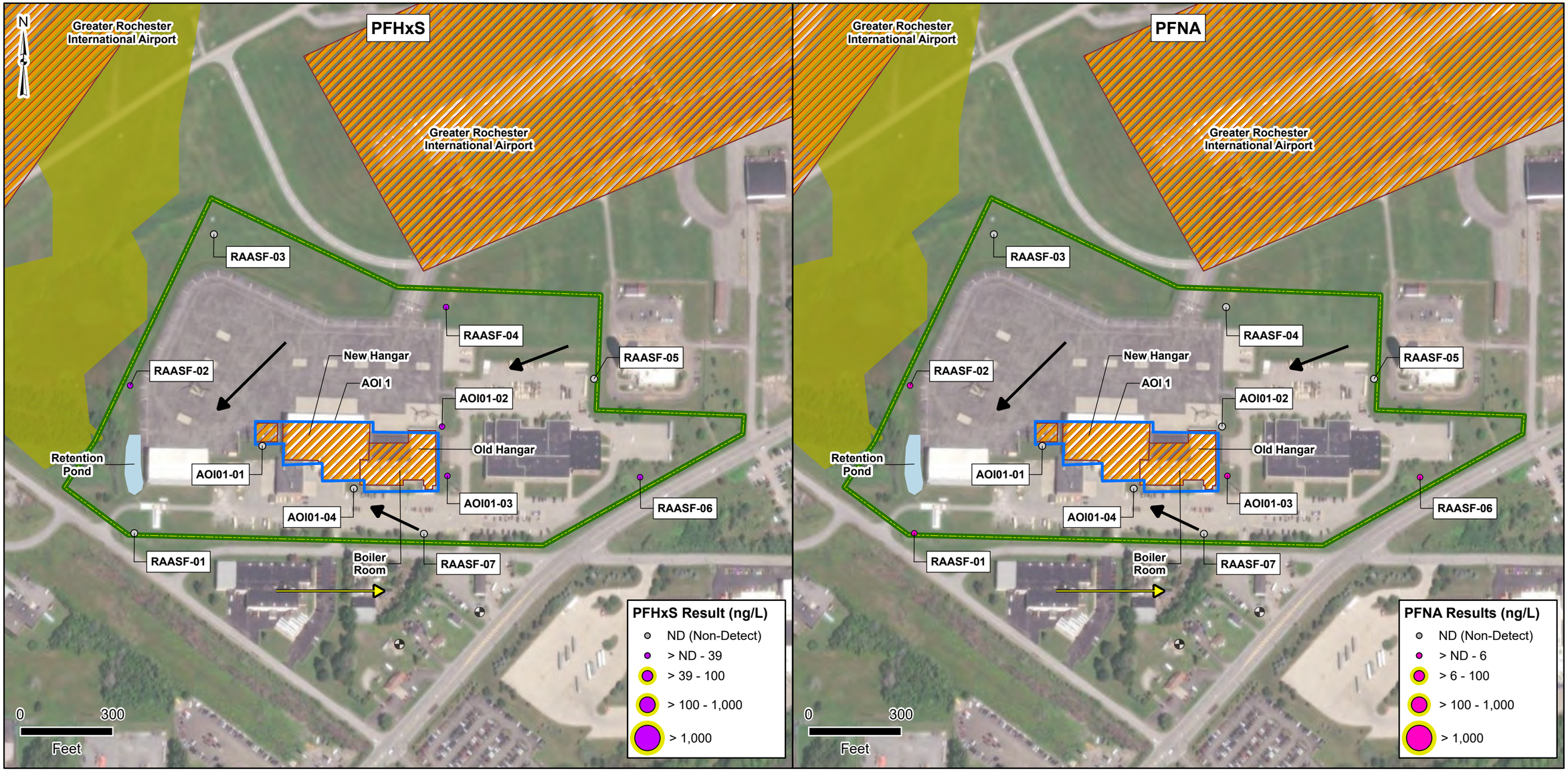
Army National Guard Site Inspections
Site Inspection Report
Rochester AASF, New York

Figure 6-7
PFHxS and PFNA Detections in Groundwater



Facility Data
- Facility Boundary
- Area of Interest
- Potential PFAS Release

Well Type
- USGS Inactive Monitoring Well

Hydrology/Hydrogeology
- Groundwater Flow Direction
- Regional Groundwater Flow Direction
- Waterbody
- Wetlands

Notes:
PFHxS = Perfluorohexanesulfonic acid
PFNA = Perfluorononanoic acid
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2022
AECOM 2019

Date:.....September 2023
Prepared By:.....EA
Prepared For:.....USACE
Projection:.....WGS 84 UTM 18N

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7. EXPOSURE PATHWAYS

The conceptual site model (CSM) for the AOI, revised based on the SI findings, is presented on **Figure 7-1**. Please note that while the CSM discussion assists in determining if a receptor may be impacted, the decision to move from SI to RI or interim action is determined based upon exceedances of the SLs for the relevant compounds and whether the release is more than likely attributable to the DoD. A CSM presents the current understanding of the site conditions with respect to known and suspected sources, potential transport mechanisms and migration pathways, and potentially exposed human receptors. A human exposure pathway is considered potentially complete when the following conditions are present.

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

If any of these elements are missing, the pathway is incomplete. The CSM figures use an empty circle symbol to represent an incomplete exposure pathway. Areas with an incomplete pathway generally warrant no further action. However, the pathway is considered potentially complete if the relevant compounds are detected, in which case the CSM figure uses a half-filled circle symbol to represent a potentially complete exposure pathway. Additionally, a completely filled circle symbol is used to indicate when a potentially complete exposure pathway has detections of relevant compounds above the SLs. Areas with an identified potentially complete pathway that have detections of the relevant compounds above the SLs may warrant further investigation. Although the CSMs indicate whether potentially complete exposure pathways may exist, the recommendation for future study in a RI or no action at this time is based on the comparison of the SI analytical results for the relevant compounds to the SLs.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological study. The receptors evaluated are consistent with those listed in USEPA guidance for risk screening (USEPA 2001). Receptors at the Facility include site workers (e.g., staff and visiting soldiers), construction workers, off-Facility recreational users, and residents. The CSM for AOI 1, revised based on the SI findings, is presented on **Figure 7-1**.

7.1 SOIL EXPOSURE PATHWAY

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

7.1.1 AOI 1 – Old Hangar/New Hangar/Hazardous Waste Storage Shed

AOI 1 encompasses the AFFF release at the Old Hangar and the potential AFFF releases at the New Hangar and the Hazardous Waste Storage Shed. The area surrounding the AOI is

predominantly paved with a few grassy areas between paved areas. AFFF releases could have occurred directly onto surface soil but may also have infiltrated subsurface soil via cracks in pavement or joints between areas that are paved with different materials. PFOA, PFOS, PFNA, and PFHxS were detected in surface soil at AOI 1 at concentrations below the SLs. Additionally, one relevant compound (PFOA) was detected in a soil sample collected from a location (RAASF-06) along the eastern boundary at concentrations below the applicable SLs. Site workers, construction workers, trespassers, and recreational users could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers, construction workers, trespassers, and recreational users is potentially complete. There were no detections of the relevant compounds in subsurface soil at AOI 1. Therefore, the exposure pathways for subsurface soil is incomplete for the construction worker. The CSM is presented in **Figure 7-1**.

7.2 GROUNDWATER EXPOSURE PATHWAY

The SI results for groundwater were used to determine whether a potentially complete pathway exists between the source and potential receptors based on the aforementioned criteria.

7.2.1 AOI 1 – Old Hangar/New Hangar/Hazardous Waste Storage Shed

PFOA was detected in groundwater at the AOI at a concentration which exceeded the associated SL. Each of the other four relevant compounds were detected in groundwater at AOI 1 at concentrations below their respective SLs. Additionally, all five relevant compounds were detected in groundwater at most of the boundary locations. PFOA and PFOS concentrations exceeded the SLs in groundwater at one boundary well location (RAASF-02) less than 500 feet west of the AOI.

The Facility receives water from the Monroe County Water Authority, and there were no identified private drinking water wells located immediately downgradient and west of the Facility. However, due to the potential for unidentified residential wells downgradient of the Facility, the ingestion exposure pathway for groundwater is potentially complete for off-Facility residents that are located downgradient of AOI 1. Six potable water wells were identified within 4 miles of the Facility (New York State 2016). Of these wells, four are located east of the Genesee River, one is located approximately 2 miles southwest of the Facility, and one is located approximately 2 miles northwest of the Facility.

Additionally, the depth to groundwater is shallow, so trenching activities could result in construction worker exposure via accidental ingestion, therefore this pathway is considered complete.

7.3 SURFACE WATER AND SEDIMENT EXPOSURE PATHWAY

Off-site surface water and sediment were not sampled as part of this SI, as the scope of sampling was limited to the presence or absence of the relevant compounds in soil and groundwater within the Facility boundary. Although no surface water features flow through the AOI, the Facility is within close proximity to adjacent wetlands and the potential exists for

shallow groundwater to discharge to the nearby wetlands. The wetlands appear to be connected to a tributary which flows to the Genesee River which in turn flows into Lake Ontario, the largest water body supply for drinking water in the county. Additionally, both the Genesee River and Lake Ontario are popular for recreational use, including fishing, swimming, and boating. Based on the groundwater concentrations which exceeded SLs at AOI 1 and at the Facility boundary, the ingestion exposure pathway for surface water and sediment is considered potentially complete for recreational users of the Genesee River and Lake Ontario. Human consumption of fish potentially affected by PFAS from the river and lake is also possible. The CSM is presented in **Figure 7-1**.

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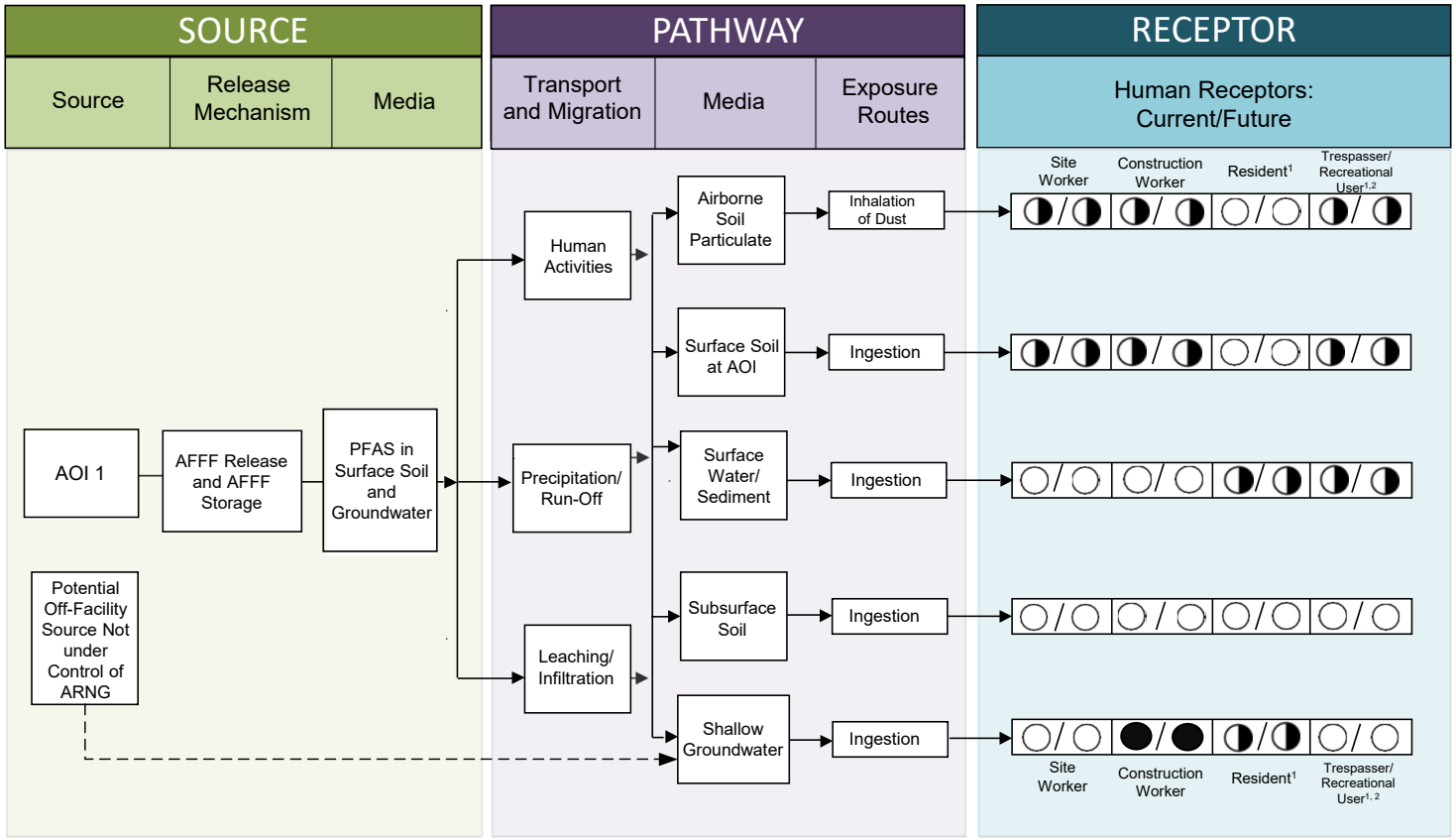

LEGEND

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

Notes:

1. The resident and recreational users refer to off-site receptors.
2. Human consumption of fish potentially affected by PFAS from the downgradient river is possible.

Figure 7-1
Conceptual Site Model
Rochester AASF #2

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8. SUMMARY AND OUTCOME

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

8.1 SITE INVESTIGATION ACTIVITIES

The SI field activities at the Facility were conducted from 17 to 25 March 2022. The SI field activities included soil and groundwater sampling. Field activities were conducted in accordance with the UFP-QAPP Addendum (EA 2021a), except as previously noted in **Section 5.10**.

To fulfill the project DQOs set forth in the approved SI UFP-QAPP Addendum (EA 2021a), samples were collected and analyzed for a subset of 24 compounds by LC/MS/MS compliant with QSM 5.3 Table B-15 as follows:

- Thirty-two (32) soil samples from 11 locations (soil borings locations)
- Eleven (11) grab groundwater samples from 11 temporary well locations
- Seventeen (17) various quality assurance/quality control samples.

An SI is conducted when the PA determines an AOI exists based on probable use, storage, and/or disposal of PFAS-containing materials. The SI includes multi-media sampling at the AOI to determine whether or not a release has occurred. The SI may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. Additionally, the CSM was refined to assess whether a potentially complete pathway exists between the source and potential receptors for potential exposure at the AOI, which is described in **Section 7**.

8.2 OUTCOME

Based on the results of this SI, further evaluation under CERCLA is warranted in an RI for AOI 1. Based on the CSMs developed and revised in light of the SI findings, there is potential for exposure to drinking water receptors from AOI 1 from sources on the Facility resulting from historical DoD activities. Sample analytical concentrations collected during this SI were compared against the project SLs in soil and groundwater, as described in **Table 6-1**. A summary of the results of the SI data relative to SLs is as follows:

- AOI 1:
    - PFOA, PFOS, PFHxS, and PFNA were detected in surface soil at AOI 1 at concentrations below the SLs. PFBS was not detected.

— All of the five relevant compounds were detected in groundwater from the seven temporary wells in AOI 1. PFOA exceeded the SL of 6 ng/L at one temporary well location with a concentration of 8.1 ng/L. Based on the results of the SI, further evaluation of AOI 1 is warranted in the RI.

- The boundary:

— PFOA was the only relevant compound detected in soil at RAASF-06, which is located approximately 500 feet east of AOI 1. The only detection was in surface soil at RAASF-06 at a concentration below the SL. PFOS, PFBS, PFHxS, and PFNA were not detected at RAASF-06 and no relevant compounds were detected at any other boundary locations.

— All five relevant compounds were detected in groundwater at the boundary temporary well locations. PFOA and PFOS concentrations exceeded the SLs in groundwater at one boundary well location (RAASF-02). RAASF-02 is located on western side of the Rochester AASF #2, just north of a retention pond, in an area that run-off from the AASF and apron was observed. PFBS, PFHxS, and PFNA were detected in groundwater samples from other boundary locations at concentrations below groundwater SLs.

It should be noted that groundwater flow direction was calculated using survey data (top of casing and ground surface) and depth to water measurements taken from 8 temporary wells[3] that were installed during the investigation. Based on the limited number of data points, the localized groundwater flow direction (to the west) determined during this investigation is considered estimated. Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI. Based on the CSM developed during the PA and revised based on SI findings, the presence of HFPO-DA is not anticipated at the facility because HFPO-DA is generally not a component of MIL-SPEC AFFF and based on its history including distribution limitations that restricted use of GenX, it is generally not a component of other products the military used. In addition, it is unlikely that GenX would be an individual chemical of concern in the absence of other PFAS.

Table 8-1 summarizes the SI results for soil and groundwater used to determine if an AOI should be considered for further investigation under CERCLA and undergo an RI.

[3] Due to incongruent data, the depth to water measurements from RAASF-06 and AOI01-04 were not used in this calculation.

Table 8-1. Summary of Site Inspection Findings and Recommendations

AOI	Potential Release Area	Soil AOI	Groundwater AOI	Groundwater Facility Boundary	Future Action
1	Rochester AASF #2 Hangar Release and Hazardous Waste Storage	◐	●	●	Proceed to RI

Legend:
● = Detected; exceedance of SLs
◐ = Detected; no exceedance of SLs
○ = Not detected

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Appendix A

Data Usability Assessment and Data Validation Reports

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DATA USABILITY ASSESSMENT

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

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

PRECISION

Precision is the degree of agreement among repeated measurements of the same characteristic on the same sample or on separate samples collected as close as possible in time and place. Field sampling precision is measured with the field duplicate relative percent differences (RPD), and laboratory precision is measured with RPDs for laboratory duplicates, such as laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) pairs and matrix spike (MS) and matrix spike duplicate (MSD) pairs.

LCS/LCSD pairs were prepared by addition of known concentrations of each analyte to a matrix-free media known to be free of target analytes. Results for LCS/LCSD pairs met the criterion of RPD less than or equal to 30 percent (%), as specified in the Uniform Federal Policy- (UFP) Quality Assurance Project Plan (QAPP) Addendum (EA 2021a), demonstrating that the analytical system was in control during sample preparation and analysis.

MS/MSD pairs were prepared, analyzed, and reported for each preparation batch for per- and polyfluoroalkyl substances (PFAS) analysis at a rate of 5%. MS/MSD results met the criterion of RPD less than or equal to 30%, as specified in the UFP-QAPP Addendum (EA 2021a), demonstrating good analytical precision for the matrix being tested.

Field duplicate samples were collected at a rate of 10% to assess the overall sampling and measurement precision for this sampling effort. The field duplicate samples were within the project established precision limits presented in the UFP-QAPP Addendum (50% for solid samples, 30% for water samples) (EA 2021a) or differences were less than the average limit of quantitation, indicating acceptable sampling and analytical precision.

No data were qualified due to issues with precision.

ACCURACY

Accuracy is a measure of confidence in a measurement. The smaller the difference between the measurement of a parameter and its "true" or expected value, the more accurate the measurement. The more precise or reproducible the result, the more reliable or accurate the result. Accuracy is measured through percent recoveries in calibration verification samples, LCS/LCSD, and MS/MSD, and through extraction internal standards (EIS).

LCS/LCSD samples were prepared by addition of known concentrations of each analyte to a matrix-free media known to be free of target analytes. LCS/LCSD samples were analyzed for each analytical batch and demonstrated that the analytical system was in control during sample preparation and analysis.

MS/MSDs were performed on soil samples RAASF-03-SB-0-2 and RAASF-05-SB-0-2 and on groundwater sample RAASF-02-GW. Analyte recoveries in MS/MSD samples demonstrated that the analytical system was in control for both soil and water.

EIS were added by the laboratory during sample extraction to measure relative responses of target analytes and used to correct for bias associated with matrix interferences and sample preparation efficiencies, injection volume variances, mass spectrometry ionization efficiencies, and other associated preparation and analytical anomalies. One field sample displayed an EIS area count for 6:2 fluorotelomer sulfonate greater than the upper quality control (QC) limit of 150%, and the associated result was qualified "J-"; this result is considered usable as an estimated value with a negative bias. Several field samples displayed EIS area counts less than the lower QC limit of 50%. Three positive field sample results for perfluorobutanoic acid were associated with EIS recoveries less than the QC limit, but greater than 20%, and were qualified "J+"; these qualified results are considered usable as estimated values with a positive bias. Thirty-seven non-detect field sample results for N-ethylperfluorooctane sulfonamidoacetic acid (NEtFOSAA), PFOSA, perfluorododecanoic acid, and perfluorotridecanoic acid that were associated with EIS recoveries less than the QC limit, but greater than 20%, were qualified UJ; these qualified results are also considered usable. The non-detect results for N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA) in one soil sample and perfluorotetradecanoic acid in two groundwater samples were associated with EIS recoveries less than 20%, and were qualified "X" by the validator, indicating that these results needed further evaluation during the data usability assessment. The project team has determined that results qualified "X" due to extremely low EIS recoveries are usable for project purposes and these three results were therefore UJ qualified. These data are usable as qualified.

Calibration verifications were performed routinely to ensure that instrument responses for all calibrated analytes were within established QC criteria. All calibration verifications were within the project established precision limits presented in the Uniform Federal Policy (UFP)-QAPP Addendum (EA 2021a).

REPRESENTATIVENESS

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

Relating to the use of standard analytical methods, the laboratory followed the method as established in PFAS by liquid chromatography tandem mass spectrometry (LC/MS/MS) compliant with Quality Systems Manual (QSM) Version 5.3 Table B-15, including the specific preparation requirements (i.e. ENVI-Carb or equivalent used), mass calibration, spectra, all the ion transitions identified in table B-15 were monitored, standards that contained both branch and linear isomers when available were used, and isotopically labeled standards were used for quantitation. The laboratory used approved standard methods in accordance with the UFP-QAPP Addendum (EA 2021a) for all analyses.

Field QC samples were collected to assess the representativeness of the data collected. Field duplicates were collected at a rate of 10% and MS/MSD samples were collected at a rate of 5%. Appropriate preservation techniques were followed by the field staff, and maximum holding times for extraction and analysis were met by the laboratory.

Instrument blanks and method blanks were prepared by the laboratory in each batch as a negative control. Instrument blanks and method blanks were non-detect for all target analytes, except PFOS was detected in three laboratory blanks and perfluorooctanesulfonamide (PFOSA) was detected in one laboratory blank. Two detections of PFOS in associated field samples were less than five times the concentration detected in the blank, but greater than the limit of quantitation (LOQ) and were qualified J+. Four detections of PFOS in associated field samples were less than the limit of detection (LOD) and/or the LOQ and were qualified as U. PFOS and PFOSA non-detects and PFOS detections in associated samples that were greater than five times the concentration detected in the blank were not qualified.

Equipment blanks (EBs) and field blanks (FBs) were also collected for groundwater and soil samples. PFOS was above the detection limit in four EBs and two FBs. One detection of PFOS in an associated field sample was less than five times the concentration detected in the blank, but greater than the LOQ, and was qualified J+. This qualified result is considered usable as an estimated value with a positive bias. Eight additional detections of PFOS in associated field samples that were less than the LOD and/or LOQ were qualified as U, in addition to those already qualified based on laboratory blank detections. These results are usable as qualified and treated as non-detects. PFOS non-detects and detections in associated samples that were greater than five times the concentration detected in the blank were not qualified.

COMPARABILITY

Comparability is the extent to which data from one study can be compared directly to either past data from the current project or data from another study. Using standardized sampling and

analytical methods, units of reporting, and site selection procedures help ensure comparability. Standard field sampling and typical laboratory protocols were used during the SI and are considered comparable to ongoing investigations.

COMPLETENESS

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

- PFAS in groundwater by LC/MS/MS compliant with QSM Version 5.3 Table B-15 at 100%
- PFAS in soil by LC/MS/MS compliant with QSM Version 5.3 Table B-15 at 100%
- pH in soil by U.S. Environmental Protection Agency (USEPA) Method 9045D at 100%
- Total organic carbon by USEPA Method 9060 at 100%.

SENSITIVITY

Sensitivity is the capability of a test method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest. Examples of QC measures for determining sensitivity include laboratory fortified blanks, a detection limit study, and calibration standards at the LOQ. In order to meet the needs of the data users, project data must meet the measurement performance criteria for sensitivity and project LOQs specified in the UFP-QAPP Addendum (EA 2021a). The laboratory provided applicable calibration standards at the LOQ and reported all field sample results at the lowest possible dilution. Additionally, any analytes detected below the LOQ and above the detection limit were reported and qualified “J” as estimated values by the laboratory.

Data Validation Report

Army Aviation Support Facility #2
Rochester, New York
Project # 3031200026.3000.****

Prepared for:

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5/25/2022

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Table of Contents

List of Tables

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List of Acronyms

°C	degrees Celsius
%	percent
ARNG	Army National Guard
CCV	continuing calibration verification
COC	chain of custody
DoD	Department of Defense
EA	EA Engineering, Science, and Technology, Inc. PBC
EIS	extracted internal standard
Eurofins	Eurofins Environment Testing America
FOSA	perfluorooctanesulfonamide
FTS	fluorotelomer sulfonic acid
g	grams
ICAL	initial calibration
ICV	initial calibration verification
ID	identification
ISC	instrument sensitivity check
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
mL	milliliters
MS	matrix spike
MSD	matrix spike duplicate
NEtFOSAA	ethyl perfluorooctanesulfonamidoacetic acid
ng/g	nanograms per gram
ng/L	nanograms per liter
NMeFOSAA	methyl perfluorooctanesulfonamidoacetic acid
PFAS	per- and polyfluoroalkyl substances
PFBA	perfluorobutanoic acid
PFDoA	perfluorododecanoic acid
PFOS	perfluorooctanesulfonic acid
PFTeDA	perfluorotetradecanoic acid
PFTrDA	perfluorotridecanoic acid
QAPP	quality assurance project plan
QC	quality control

QSM	Quality Systems Manual for Environmental Laboratories
RPD	relative percent difference
UFP	Uniform Federal Policy
Wood	Wood Environment & Infrastructure, Solutions, Inc.

1.0 Introduction

EA Engineering, Science, and Technology, Inc. PBC (EA) collected 35 solid samples (including 4 field duplicates) and 24 water samples (including 2 field duplicates, 7 equipment blanks, and 4 field blanks) between 21 and 25 March 2022. EA submitted the sample to Eurofins Environment Testing America (Eurofins), located in Lancaster, Pennsylvania, where the samples were received on 25 and 30 March 2022 and assigned to job numbers 410-77655-1 and 410-78012-1. Eurofins analyzed the samples for per- and polyfluoroalkyl substances (PFAS) by liquid chromatography tandem mass spectrometry compliant with Table B 15 of the Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3. The field sample identifications (IDs), sample matrices, collection dates, and laboratory sample IDs are presented in Table 1.

2.0 Data Validation Methodology

Wood Environment & Infrastructure Solutions, Inc. (Wood) performed DoD Stage 2B validation on 100 percent (%) of the PFAS data from the field samples. Wood did not validate the data from the other analyses. The Stage 2B validation includes review of the quality control (QC) results in the laboratory's analytical report and reported on QC summary forms with no review of the associated raw data. Data from equipment and field blanks did not undergo validation because results from these samples are only used to assess data usability for field samples. This data validation has been performed in accordance with:

- EA, 2020. Final Programmatic Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP), Site Inspection for Per- and Polyfluoroalkyl Substances Impacted Sites, Army National Guard (ARNG) Installations, Nationwide, December.
- DoD, 2019a. DoD QSM, Version 5.3. May.
- DoD, 2019b. General Data Validation Guidelines, Revision 1. November.
- DoD, 2020. Data Validation Guidelines Module 3: Data Validation Procedure of Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-15. May.

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following:

- Data package and electronic data deliverable completeness;
- Laboratory case narrative review;
- Chain of custody (COC) compliance;
- Holding time compliance;
- QC sample frequency;
- Initial calibration (ICAL), initial calibration verification (ICV), and continuing calibration verification (CCV) compliance with method specified criteria;
- Presence or absence of laboratory contamination as demonstrated by laboratory blanks;
- Accuracy and bias as demonstrated by recovery of surrogate spikes, laboratory control sample (LCS), and matrix spike (MS) samples;
- Internal standard recoveries;

- Analytical precision as relative percent difference (RPD) of analyte concentration between LCS/LCS duplicate (LCSD), laboratory duplicates, or MS/MS duplicate (MSD);
- Sampling and analytical precision as RPD of analyte concentration between primary samples and field duplicates;
- Assessment of field contamination as demonstrated by equipment and field blanks; and
- Insofar as possible, the degree of conformance to method requirements and good laboratory practices.

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all QC audits are passed. Strict QC serves to increase confidence in data, but any reported value may potentially contain error.

3.0 Explanation of Data Quality Indicators

Summary explanations of the specific data quality indicators reviewed during this data quality review are presented below.

3.1 Laboratory Control Sample Accuracy and Precision

LCSs and LCSDs are aliquots of analyte free matrices that are spiked with the analytes of interest for an analytical method, or a representative subset of those analytes. The spiked matrix is then processed through the same analytical procedures as the samples they accompany.

LCS recovery and precision are an indication of a laboratory's ability to successfully perform an analytical method in an interference free matrix.

3.2 Matrix Spike Accuracy and Precision

MSs and MSDs are prepared by adding known amounts of the analytes of interest for an analytical method, or a representative subset of those analytes, to an aliquot of sample. The spiked sample is then processed through the same extraction, concentration, cleanup, and analytical procedures as the unspiked samples in an analytical batch.

MS recovery and precision are an indication of a laboratory's ability to successfully recover an analyte in the matrix of a specific sample or closely related sample matrices. It is important not to apply MS results for any specific sample to other samples without understanding how the sample matrices are related.

3.3 Blank Detections

Blank samples are aliquots of analyte free matrix that are used as negative controls to verify that the sample collection, storage, preparation, and analysis system does not produce false positive results.

Equipment blanks are prepared by passing analyte free water through or over sample collection equipment and collecting the water in sample containers. Equipment blanks are used to monitor for possible sample contamination during the sample collection process and serve as a check on the effectiveness of field decontamination procedures.

Field blanks are prepared by pouring an aliquot of analyte free water into a sample container in the field. Field blanks are analyzed for the analytical suite required for the project. Field blanks are used to monitor for possible sample contamination originating from the water used for equipment decontamination.

Laboratory blanks are processed by the laboratory using the same procedures as the field samples.

3.4 Laboratory and Field Duplicate Precision

Laboratory and field duplicate analysis verify acceptable method precision by the laboratory at the time of preparation and analysis and/or sampling precision at the time of collection.

4.0 Definitions of Qualifiers that May be Used During Data Validation

The qualifiers used in the text are the qualifiers applied for each individual QC issue and may not reflect the final qualifiers applied to the data.

J The reported result is an estimated quantity with an unknown bias.

J+ The result is an estimated quantity, but the result may be biased high.

J- The result is an estimated quantity, but the result may be biased low.

U The analyte was not detected and was reported as less than the limit of detection (LOD). The LOD has been adjusted for any dilution or concentration of the sample.

UJ The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.

X The sample results were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

5.0 Qualification Reason Codes

Wood applied the following reason codes to the data during validation:

DL The detected concentration is less than the limit of quantitation (LOQ).

EB The analyte was detected in the associated equipment blank.

FB The analyte was detected in the associated field blank.

HI High extracted internal standard (EIS) recovery.

LI Low EIS recovery.

MB The analyte was detected in the associated laboratory blank.

6.0 Chain of Custody and Sample Receipt Condition Documentation

The samples were received at the laboratory under proper COC, intact, properly preserved, and at temperatures within the QAPP specified temperature range of 2 to 6 degrees Celsius (°C), with the following exceptions:

- All samples were received by the laboratory at temperatures between 1.0 and 2.0 °C. There is no evidence that the samples were frozen or otherwise compromised and per the DoD data validation guidelines, Wood did not qualify any data based on the low sample receipt temperatures.
- Eurofins logged in the samples recorded on the COC as AOI-01-SB-0-2, AOI-01-SB-6-7, and AOI-01-SB-11-12 as AOI01-SB-0-2, AOI01-SB-6-7, and AOI01-SB-11-12 per the standard project nomenclature.

- According to the case narrative, the collection time recorded on the COC for equipment blank RAASF-EB-07 was 11:35 and the time recorded on the label was 11:30. Eurofins logged in the equipment blank using the time recorded on the COC.

7.0 Specific Data Validation Findings

Results from these samples may be considered usable with the limitations and exceptions described in Sections 7.1 through 8.0.

7.1 Per- and Polyfluoroalkyl Substances Analysis

PFAS results generated by Eurofins are usable with the limitations described in Sections 7.1.1 through 7.1.12.

7.1.1 Holding Time Compliance

The samples were extracted for PFAS within the QAPP-specified maximum holding time of 14 days from sample collection for water samples and 28 days from collection for solid samples, and the extracts were analyzed within the QAPP-specified maximum hold time of 28 days from extraction.

7.1.2 Initial Calibration Compliance

The ICAL associated with the analysis of these samples met the QAPP-specified criteria of the calibration standards calculating to 70 to 130% of their true concentrations and either correlation coefficients greater than or equal to 0.99 or relative standard deviations of the response factors less than or equal to 20%.

7.1.3 Initial Calibration Verification Accuracy

ICV recoveries were within the QAPP-specified 70% to 130% limits.

7.1.4 Instrument Sensitivity Check Accuracy

Instrument sensitivity check (ISC) recoveries were within the QSM-specified 70 to 130% limits and ISCs were analyzed at least every 12 hours.

7.1.5 Continuing Calibration Verification Accuracy

CCV recoveries were within the QAPP-specified 70 to 130% limits.

7.1.6 Laboratory Blank Detections

PFAS were not detected in the laboratory blanks associated with these samples, with the following exceptions:

- Perfluorooctanesulfonic acid (PFOS) was detected at a concentration of 0.690 nanograms per liter (ng/L) in the laboratory blank associated with the extraction of samples AOI01-01-GW, AOI01-02-GW, AOI01-03-GW, RAASF-02-GW, RAASF-03-GW, RAASF-04-GW, RAASF-05-GW, RAASF-06-GW, RAASF-07-GW, RAASF-FD-GW-01, RAASF-FD-GW-02; equipment blanks RAASF-EB-03, RAASF-EB-04, RAASF-EB-05, RAASF-EB-06, RAASF-EB-07; and field blanks RAASF-FB-02, RAASF-FB-03, and RAASF-FB-04. Data limitations are summarized below.
  - Wood U qualified the PFOS results from samples AOI01-01-GW (0.50 ng/L), AOI01-02-GW (0.73 ng/L), and RAASF-03-GW (0.78 ng/L) at the LOD because the concentrations detected in the samples were less than the LOD. (Qualifier and reason code: U, MB)

- Wood U qualified the PFOS results from sample RAASF-06-GW at the LOQ of 1.6 ng/L because the concentration detected in the sample, at 1.4 ng/L, was greater than the LOD but less than the LOQ. (Qualifier and reason code: U, MB)
- Wood J+ qualified the PFOS result from samples AOI01-03-GW and RAASF-04-GW because the concentrations detected in the samples were greater than the LOQ and less than five times the concentration detected in the blank. (Qualifier and reason code: J+, MB)
- PFOS was not detected in samples RAASF-05-GW, RAASF-07-GW, RAASF-FD-GW-01, and RAASF-FD-GW-02; the PFOS concentration detected in sample RAASF-02-GW was greater than the LOQ and greater than five times the concentration detected in the blank; Wood does not qualify data from field and equipment blanks based on laboratory blank detections; and no further data were qualified because of the blank detection.

- PFOS and perfluorooctanesulfonamide (FOSA) were detected at concentrations of 1.02 ng/L and 0.514 ng/L, respectively, in the laboratory blank associated with the extraction of sample RAASF-01-GW, equipment blanks RAASF-EB-01 and RAASF-EB-02, and field blank RAASF-FB-01. PFOS and FOSA were not detected in the associated sample and Wood does not qualify data from equipment and field blanks. Data usability is not adversely affected by the blank detections.
- PFOS was detected at a concentration of 0.653 ng/L in the laboratory blank associated with the extraction of sample AOI01-04-GW. PFOS was not detected in the associated sample and data usability is not adversely affected by the blank detection.
- PFOS was detected at a concentration of 0.653 ng/L in the laboratory blank associated with a non-reportable extraction of sample RAASF-06-GW. Wood did not qualify any data based on this blank detection.

7.1.7 Equipment and Field Blank Detections

Wood used the following equation to assess the detections in the aqueous equipment blank against detections in the associated solid samples.

$$Concentration\left(\frac{ng}{g}\right) = \frac{Concentration\left(\frac{ng}{L}\right) * 250\ mL * 4\ mL}{1\ mL * 1{,}000\frac{mL}{L} * 1\ g}$$

Where:

ng/g = nanograms per gram

250 mL is a standard aqueous sample volume in milliliters,

4 mL is the standard extract volume for a soil sample,

1 mL is the standard extract volume for a water sample,

1,000 is the conversion from milliliters to liters, and

1 g is the standard soil mass used for extraction in grams.

Target analytes were not detected in the equipment and field blanks collected with these samples, with the following exceptions:

- PFOS was detected at a concentration of 0.49 ng/L, equivalent to 0.49 ng/g, in field blank RAASF-FB-01, associated with samples AOI01-SB-0-2, RAASF-01-SB-0-2, RAASF-01-GW, RAASF-01-SB-5-6, RAASF-01-SB-9-10, RAASF-02-SB-0-2, RAASF-02-SB-2-3, RAASF-FD-GW-01, and RAASF-FD-SB-01. Data limitations are summarized below.
  - Wood U qualified the PFOS detections in samples RAASF-02-SB-0-2 (0.43 ng/g), RAASF-02-SB-2-3 (0.32 ng/g), and RAASF-FD-SB-01 (0.29 ng/g) at the LOD because the concentrations detected in the samples were less than the LOD. (Qualifier and reason code: U, FB)
  - PFOS was not detected in samples AOI01-SB-0-2, RAASF-01-GW, RAASF-FD-GW-01, RAASF-01-SB-0-2, RAASF-01-SB-5-6, and RAASF-01-SB-9-10 and data usability is not adversely affected by the blank detection.
- PFOS was detected at a concentration of 0.60 ng/L, equivalent to 0.60 ng/g, in equipment blank RAASF-EB-01, associated with samples AOI01-SB-0-2, RAASF-01-SB-0-2, RAASF-01-SB-5-6, RAASF-01-SB-9-10, RAASF-02-SB-0-2, RAASF-02-SB-2-3, and RAASF-FD-SB-01. Data limitations are summarized below.
  - Wood U qualified the PFOS detections in samples RAASF-02-SB-0-2 (0.43 ng/g), RAASF-02-SB-2-3 (0.32 ng/g), and RAASF-FD-SB-01 (0.29 ng/g) at the LOD because the concentrations detected in the samples were less than the LOD. (Qualifier and reason code: U, EB)
  - PFOS was not detected in samples AOI01-SB-0-2, RAASF-01-SB-0-2, RAASF-01-SB-5-6, and RAASF-01-SB-9-10 and data usability is not adversely affected by the blank detection.
- PFOS was detected at a concentration of 0.41 ng/L in equipment blank RAASF-EB-02, associated with samples RAASF-01-GW and RAASF-FD-GW-01. PFOS was not detected in the associated samples and data usability is not adversely affected by the blank detection.
- PFOS was detected at a concentration of 0.43 ng/L, equivalent to 0.43 ng/g, in field blank RAASF-FB-02, associated with samples AOI01-01-GW, AOI01-02-SB-0-2, AOI01-02-SB-5-6, AOI01-02-SB-10-11, AOI01-SB-6-7, AOI01-SB-11-12, RAASF-02-GW, RAASF-03-GW, RAASF-03-SB-0-2, RAASF-03-SB-6-7, RAASF-03-SB-11-12, RAASF-04-SB-0-2, RAASF-04-SB-3-4, RAASF-04-SB-5-6, RAASF-FD-SB-02, and RAASF-FD-SB-03. Data limitations are summarized below.
  - Wood U qualified the PFOS detections in samples AOI01-01-GW (0.50 ng/L) and RAASF-03-GW (0.78 ng/L) at the LOD because the concentrations detected in the samples were less than the LOD. (Qualifier and reason code: U, FB)
  - Wood U qualified the PFOS detection in sample AOI01-02-SB-0-2 at the LOQ of 0.67 ng/g because the concentration detected in the sample, at 0.46 ng/g, was between the LOD and the LOQ. (Qualifier and reason code: U, FB)
  - Wood J+ qualified the PFOS detection in sample RAASF-FD-SB-03 because the concentration detected in the sample, at 1.0 ng/g, was greater than the LOQ and less than five times the equivalent concentrations detected in the blank. (J+, FB)
  - The PFOS concentration detected in sample RAASF-02-GW was greater than the LOQ, more than five times the blank detection, and data usability is not adversely affected by the blank detection.
  - PFOS was not detected in samples AOI01-SB-6-7, AOI01-SB-11-12, AOI01-02-SB-5-6, AOI01-02-SB-10-11, RAASF-03-SB-0-2, RAASF-03-SB-6-7, RAASF-03-SB-11-12, RAASF-04-SB-0-2, RAASF-04-SB-3-4, RAASF-04-SB-5-6, and RAASF-FD-SB-02 and data usability is not adversely affected by the blank detection.

- PFOS was detected at a concentration of 0.44 ng/L, equivalent to 0.44 ng/g, in equipment blank RAASF-EB-03, associated with samples AOI01-02-SB-0-2, AOI01-02-SB-5-6, AOI01-02-SB-10-11, AOI01-SB-6-7, AOI01-SB-11-12, RAASF-03-SB-0-2, RAASF-03-SB-6-7, RAASF-03-SB-11-12, RAASF-04-SB-0-2, RAASF-04-SB-3-4, RAASF-04-SB-5-6, RAASF-FD-SB-02, and RAASF-FD-SB-03. Data limitations are summarized below.
  - Wood U qualified the PFOS detection in sample AOI01-02-SB-0-2 at the LOQ of 0.67 ng/g because the concentration detected in the sample, at 0.46 ng/g, was between the LOD and the LOQ. (Qualifier and reason code: U, EB)
  - Wood J+ qualified the PFOS detection in sample RAASF-FD-SB-03 because the concentration detected in the sample, at 1.0 ng/g, was greater than the LOQ and less than five times the equivalent concentrations detected in the blank. (J+, EB)
  - PFOS was not detected in samples AOI01-SB-6-7, AOI01-SB-11-12, AOI01-02-SB-5-6, AOI01-02-SB-10-11, RAASF-03-SB-0-2, RAASF-03-SB-6-7, RAASF-03-SB-11-12, RAASF-04-SB-0-2, RAASF-04-SB-3-4, RAASF-04-SB-5-6, and RAASF-FD-SB-02 and data usability is not adversely affected by the blank detection.
- PFOS was detected at a concentration of 0.46 ng/L, equivalent to 0.46 ng/g, in equipment blank RAASF-EB-05, associated with samples AOI01-03-SB-0-2, RAASF-05-SB-0-2, RAASF-05-SB-5-6, RAASF-06-SB-0-2, RAASF-06-SB-4-5, RAASF-06-SB-8-9, RAASF-07-SB-0-2, RAASF-07-SB-3-4, RAASF-07-SB-5-6, and RAASF-FD-SB-04. Data limitations are summarized below.
  - Wood U qualified the PFOS result from samples AOI01-03-SB-0-2 (0.28 ng/g), RAASF-06-SB-0-2 (0.32 ng/g), RAASF-07-SB-0-2 (0.23 ng/g), and RAASF-07-SB-3-4 (0.22 ng/g) at the LOD because the concentrations detected in the samples were less than the LOD. (Qualifier and reason code: U, EB)
  - PFOS was not detected in samples RAASF-05-SB-0-2, RAASF-05-SB-5-6, RAASF-06-SB-4-5, RAASF-06-SB-8-9, RAASF-FD-SB-04, and RAASF-07-SB-5-6 and data usability is not adversely affected by the blank detection.

7.1.8 Laboratory Control Sample Accuracy and Precision

LCS recoveries were within QSM 5.3-specified limits and RPDs between LCS and LCSD results were less than or equal to the QAPP-specified maximum of 30%.

7.1.9 Matrix Spikes/ Matrix Spike Duplicates Accuracy and Precision

Eurofins performed MS and MSD analyses on samples RAASF-02-GW, RAASF-03-SB-0-2, and RAASF-05-SB-0-2. Recoveries were within QSM 5.3-specified limits and RPDs between MS and MSD results were less than or equal to the QAPP-specified maximum of 30%.

7.1.10 Laboratory Duplicate Precision

Eurofins did not perform duplicate analysis on the samples reviewed in this report.

7.1.11 Extracted Internal Standard Accuracy

Eurofins' reported EIS recoveries are based on the average response from the initial calibration instead of the area counts from either the ICAL midpoint standard or the areas measured in the initial CCV. For this assessment Wood recalculated EIS recoveries for field samples based on QC summary form VIII.

EIS recoveries were within the QAPP-specified limits of 50 to 150% of areas measured in the ICAL midpoint standard or 50 to 150% of the areas measured in the initial CCV on days when ICAL is not performed, with the following exceptions:

- Recoveries of the EISs d_3-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) and d_5-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) were low in samples AOI01-SB-0-2 (34%, 44%), AOI01-SB-6-7 (34%, 42%), AOI01-02-SB-5-6 (30%, 41%), AOI01-02-SB-10-11 (22%, 32%), AOI01-03-SB-0-2 (38%, 44%), AOI01-03-SB-3-4 (34%, 39%), AOI01-04-SB-4-5 (37%, 45%), AOI01-04-SB-9-10 (23%, 33%), RAASF-02-SB-2-3 (37%, 49%), RAASF-03-SB-0-2 (26%, 31%), RAASF-05-SB-5-6 (32%, 43%), RAASF-06-SB-4-5 (16%, 23%), RAASF-06-SB-8-9 (26%, 37%), RAASF-07-SB-0-2 (39%, 49%), and RAASF-07-SB-3-4 (26%, 30%). Data limitations are summarized below.
  - Wood X qualified the NMeFOSAA result from sample RAASF-06-SB-4-5 because of the extremely low EIS recovery. (Qualifier and reason code: X, LI)
  - Wood UJ qualified the non-detected NEtFOSAA result from sample RAASF-06-SB-4-5 because of the low EIS recovery. (Qualifier and reason code: UJ, LI)
  - Wood UJ qualified the non-detected NMeFOSAA and NEtFOSAA results from samples AOI01-SB-0-2, AOI01-SB-6-7, AOI01-02-SB-5-6, AOI01-02-SB-10-11, AOI01-03-SB-0-2, AOI01-03-SB-3-4, AOI01-04-SB-4-5, AOI01-04-SB-9-10, RAASF-02-SB-2-3, RAASF-03-SB-0-2, RAASF-05-SB-5-6, RAASF-06-SB-8-9, RAASF-07-SB-0-2, and RAASF-07-SB-3-4 because of the low EIS recoveries. (Qualifier and reason code: UJ, LI)
- Recoveries of the EIS d_3-NMeFOSAA were low in samples RAASF-04-SB-0-2 (44%), RAASF-04-SB-3-4 (42%), and RAASF-04-SB-5-6 (41%). Wood UJ qualified the non-detected NMeFOSAA results from the associated samples because of the low EIS recoveries. (Qualifier and reason code: UJ, LI)
- Recoveries of the EISs $^{13}C_4$-perfluorobutanoic acid (PFBA) and M_2-4:2 fluorotelomer sulfonic acid (FTS) were outside of limits at 48% and 153%, respectively, in sample AOI01-02-GW. Data limitations are summarized below.
  - Wood J+ qualified the detected PFBA result from this sample because if the low EIS recovery. (Qualifier and reason code: J+, LI)
  - 4:2 FTS was not detected in this sample and data usability is not adversely affected by the high EIS recovery.
- Recoveries of the EISs M_2-4:2 FTS and M_2-6:2 FTS were high at 207% and 169%, respectively, in sample AOI01-03-GW. Data limitations are summarized below.
  - Wood J- qualified the detected 6:2 FTS result from this sample because of the high EIS recovery. (Qualifier and reason code: J-, HI)
  - 4:2 FTS was not detected in this sample and data usability is not adversely affected by the high EIS recovery.
- Recoveries of the EISs $^{13}C_4$-PFBA (46%), M_2-4:2 FTS (174%),$^{13}C_8$-FOSA (49%), $^{13}C_2$-perfluorododecanoic acid (PFDoA [41%]), and $^{13}C_2$-perfluorotetradecanoic acid (PFTeDA [17%]) were outside of limits in sample RAASF-02-GW. Data limitations are summarized below.
  - Wood X qualified the PFTeDA result from this sample because of the extremely low EIS recovery. (Qualifier and reason code: X, LI)

  - Wood J+ qualified the detected PFBA result from this sample because of the low EIS recovery. (Qualifier and reason code: J+, LI)
  - Wood UJ qualified the non-detected FOSA, PFDoA, and perfluorotridecanoic acid (PFTrDA) results from this sample because of the low EIS recoveries. (Qualifier and reason code: UJ, LI)
  - 4:2 FTS was not detected in this sample and data usability is not adversely affected by the high EIS recovery.
- Recoveries of the EISs $^{13}C_4$-PFBA (44%), $^{13}C_2$-PFDoA (34%), and $^{13}C_2$-PFTeDA (4%) were low in sample AOI01-04-GW. Data limitations are summarized below.
  - Wood X qualified the PFTeDA result from this sample because of the extremely low EIS recovery. (Qualifier and reason code: X, LI)
  - Wood J+ qualified the detected PFBA result from this sample because of the low EIS recovery. (Qualifier and reason code: J+, LI)
  - Wood UJ qualified the non-detected PFDoA and PFTrDA results from this sample because of the low EIS recoveries. (Qualifier and reason code: UJ, LI)
- Recoveries of the EIS M_2-4:2 FTS were high in samples RAASF-01-GW (188%), RAASF-06-GW (157%), and RAASF-FD-GW-01 (154%). 4:2 FTS was not detected in these samples and data usability is not adversely affected by the high EIS recoveries.
- Recoveries of the EISs d_3-NMeFOSAA and d_5-NEtFOSAA were low in the MS (27%, 34%) and MSD (31%, 37%) performed on sample RAASF-03-SB-0-2. Wood does not qualify data from field samples based on EIS recoveries in the associated MS and MSD and no data were qualified due to the low EIS recoveries.
- Recoveries of the EISs $^{13}C_4$-PFBA (46%), M_2-4:2 FTS (164%), M_2-6:2 FTS (152%), and $^{13}C_2$-PFTeDA were outside of limits in the MS; and $^{13}C_4$-PFBA (46%), M_2-4:2 FTS (162%), $^{13}C_8$-FOSA (43%), $^{13}C_2$-PFDoA (48%), and $^{13}C_2$-PFTeDA (32%) were outside of limits in the MSD performed on sample RAASF-02-GW. Wood does not qualify data from field samples based on EIS recoveries in the associated MS and MSD and no data were qualified due to the high and low EIS recoveries

7.1.12 Data Reporting and Analytical Procedures

Eurofins J qualified detected results with concentrations less than the LOQ. Wood agrees these results are quantitatively uncertain and has maintained Eurofins' J qualifiers. (Qualifier and reason code: J, DL)

8.0 Field Duplicate Precision

EA collected field duplicates with samples:

- RAASF-01-GW (RAASF-FD-GW-01),
- RAASF-05-GW (RAASF-FD-GW-02),
- RAASF-02-SB-0-2 (RAASF-FD-SB-01),
- AOI01-SB-11-12 (RAASF-FD-SB-02),
- AOI01-02-SB-0-2 (RAASF-FD-SB-03), and
- RAASF-06-SB-0-2 (RAASF-FD-SB-04).

RPDs between primary and field duplicate results were less than the QAPP-specified maximum of 50% for solid samples or 30% for water samples, or differences between results were less than the average LOQ.

Detections in the primary samples and their field duplicates are summarized in Table 2.

9.0 Summary and Conclusions

Wood reviewed a total of 1,152 records from field samples and applied the following qualifiers to the data during validation:

- X: 3 records (0.26%) were X qualified as needing further evaluation during data usability assessment because of extremely low EIS recoveries;
- J: 45 records (3.9%) were J qualified as being estimated values because of detected concentrations less than the LOQ;
- J+: 6 records (0.52%) were J+ qualified because of blank detections or low EIS recoveries;
- J-: 1 record (0.09%) was J- qualified because of high EIS recovery;
- U: 12 records (1.0%) were U qualified because of detections in the associated laboratory, equipment, and/or field blanks; and
- UJ: 37 records (3.2%) were UJ qualified as being estimated non-detected values because of low EIS recoveries.

10.0 References

EA, 2020. Final Programmatic UFP-QAPP, Site Inspection for Per- and Polyfluoroalkyl Substances Impacted Sites, ARNG Installations, Nationwide, December.

DoD, 2019a. DoD QSM, Version 5.3. May.

DoD, 2019b. General Data Validation Guidelines, Revision 1. November.

DoD, 2020. Data Validation Guidelines Module 3: Data Validation Procedure of Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-15. May.

11.0 Limitations

This report was prepared exclusively for EA by Wood Environment & Infrastructure Solutions, Inc. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in Wood services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This Data Validation report is intended to be used by EA for the Nationwide ARNG Installations Site Inspections for Per- and Polyfluoroalkyl Substances project only, subject to the terms and conditions of its contract with Wood. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

Tables

Table 1
Field Samples Submitted to Eurofins Environment Testing America
Army Aviation Support Facility #2
Rochester, New York

Field Sample Identification	Matrix	Collection Date and Time	Laboratory Sample Identification	Notes
RAASF-01-SB-0-2	Solid	3/21/2022 9:45	410-77655-1	
RAASF-01-SB-5-6	Solid	3/21/2022 10:20	410-77655-2	
RAASF-01-SB-9-10	Solid	3/21/2022 10:30	410-77655-3	
RAASF-02-SB-0-2	Solid	3/21/2022 12:40	410-77655-4	
RAASF-02-SB-2-3	Solid	3/21/2022 13:10	410-77655-5	
RAASF-FD-SB-01	Solid	3/21/2022 0:00	410-77655-6	Field duplicate of RAASF-02-SB-0-2
AOI01-SB-0-2	Solid	3/21/2022 13:45	410-77655-7	
RAASF-01-GW	Water	3/21/2022 14:20	410-77655-8	
RAASF-FB-01	Water	3/21/2022 15:50	410-77655-9	Field blank
RAASF-EB-01	Water	3/21/2022 15:45	410-77655-10	Equipment blank
RAASF-EB-02	Water	3/21/2022 15:45	410-77655-11	Equipment blank
RAASF-FD-GW-01	Water	3/21/2022 0:00	410-77655-12	Field duplicate of RAASF-01-GW
RAASF-02-GW	Water	3/22/2022 9:45	410-77655-13	
RAASF-03-GW	Water	3/22/2022 14:50	410-77655-14	
AOI01-01-GW	Water	3/22/2022 12:42	410-77655-15	
RAASF-FB-02	Water	3/22/2022 15:50	410-77655-16	Field blank
RAASF-EB-03	Water	3/22/2022 15:45	410-77655-17	Equipment blank
RAASF-EB-04	Water	3/22/2022 15:45	410-77655-18	Equipment blank
AOI01-SB-6-7	Solid	3/22/2022 8:30	410-77655-19	
AOI01-SB-11-12	Solid	3/22/2022 8:20	410-77655-20	
RAASF-03-SB-0-2	Solid	3/22/2022 9:30	410-77655-21	
RAASF-03-SB-6-7	Solid	3/22/2022 10:35	410-77655-22	
RAASF-03-SB-11-12	Solid	3/22/2022 10:35	410-77655-23	
RAASF-04-SB-0-2	Solid	3/22/2022 11:20	410-77655-24	
RAASF-04-SB-3-4	Solid	3/22/2022 12:10	410-77655-25	
RAASF-04-SB-5-6	Solid	3/22/2022 11:55	410-77655-26	
AOI01-02-SB-0-2	Solid	3/22/2022 13:25	410-77655-27	
AOI01-02-SB-5-6	Solid	3/22/2022 14:05	410-77655-28	
AOI01-02-SB-10-11	Solid	3/22/2022 14:05	410-77655-29	
RAASF-FD-SB-02	Solid	3/22/2022 0:00	410-77655-30	Field duplicate of AOI01-SB-11-12
RAASF-FD-SB-03	Solid	3/22/2022 0:00	410-77655-31	Field duplicate of AOI01-02-SB-0-2
RAASF-05-SB-0-2	Solid	3/23/2022 7:40	410-77655-32	
RAASF-05-SB-5-6	Solid	3/23/2022 8:10	410-77655-33	
RAASF-06-SB-0-2	Solid	3/23/2022 9:00	410-77655-34	
RAASF-06-SB-4-5	Solid	3/23/2022 9:45	410-77655-35	
RAASF-06-SB-8-9	Solid	3/23/2022 9:45	410-77655-36	
RAASF-FD-SB-04	Solid	3/23/2022 0:00	410-77655-37	Field duplicate of RAASF-06-SB-0-2
RAASF-07-SB-0-2	Solid	3/23/2022 11:30	410-77655-38	
RAASF-07-SB-3-4	Solid	3/23/2022 13:00	410-77655-39	
RAASF-07-SB-5-6	Solid	3/23/2022 13:00	410-77655-40	
AOI01-03-SB-0-2	Solid	3/23/2022 14:05	410-77655-41	

Table 1
Field Samples Submitted to Eurofins Environment Testing America
Army Aviation Support Facility #2
Rochester, New York

Field Sample Identification	Matrix	Collection Date and Time	Laboratory Sample Identification	Notes
RAASF-04-GW	Water	3/23/2022 9:05	410-77655-42	
RAASF-05-GW	Water	3/23/2022 13:55	410-77655-43	
RAASF-FD-GW-02	Water	3/23/2022 0:00	410-77655-44	Field duplicate of RAASF-05-GW
RAASF-EB-05	Water	3/23/2022 15:00	410-77655-45	Equipment blank
RAASF-EB-06	Water	3/23/2022 15:00	410-77655-46	Equipment blank
RAASF-FB-03	Water	3/23/2022 15:05	410-77655-47	Field blank
AOI01-03-SB-6-7	Solid	3/24/2022 8:00	410-77655-48	
AOI01-03-SB-3-4	Solid	3/24/2022 8:25	410-77655-49	
AOI01-04-SB-0-2	Solid	3/24/2022 9:35	410-77655-50	
AOI01-04-SB-4-5	Solid	3/24/2022 10:50	410-77655-51	
AOI01-04-SB-9-10	Solid	3/24/2022 10:50	410-77655-52	
AOI01-02-GW	Water	3/24/2022 9:11	410-77655-53	
AOI01-03-GW	Water	3/24/2022 10:50	410-77655-54	
RAASF-07-GW	Water	3/24/2022 9:37	410-77655-55	
RAASF-FB-04	Water	3/24/2022 11:30	410-77655-56	Field blank
RAASF-EB-07	Water	3/24/2022 11:35	410-77655-57	Equipment blank
RAASF-06-GW	Water	3/24/2022 12:00	410-77655-58	
AOI01-04-GW	Water	3/25/2022 7:05	410-78012-1	

Table 2
Target Analyte Detections in Primary and Field Duplicate Samples
Army Aviation Support Facility #2
Rochester, New York

Analyte	Average Limit of Quantitation	Primary Result	Field Duplicate Result	Relative Percent Difference	Notes
Samples RAASF-01-GW and RAASF-FD-GW-01					
Perfluorobutanoic acid	4.2 ng/L	32	39	20%	
Perfluoropentanoic acid	1.7 ng/L	64	71	10%	
Perfluorohexanoic acid	1.7 ng/L	39	43	9.8%	
Perfluoroheptanoic acid	1.7 ng/L	14	17	19%	
Perfluorooctanoic acid	1.7 ng/L	4.8	5.4	12%	
Perfluorononanoic acid	1.7 ng/L	0.67 J	0.79 J	16%	
Perfluorobutanesulfonic acid	1.7 ng/L	0.89 J	0.77 J	14%	
6:2 Fluorotelomer sulfonic acid	4.2 ng/L	15	19	24%	
Samples RAASF-05-GW and RAASF-FD-GW-02					
Perfluorobutanesulfonic acid	1.8 ng/L	0.51 J	0.47 J	8.2%	
Samples RAASF-02-SB-0-2 and RAASF-FD-SB-01					
Perfluoropentanoic acid	0.80 ng/g	0.52 J	0.56 U	NC	
Samples AOI01-SB-11-12 and RAASF-FD-SB-02					
No detected target analytes					
Samples AOI01-02-SB-0-2 and RAASF-FD-SB-03					
Perfluoropentanoic acid	0.69 ng/g	0.39 J	0.62 J	46%	
Perfluorohexanoic acid	0.69 ng/g	0.27 J	0.37 J	31%	
Perfluoroheptanoic acid	0.69 ng/g	0.27 J	0.40 J	39%	
Perfluorooctanoic acid	0.69 ng/g	0.36 J	0.63 J	55%	± LOQ
Perfluorononanoic acid	0.69 ng/g	0.45 U	0.31 J	NC	
Perfluorooctanesulfonic acid	0.69 ng/g	0.46 U	1.0 J+	NC	± LOQ
Samples RAASF-06-SB-0-2 and RAASF-FD-SB-04					
Perfluorooctanoic acid	0.73 ng/g	0.25 J	0.48 U	NC	± LOQ

Notes:
NC = not calculable
ng/g = nanograms per gram
ng/L = nanograms per liter

Qualifier Definitions:
J = The reported result is an estimated quantity with an unknown bias.
J+ = The result is an estimated quantity, but the result may be biased high.
U = The analyte was not detected and was reported as less than the limit of detection.

Reason Code:
± LOQ = the difference between analyte concentrations is less than the limit of quantitation, indicating acceptable sampling and analytical precision.

Table 3
Qualifiers Applied During Validation
Army Aviation Support Facility #2
Rochester, New York

Sample Identification	Analyte	Concentration	Qualifier and Reason Code
AOI01-01-GW	Perfluorooctanesulfonic acid	0.98 ng/L	U MB, FB
AOI01-01-GW	Perfluorooctanoic acid	0.63 ng/L	J DL
AOI01-02-GW	Perfluorobutanoic acid	11 ng/L	J+ LI
AOI01-02-GW	Perfluorooctanesulfonic acid	0.88 ng/L	U MB
AOI01-02-GW	Perfluorooctanoic acid	1.3 ng/L	J DL
AOI01-02-SB-0-2	Perfluoroheptanoic acid	0.27 ng/g	J DL
AOI01-02-SB-0-2	Perfluorohexanoic acid	0.27 ng/g	J DL
AOI01-02-SB-0-2	Perfluorooctanesulfonic acid	0.67 ng/g	U EB, FB
AOI01-02-SB-0-2	Perfluorooctanoic acid	0.36 ng/g	J DL
AOI01-02-SB-0-2	Perfluoropentanoic acid	0.39 ng/g	J DL
AOI01-02-SB-10-11	NEtFOSAA	0.42 ng/g	UJ LI
AOI01-02-SB-10-11	NMeFOSAA	0.42 ng/g	UJ LI
AOI01-02-SB-5-6	NEtFOSAA	0.43 ng/g	UJ LI
AOI01-02-SB-5-6	NMeFOSAA	0.43 ng/g	UJ LI
AOI01-03-GW	6:2 Fluorotelomer sulfonic acid	30 ng/L	J- HI
AOI01-03-GW	8:2 Fluorotelomer sulfonic acid	1.1 ng/L	J DL
AOI01-03-GW	Perfluorobutanesulfonic acid	1.1 ng/L	J DL
AOI01-03-GW	Perfluorodecanoic acid	0.75 ng/L	J DL
AOI01-03-GW	Perfluorohexanesulfonic acid	1.0 ng/L	J DL
AOI01-03-GW	Perfluorononanoic acid	1.4 ng/L	J DL
AOI01-03-GW	Perfluorooctanesulfonic acid	1.8 ng/L	J+ MB
AOI01-03-SB-0-2	NEtFOSAA	0.43 ng/g	UJ LI
AOI01-03-SB-0-2	NMeFOSAA	0.43 ng/g	UJ LI
AOI01-03-SB-0-2	Perfluoroheptanoic acid	0.23 ng/g	J DL
AOI01-03-SB-0-2	Perfluorohexanoic acid	0.23 ng/g	J DL
AOI01-03-SB-0-2	Perfluorooctanesulfonic acid	0.43 ng/g	U EB
AOI01-03-SB-0-2	Perfluoropentanoic acid	0.63 ng/g	J DL
AOI01-03-SB-3-4	NEtFOSAA	0.45 ng/g	UJ LI
AOI01-03-SB-3-4	NMeFOSAA	0.45 ng/g	UJ LI
AOI01-03-SB-3-4	Perfluoropentanoic acid	0.35 ng/g	J DL
AOI01-04-GW	Perfluorobutanoic acid	41 ng/L	J+ LI
AOI01-04-GW	Perfluorododecanoic acid	1.4 ng/L	UJ LI
AOI01-04-GW	Perfluorohexanoic acid	2.4 ng/L	J DL
AOI01-04-GW	Perfluorooctanesulfonamide	0.84 ng/L	J DL
AOI01-04-GW	Perfluorooctanoic acid	0.86 ng/L	J DL
AOI01-04-GW	Perfluorotetradecanoic acid	1.4 ng/L	X LI
AOI01-04-GW	Perfluorotridecanoic acid	1.4 ng/L	UJ LI
AOI01-04-SB-0-2	Perfluorohexanesulfonic acid	0.24 ng/g	J DL
AOI01-04-SB-0-2	Perfluorooctanoic acid	0.29 ng/g	J DL
AOI01-04-SB-4-5	NEtFOSAA	0.44 ng/g	UJ LI
AOI01-04-SB-4-5	NMeFOSAA	0.44 ng/g	UJ LI
AOI01-04-SB-9-10	NEtFOSAA	0.41 ng/g	UJ LI

Table 3
Qualifiers Applied During Validation
Army Aviation Support Facility #2
Rochester, New York

Sample Identification	Analyte	Concentration	Qualifier and Reason Code
AOI01-04-SB-9-10	NMeFOSAA	0.41 ng/g	UJ LI
AOI01-SB-0-2	NEtFOSAA	0.46 ng/g	UJ LI
AOI01-SB-0-2	NMeFOSAA	0.46 ng/g	UJ LI
AOI01-SB-6-7	NEtFOSAA	0.47 ng/g	UJ LI
AOI01-SB-6-7	NMeFOSAA	0.47 ng/g	UJ LI
RAASF-01-GW	Perfluorobutanesulfonic acid	0.89 ng/L	J DL
RAASF-01-GW	Perfluorononanoic acid	0.67 ng/L	J DL
RAASF-02-GW	6:2 Fluorotelomer sulfonic acid	3.8 ng/L	J DL
RAASF-02-GW	Perfluorobutanoic acid	20 ng/L	J+ LI
RAASF-02-GW	Perfluorododecanoic acid	0.90 ng/L	UJ LI
RAASF-02-GW	Perfluorononanoic acid	1.3 ng/L	J DL
RAASF-02-GW	Perfluorooctanesulfonamide	0.90 ng/L	UJ LI
RAASF-02-GW	Perfluorotetradecanoic acid	0.90 ng/L	X LI
RAASF-02-GW	Perfluorotridecanoic acid	0.90 ng/L	UJ LI
RAASF-02-SB-0-2	Perfluorooctanesulfonic acid	0.50 ng/g	U EB, FB
RAASF-02-SB-0-2	Perfluoropentanoic acid	0.52 ng/g	J DL
RAASF-02-SB-2-3	NEtFOSAA	0.47 ng/g	UJ LI
RAASF-02-SB-2-3	NMeFOSAA	0.47 ng/g	UJ LI
RAASF-02-SB-2-3	Perfluorooctanesulfonic acid	0.47 ng/g	U EB, FB
RAASF-03-GW	Perfluorooctanesulfonic acid	1.1 ng/L	U MB, FB
RAASF-03-GW	Perfluoropentanoic acid	1.1 ng/L	J DL
RAASF-03-SB-0-2	NEtFOSAA	0.46 ng/g	UJ LI
RAASF-03-SB-0-2	NMeFOSAA	0.46 ng/g	UJ LI
RAASF-04-GW	Perfluorobutanesulfonic acid	0.82 ng/L	J DL
RAASF-04-GW	Perfluoroheptanoic acid	0.55 ng/L	J DL
RAASF-04-GW	Perfluorohexanoic acid	1.2 ng/L	J DL
RAASF-04-GW	Perfluorooctanesulfonic acid	2.9 ng/L	J+ MB
RAASF-04-GW	Perfluorooctanoic acid	1.0 ng/L	J DL
RAASF-04-GW	Perfluoropentanoic acid	1.5 ng/L	J DL
RAASF-04-SB-0-2	NMeFOSAA	0.52 ng/g	UJ LI
RAASF-04-SB-3-4	NMeFOSAA	0.50 ng/g	UJ LI
RAASF-04-SB-5-6	NMeFOSAA	0.48 ng/g	UJ LI
RAASF-05-GW	Perfluorobutanesulfonic acid	0.51 ng/L	J DL
RAASF-05-SB-5-6	NEtFOSAA	0.42 ng/g	UJ LI
RAASF-05-SB-5-6	NMeFOSAA	0.42 ng/g	UJ LI
RAASF-06-GW	Perfluoroheptanoic acid	1.5 ng/L	J DL
RAASF-06-GW	Perfluorohexanesulfonic acid	1.3 ng/L	J DL
RAASF-06-GW	Perfluorohexanoic acid	1.5 ng/L	J DL
RAASF-06-GW	Perfluorononanoic acid	0.48 ng/L	J DL
RAASF-06-GW	Perfluorooctanesulfonic acid	1.6 ng/L	U MB
RAASF-06-SB-0-2	Perfluorooctanesulfonic acid	0.48 ng/g	U EB
RAASF-06-SB-0-2	Perfluorooctanoic acid	0.25 ng/g	J DL

Table 3
Qualifiers Applied During Validation
Army Aviation Support Facility #2
Rochester, New York

Sample Identification	Analyte	Concentration	Qualifier and Reason Code
RAASF-06-SB-4-5	NEtFOSAA	0.48 ng/g	UJ LI
RAASF-06-SB-4-5	NMeFOSAA	0.48 ng/g	X LI
RAASF-06-SB-8-9	NEtFOSAA	0.47 ng/g	UJ LI
RAASF-06-SB-8-9	NMeFOSAA	0.47 ng/g	UJ LI
RAASF-07-SB-0-2	NEtFOSAA	0.43 ng/g	UJ LI
RAASF-07-SB-0-2	NMeFOSAA	0.43 ng/g	UJ LI
RAASF-07-SB-0-2	Perfluorooctanesulfonic acid	0.43 ng/g	U EB
RAASF-07-SB-3-4	NEtFOSAA	0.40 ng/g	UJ LI
RAASF-07-SB-3-4	NMeFOSAA	0.40 ng/g	UJ LI
RAASF-07-SB-3-4	Perfluorooctanesulfonic acid	0.40 ng/g	U EB
RAASF-FD-GW-01	Perfluorobutanesulfonic acid	0.77 ng/L	J DL
RAASF-FD-GW-01	Perfluorononanoic acid	0.79 ng/L	J DL
RAASF-FD-GW-02	Perfluorobutanesulfonic acid	0.47 ng/L	J DL
RAASF-FD-SB-01	Perfluorooctanesulfonic acid	0.56 ng/g	U EB, FB
RAASF-FD-SB-03	Perfluoroheptanoic acid	0.40 ng/g	J DL
RAASF-FD-SB-03	Perfluorohexanoic acid	0.37 ng/g	J DL
RAASF-FD-SB-03	Perfluorononanoic acid	0.31 ng/g	J DL
RAASF-FD-SB-03	Perfluorooctanesulfonic acid	1.0 ng/g	J+ EB, FB
RAASF-FD-SB-03	Perfluorooctanoic acid	0.63 ng/g	J DL
RAASF-FD-SB-03	Perfluoropentanoic acid	0.62 ng/g	J DL

Notes:
NEtFOSAA = N-ethylperfluorooctanesulfonamidoacetic acid
ng/g = nanograms per gram
ng/L = nanograms per liter
NMeFOSAA = N-methylperfluorooctanesulfonamidoacetic acid

Qualifier Definitions:
J = The reported result is an estimated quantity with an unknown bias.
J+ = The result is an estimated quantity, but the result may be biased high.
J- = The result is an estimated quantity, but the result may be biased low.
U = The analyte was not detected and was reported as less than the limit of detection (LOD). The LOD has been adjusted for any dilution or concentration of the sample.
UJ = The analyte was not detected and was reported as less than the LOD. However, the associated numerical value is approximate.
X = The sample results were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

Table 3
Qualifiers Applied During Validation
Army Aviation Support Facility #2
Rochester, New York

Reason Codes:

DL = The detected concentration is less than the limit of quantitation.
EB = The analyte was detected in the associated equipment blank.
FB = The analyte was detected in the associated field blank.
HI = High extracted internal standard (EIS) recovery.
LI = Low EIS recovery.
MB = The analyte was detected in the associated laboratory blank.

Appendix B

Field Documentation

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Appendix B1

Logs of Daily Notice of Field Activities

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Date	EA Personnel	Weather	Summary Daily Activities	Issues	Progress to Date	Subcontractor(s)/ Visitors
03/25/2022	Mike Wright	Sunny,50 degrees	Collected groundwater sample from AOI01-04. Surveyed the top of casing and ground elevation at all wells and abandoned them with bentonite chips.	No issues	11 of 11 wells installed 11 of 11 groundwater samples collected 11 of 11 sets of soil samples collected Work is complete	Cascade Drillers (Rich and Roger) completed field activities overseen by NYARNG - Chris Lauth Ravi Engineering - Rob Langdon
03/24/2022	Mike Wright, Jake Guy, and Emily Fenner	Sunny,50 degrees	Drilling, soil sampling, and temporary well installation was completed at AOI01-03 and AOI01-04. Groundwater was encountered in AOI01-03 at approximately 8' bgs and the well was set approximately 4-5 ft into the water table. A groundwater sample was collected at AOI01-03, RAASF-06, RAASF-07, and AOI01-02.	At location AOI01-04, we hit refusal in a stiff gray silt at approximately 15 ft bgs. As such, per the QAPP, we performed two offsets. Based on the small grass area and the presence of several utilities in the vicinity of the boring (see attached figure), our offset options were limited to areas approximately 8' to the east and west of the original location. At both offsets, we hit refusal at approximately 15' bgs. There was some moisture in the original boring, so we set a well and plan to leave it overnight in hopes that the well can produce a sample tomorrow.	11 of 11 wells installed 10 of 11 groundwater samples collected 11 of 11 sets of soil samples collected Work will commence at 7:00 am 3/25/22	Cascade Drillers (Rich and Roger) completed field activities overseen by NYARNG - Chris Lauth
03/23/2022	Mike Wright, Enock Bunyon, and Emily Fenner	Sunny,50 degrees	Drilling, soil sampling, and temporary well installation was completed at RAASF-05, RAASF-06, and RAASF-07. The groundwater table was encountered at 6', 10' bgs, and 6' bgs, respectively, and wells were set approximately 4-5 ft into the water table. A groundwater sample was collected at RAASF-04 and RAASF-05. Set rig up on AOI01-03, drilled to 5 feet. We will begin here tomorrow.	An attempt was made to sample water at AOI01-02, however it was not successful due to an abundance of fines migrating through the screen, resulting in a slurry-like sample. Sand was added to the boring around the slotted screen to act as a sand pack and an attempt to resample the well will be made tomorrow.	9 of 11 wells installed 6 of 11 groundwater samples collected 9 of 11 sets of soil samples collected Work will commence at 7:00 am 3/24/22	Cascade Drillers (Rich and Roger) completed field activities overseen by NYARNG - Chris Lauth
03/22/2022	Mike Wright, Enock Bunyon, and Emily Fenner	Sunny, 43 degrees	Drilling, soil sampling, and temporary well installation was completed at AOI01-01, RAASF-03, RAASF-04, and AOI01-02. Groundwater was encountered at depths ranging from 6-13' bgs, and wells were set approximately 4-5 feet into the water table. A groundwater sample was collected at RAASF-02, RAASF-03, and AOI01-01. Set rig up on RAASF-05. We will begin here tomorrow.	No issues	6 of 11 wells installed 3 of 11 groundwater samples collected 6 of 11 sets of soil samples collected Work will commence at 7:00 am 3/23/22	Cascade Drillers (Rich and Roger) completed field activities overseen by ARNG G-9 - Jennifer Li NYARNG - Chris Lauth

03/21/2022	Mike Wright, Enock Bunyon, and Emily Fenner	Sunny, 52 degrees	Drilling, soil sampling, and temporary well installation was completed at RAASF-01 and RAASF-02. The groundwater table was encountered at 12' and 4' bgs, respectively, and wells were set approximately 4-5 ft into the water table. A groundwater sample was collected at RAASF-01. Drilling and soil sampling was initiated at AOI-01-01 . Drilled to 10' bgs. We will begin here tomorrow.	No issues	2 of 11 wells installed 1 of 11 groundwater samples collected 2 of 11 sets of soil samples collected Work will commence at 7:00 am 3/22/22	Cascade Drillers (Rich and Roger) completed field activities overseen by ARNG G-9 - Jennifer Li NYSDEC- Brittany O'Brien-Drake NYARNG - Chris Lauth
03/17/2022	Mike Kepner	Sunny, 65 degrees	The team was escorted to the 11 temporary well point locations. Ravi Engineering performed a utility clearance within a 20 foot radius of each well point.	No issues	The sample location reconnaissance is complete. Drilling and Sampling activities will begin on 21 March 2022.	Ravi Engineering (1 personnel) NYARNG - ILT Steves Vanderpool AASF - CW2 Southcott

Appendix B2

Sampling Forms

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EA Engineering, Science, and Technology, Inc.

FIELD CALIBRATION FORM

YSI 3800
pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY, ORP, AND DISSOVED OXYGEN

CALIBRATION
DATE: 3/21/22
TIME:
METER ID: 46982

pH CALIBRATION

pH STANDARD	INITIAL READING	FINAL READING
4.0	4.15	4.08
7.0	6.22	6.93
10.0	9.79	10.09

CONDUCTIVITY CALIBARATION

CONDUCTIVITY STANDARD	STANDARD READING	FINAL READING
1.413	1.398	1.413

TURBIDITY CALIBRATION

STANDARD	INITIAL READING	FINAL READING
0 NTU	2.76	0
126 NTU	130.33	131.56

ORP CALIBRATION

STANDARD	FINAL READING
240 millivolts	(EP 23) 239.5

DISSOLVED OXYGEN CALIBRATION

STANDARD	INTITIAL READING	FINAL READING
100% AIR SATURATION	96.1 %	97.8

COMMENTS

None

SIGNATURE

EA Engineering, Science, and Technology, Inc.

FIELD CALIBRATION FORM

YSI 3800
pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY, ORP, AND DISSOVED OXYGEN

CALIBRATION	
DATE:	3/22/22
TIME:	0725
METER ID:	19A122

pH CALIBRATION

pH STANDARD	INITIAL READING	FINAL READING
4.0	4.61	4.0
7.0	6.97	7.0
10.0	9.96	10.0

CONDUCTIVITY CALIBARATION

CONDUCTIVITY STANDARD	STANDARD READING	FINAL READING
1.413	1.413	1.293

TURBIDITY CALIBRATION

STANDARD	INITIAL READING	FINAL READING
0 NTU	0	0
126 NTU	119	126

ORP CALIBRATION

STANDARD	FINAL READING
240 millivolts	241

DISSOLVED OXYGEN CALIBRATION

STANDARD	INTITIAL READING	FINAL READING
100% AIR SATURATION	98	100

COMMENTS

SIGNATURE

EA Engineering, Science, and Technology, Inc.

FIELD CALIBRATION FORM

YSI 3800
pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY, ORP, AND DISSOVED OXYGEN

CALIBRATION
DATE: 3/23/22
TIME: 0700
METER ID: 104122

pH CALIBRATION

pH STANDARD	INITIAL READING	FINAL READING
4.0	4.49	4.0
7.0	7.02	7.0
10.0	10.15	10.0

CONDUCTIVITY CALIBARATION

CONDUCTIVITY STANDARD	STANDARD READING	FINAL READING
1.413	1.413	0.657

TURBIDITY CALIBRATION

STANDARD	INITIAL READING	FINAL READING
0 NTU	3.2	0.0
126 NTU	115.2	126

ORP CALIBRATION

STANDARD	FINAL READING
240 millivolts	240

DISSOLVED OXYGEN CALIBRATION

STANDARD	INTITIAL READING	FINAL READING
100% AIR SATURATION	99	100.1

COMMENTS

SIGNATURE

EA Engineering, Science, and Technology, Inc.

FIELD CALIBRATION FORM

YSI 3800
pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY, ORP, AND DISSOVED OXYGEN

CALIBRATION
DATE: 3/23/22
TIME: 0705
METER ID: 04H755

pH CALIBRATION

pH STANDARD	INITIAL READING	FINAL READING
4.0	6.70	4.17
7.0	6.41	6.62
10.0	6.77	9.82

CONDUCTIVITY CALIBARATION

CONDUCTIVITY STANDARD	STANDARD READING	FINAL READING
1.413	1.06	1.11

TURBIDITY CALIBRATION

STANDARD	INITIAL READING	FINAL READING
0 NTU	—	—
126 NTU		

ORP CALIBRATION

STANDARD	FINAL READING
240 millivolts	ED 263

DISSOLVED OXYGEN CALIBRATION

STANDARD	INTITIAL READING	FINAL READING
100% AIR SATURATION	94.6	94.0

COMMENTS

No option for turbidity ~~display~~ detection or calibration

Emily Keen

SIGNATURE

EA Engineering, Science, and Technology, Inc.

FIELD CALIBRATION FORM

YSI 3800
pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY, ORP, AND DISSOVED OXYGEN

CALIBRATION
DATE: 3/24/22
TIME: 0645
METER ID: 46982

pH CALIBRATION

pH STANDARD	INITIAL READING	FINAL READING
4.0	4.60	4.06
7.0	6.46	7.09
10.0	8.02	10.14

CONDUCTIVITY CALIBARATION

CONDUCTIVITY STANDARD	STANDARD READING	FINAL READING
1.413	0.897	0.927

TURBIDITY CALIBRATION

STANDARD	INITIAL READING	FINAL READING
0 NTU	3.59	3.01
126 NTU	119.93	118.49

ORP CALIBRATION

STANDARD	FINAL READING
240 millivolts	242.6

DISSOLVED OXYGEN CALIBRATION

STANDARD	INTITIAL READING	FINAL READING
100% AIR SATURATION	99.8	99.4

COMMENTS

Emily Fuller

SIGNATURE

EA Engineering, Science, and Technology, Inc.

FIELD CALIBRATION FORM

YSI 3800
pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY, ORP, AND DISSOVED OXYGEN

CALIBRATION
DATE: 3/24/22
TIME: 0720
METER ID: 041755

pH CALIBRATION

pH STANDARD	INITIAL READING	FINAL READING
4.0	6.15	4.36
7.0	5.32	6.81
10.0	7.44	10.01

CONDUCTIVITY CALIBARATION

CONDUCTIVITY STANDARD	STANDARD READING	FINAL READING
1.413	1.25	1.25

TURBIDITY CALIBRATION

STANDARD	INITIAL READING	FINAL READING
0 NTU	—	—
126 NTU	—	—

ORP CALIBRATION

STANDARD	FINAL READING
240 millivolts	240.6

DISSOLVED OXYGEN CALIBRATION

STANDARD	INTITIAL READING	FINAL READING
100% AIR SATURATION	389	100.9

COMMENTS

No option to calibrate turbidity

SIGNATURE

FIELD CALIBRATION FORM

Site Name: Rochester AASF #2

INSTRUMENT: PID MiniRAE	INSTRUMENT ID No: 037720
OPERATOR: Mike Wright	WEATHER: 40 Sun
SPAN GAS TYPE: Isobutylene	DATE: 3/21/22
CALIBRATION NOTES:	
Zero cal = 0.0 ppm	
Span cal = 98.7 ppm	
COMMENTS:	
None	
SIGNATURE:	DATE: 3/21/22

FIELD CALIBRATION FORM

Site Name: Rock MSF #2

INSTRUMENT: PID Mini RAE	INSTRUMENT ID No: 037720
OPERATOR: M. Wright	WEATHER: ~~F~~ 22 - F clouds
SPAN GAS TYPE: Isobutylene	DATE: 3/22/22
CALIBRATION NOTES:	
Zero cal = 0.0 ppm	
Span cal = 100.0 ppm	
COMMENTS:	
None	
SIGNATURE: [signature]	DATE: 3/22/22

FIELD CALIBRATION FORM

Site Name: Rochester AASF #2

INSTRUMENT: PID MiniRAE	INSTRUMENT ID No: 037720
OPERATOR: M. Wright	WEATHER: 30 Clouds
SPAN GAS TYPE: Isobutylene	DATE: 3/23/22
CALIBRATION NOTES:	
Zero cal = 0.0 ppm	
Span cal = 100.1 ppm	
COMMENTS:	
None	
SIGNATURE: [signature]	DATE: 3/23/23

FIELD CALIBRATION FORM

Site Name: Rochester AASF #2

INSTRUMENT: PID MiniRAE	INSTRUMENT ID No: 037720
OPERATOR: M. Wright	WEATHER: 35 Rain
SPAN GAS TYPE: Iso butylene	DATE: 3/24/22
CALIBRATION NOTES:	
Zero cal = 0.0 ppm	
span cal = 100.0 ppm	
COMMENTS:	
NONE	
SIGNATURE: [signature]	DATE: 3/24/22

FIELD CALIBRATION FORM

Site Name: Rochester AASF #2

INSTRUMENT: PID Mini RAE	INSTRUMENT ID No: 037720
OPERATOR: Mike Wright	WEATHER: 45 clouds
SPAN GAS TYPE: Isobutylene	DATE: 3/25/22
CALIBRATION NOTES:	
Zero conc = 0.1 ppm	
span conc = 100.0 ppm	
COMMENTS:	
NONE	
SIGNATURE: [signature]	DATE: 3/25/22

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID A0101-01 SAMPLE NO. A0101-01-GW

WELL/SITE DESCRIPTION

DATE 3/22/22 TIME 1115 AIR TEMP.

WELL DEPTH 18.32 ft CASING HEIGHT ft

WATER DEPTH 8.87 ft WELL DIAMETER in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.30 (gpm) (LPM)

PUMP TIME 1142 min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME min

VOL. REMOVED (gal) (L) RECOVERY TIME min

PURGE AGAIN? ( ) Yes (X) No TOTAL VOL. REMOVED 18 (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond. mS/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate
3/22/22	1142	-	7.58	0.725	10.5	-46.7	-	3.03	9.23	0.30
	1147	1.5	7.47	0.746	10.7	-53.9	-	3.68	9.41	0.30
	1152	3.0	7.53	0.709	10.1	-75.9	-	3.50	9.43	0.30
	1157	4.5	7.45	0.739	10.4	-71.1	-	3.10	9.97	0.30
	1202	6.0	7.42	0.725	10.4	99.5	-	2.40	10.12	0.30
	1207	7.5	7.41	0.720	10.3	129.5	-	2.03	10.10	0.30
	1212	9.0	7.41	0.721	10.4	121.8	-	2.53	10.08	0.30
	1217	10.5	7.42	0.719	10.5	162.9	-	1.39	10.01	0.30
	1222	12.0	7.38	0.753	10.5	199.2	-	1.26	11.10	0.30
	1227	13.5	7.38	0.747	10.6	205.7	-	0.99	11.12	0.30
	1232	15.0	7.38	0.737	10.4	213.7	-	0.88	11.21	0.30
	1237	16.5	7.38	0.748	10.4	213.3	-	0.82	11.14	0.30
	1242	18.0	7.34	0.740	10.40	215.6	-	0.80	11.21	0.30

COMMENTS Sample very turbid. Sample Time 1242. shake bottle performed No bubbles observed.

SIGNATURE

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID AOI01-02 SAMPLE NO. AOI01-02-GW

WELL/SITE DESCRIPTION

DATE 3/23/22 TIME 0830 AIR TEMP.

WELL DEPTH ft CASING HEIGHT ft

WATER DEPTH 8.25 ft WELL DIAMETER in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.29 (gpm) (LPM)

PUMP TIME 0848 min

WELL WENT DRY? (X) Yes ( ) No PUMP TIME min

VOL. REMOVED (gal) (L) RECOVERY TIME min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond.	Temp.	ORP	Turb.	DO	Depth to Water from TOC	Pump Rate
3/24/22	0842		9.22	0.077	8.6	15.2	—	10.07		0.28
	0847		9.23	0.077	8.5	14.9	—	10.09		
	0852		8.87	0.188	9.1	14.7	—	9.38		
	~~0857~~									
	~~0902~~									
	~~0907~~									
	~~0912~~									
	~~0917~~									
	~~0922~~									

COMMENTS Well very turbid with sediment. Well went dry at 0854 after connecting YSI. Restarted purge 3/24/22 @ 0842
Well ran dry @ 0855. Waited for recharge. 0911 Sample time
Well produced mainly sediment.
Waited for recharge and sampled.

SIGNATURE

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID A0101-03 SAMPLE NO. _____

WELL/SITE DESCRIPTION _____

DATE 3/24/22 TIME _____ AIR TEMP. _____

WELL DEPTH _____ ft CASING HEIGHT 2.92 ft

WATER DEPTH 8.64 ft WELL DIAMETER _____ in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE _____ (gpm) (LPM)

PUMP TIME _____ min

WELL WENT DRY? ( ) Yes ( ) No PUMP TIME _____ min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME _____ min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH pH	Cond. mS/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate L/min
03/24/22	0950		7.65	2.88	9.1	-4.5	-	6.03		0.3
03/24/22	0955		7.63	2.89	9.0	10.8	-	6.57		
	1000		7.61	2.90	8.9	25.3	-	6.93		
	1005		7.59	2.92	8.8	40.4	-	7.10		
	1010		7.57	2.92	8.5	61.7	-	7.59		
	1015		7.56	2.93	8.3	78.9	-	8.17		
	1020		7.53	2.95	8.1	109.2	-	8.91		
	1025		7.52	3.00	8.0	144.9	-	10.06		
	1030		7.50	3.00	7.9	145.8	-	10.01		
	1035		7.50	3.00	7.9	144.7	-	10.07		
	1040		7.49	3.00	8.0	145.1	-	10.05		
	1045		7.49	3.00	7.9	144.8	-	10.04		
	1050		7.50	3.00	8.0	144.9	-	10.07		

COMMENTS _____

SIGNATURE _____

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID RAASF – 01 SAMPLE NO. RAASF-01-GW

WELL/SITE DESCRIPTION grassy area NW of the site

DATE 3 / 21 / 22 TIME 1241 AIR TEMP. _____

WELL DEPTH ~~BWT~~ 20.16 ft CASING HEIGHT _____ ft

WATER DEPTH 6.5 ft WELL DIAMETER 1 in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE 0.32 L/M (gpm) (LPM)

PUMP TIME 1320 min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME 1320 min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME 1430 min

PURGE AGAIN? ( )Yes (X) No TOTAL VOL. REMOVED 19.2 ~~4~~ 5 (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate
3/21/22	1320	-	7.17	0	10.9	-129.7	1642	2.51	7.6	0.32
	1325	1.6	7.67	0.824	10.4	-276.9	1821	0.76	9.2	0.32
	1330	3.2	7.65	0.822	10.2	-281.2	-	0.74	15.3	0.32
	1335	4.8	763	0.807	10.7	-288.8	-	0.66	14.32	0.32
	1340	6.4	7.60	0.795	10.6	-297.2	-	0.58	15.4	0.32
	1345	8.0	7.57	0.778	10.6	-303.6	-	0.47	16.1	0.32
	1350	9.6	754	0.774	10.7	-293.3	-	0.64	16.3	0.32
	1355	11.2	7.51	0.748	10.3	-288.8	-	0.65	16.2	0.32
	1400	12.8	751	0.754	10.3	-300.5	-	0.55	14.9	0.32
	1405	14.4	7.50	0.749	10.4	-298.9	-	0.52	12.8	0.32
	1410	16.0	7.49	0.745	10.4	-303.3	-	0.47	11.62	0.32
	1415	17.6	7.47	0.740	10.7	-303	125	0.45	10.43	0.32
↓	1420	19.2	7.46	0.737	10.8	-302	113	0.43	9.9	0.32

COMMENTS Well very turbid. Unable to get NTU readings after two readings. Sample Time 1420. shake test performed No bubbles observed. Dup collected RAASF-FD-GW-01

SIGNATURE _____

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID RAASF-02 SAMPLE NO. RAASF-02-GW

WELL/SITE DESCRIPTION Grassy field

DATE 3/21/22 TIME 0815 AIR TEMP. _____

WELL DEPTH _____ ft CASING HEIGHT _____ ft

WATER DEPTH 1.25 ft WELL DIAMETER _____ in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE 0.34 (gpm) (LPM)

PUMP TIME 0845 min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME 0845 min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME _____ min

PURGE AGAIN? ( )Yes (X) No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate
3/22/22	0845	-	7.29	0.752	4.6	-77.6	-	4.76	1.8	0.34
	0850	1.7	6.96	0.753	4.7	-76.5	-	4.21	1.78	0.34
	0855	3.4	6.97	0.748	4.67	-81.9	-	4.07	1.53	0.34
	0900	5.1	6.96	0.745	4.7	-82.2	-	4.27	1.51	0.31
	0905	6.8	7.02	0.734	4.5	-74.8	-	3.89	1.53	0.34
	0910	8.5	6.98	0.733	4.5	-76	-	3.84	1.54	0.34
	0915	10.2	6.98	0.729	4.7	-76.6	-	3.80	1.55	0.34
	0920	11.9	6.98	0.726	4.9	-76.7	-	3.88	1.57	0.34
	0925	13.6	6.99	0.724	5.1	-73.3	-	4.89	1.59	0.34
	0930	15.3	6.97	0.730	5.0	-79.7	-	3.36	1.70	0.34
	0935	17.0	6.95	0.731	5.0	-83.9	80.42	2.53	1.74	0.34
	0940	17.7	6.95	0.732	5.1	-87.8	71.36	2.08	1.75	0.34
	0945	19.4	6.95	0.733	5.0	-89.1	61.82	1.83	1.73	0.34

COMMENTS Probe is not giving NTU readings. Very turbid with sediments. Sample Time 0945. shake test performed, No bubbles observed. MS/MSD Collected.

SIGNATURE _____

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID RAASF - ~~Bwh~~ 03 SAMPLE NO. RAASF - 03 - GW

WELL/SITE DESCRIPTION _____

DATE 3/22/22 TIME 1320 AIR TEMP. _____

WELL DEPTH _____ ft CASING HEIGHT _____ ft

WATER DEPTH 5.45 ft WELL DIAMETER _____ in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE _____ (gpm) (LPM)

PUMP TIME _____ min

WELL WENT DRY? ( ) Yes ( ) No PUMP TIME _____ min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME _____ min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond. mS/cm	Temp. °C	ORP mV	Turb.	DO mg/L	Depth to Water from TOC	Pump Rate
	1350	—	7.68	0.949	13.1	33.4	—	12.19	5.61	0.33
	1355	1.65	7.60	0.947	13.1	26.6	—	11.20	8.63	0.33
	1400	3.30	7.65	0.936	13.6	28.9	—	10.98	15.64	
	1405	4.95	7.68	0.945	14.3	32.1	—	10.93	14.92	
	1410	6.60	7.67	0.931	14.7	34.9	—	10.86	15.09	
	1415	8.25	7.76	0.770	12.9	30.5	—	11.17	15.20	
	1420	9.90	7.72	0.815	12.8	24.8	—	10.55	14.80	
	1425	11.55	7.64	0.802	12.5	24.5	—	10.24	16.00	
	1430	13.2	7.61	0.679	11.6	27.6	—	11.47	15.98	
	1435	14.85	7.68	0.726	11.7	32.4	—	11.70	15.95	
	1440	16.5	7.69	0.761	11.7	35.1	—	11.90	15.93	
	1445	18.15	7.71	0.772	11.7	36.4	—	11.98	15.96	
	1450	~~17.~~ 19.8	7.70	0.791	11.8	37.5	—	11.84	16.01	

COMMENTS Extremely turbid. Shake test performed. No bubbles. TD: 19.5 Well had low/no recharge

SIGNATURE _____

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID RAASF-04 SAMPLE NO. RAASF-04-GW

WELL/SITE DESCRIPTION _____

DATE __/__/__ TIME 0737 AIR TEMP. _____

WELL DEPTH _____ ft CASING HEIGHT _____ ft

WATER DEPTH 5.35 ft WELL DIAMETER _____ in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE _____ (gpm) (LPM)

PUMP TIME _____ min

WELL WENT DRY? ( ) Yes ( ) No PUMP TIME _____ min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME _____ min

PURGE AGAIN? ( )Yes ( )No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond. mS/cm	Temp. °C	ORP mV	Turb.	DO mg/L	Depth to Water from TOC	Pump Rate
	0805	—	8.08	1.04	6.4	108.5	—	8.98	7.43	0.30
	0810	1.5	7.88	1.03	6.3	95.5	—	9.28	10.10	
	0815	3.0	7.61	0.709	5.5	76.1	—	6.86	11.78	
	0820	4.5	7.59	0.566	4.9	78.6	—	6.71	11.88	
	0825	6.0	7.59	0.636	4.0	94.4	—	7.39	11.92	
	0830	7.5	7.60	0.615	3.8	101.0	—	7.26	11.93	
	0835	9.0	7.60	0.599	3.5	104.8		7.38	11.98	
	0840	10.5	7.63	0.560	3.1	107.5		8.86	12.02	
	0845	12.0	7.75	0.539	2.7	106.5		11.61	12.04	
	0850	13.5	7.80	0.559	2.5	108.5		11.91		
	0855	15.0	7.89	0.589	2.3	112.9		12.18		
	0900		7.92	0.602	2.1	117.2		12.37		
	0905		7.98	0.618	1.9	120.2		12.60		

COMMENTS Extremely turbid, no flow recharge. TD: 15.0ft
Shake test: No bubbles

SIGNATURE Emily Fuller

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID RAASF-05 SAMPLE NO. RAASF-05-GW

WELL/SITE DESCRIPTION

DATE 3/23/22 TIME 1250 AIR TEMP.

WELL DEPTH 13.7 ft CASING HEIGHT ft

WATER DEPTH 3.66 ft WELL DIAMETER in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE (gpm) (LPM)

PUMP TIME min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME min

VOL. REMOVED (gal) (L) RECOVERY TIME min

PURGE AGAIN? ( )Yes (X)No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond. mS/cm	Temp. °C	ORP mV	Turb.	DO mg/L	Depth to Water from TOC	Pump Rate
3/23/22	1255	—	7.68	0.847	7.0	-220.5	—	2.48	7.35	0.30
	1300	1.50	7.58	0.841	7.0	-231.1	—	2.28	7.56	
	1305	3.00	7.38	0.852	7.0	-209.3	—	2.14	7.70	
	1310	(EF) 4.50 ~~15.00~~	7.32	0.855	7.1	-184.8	—	2.30	7.80	
	1315	(EF) ~~6.00~~ 6.00	7.27	0.862	7.3	-139.0	—	2.59	7.82	
	1320	~~7.50~~ (EF) 7.50	7.26	0.863	7.3	-136.4	—	2.66	7.84	
	1325	9.00	7.24	0.861	7.3	-96.0	—	2.76	7.85	
	1330	10.50	7.23	0.869	7.2	-81.8	—	2.78	7.86	
	1335	12.00	7.22	0.872	7.2	-77.3	—	2.84	7.81	
	1340	13.50	7.21	0.871	7.2	-69.6	—	2.86	7.91	
	1345	15.00	7.22	0.871	7.2	-69.9	—	2.83	7.93	
	1350	16.50	7.21	0.873	7.2	-63.3	—	2.94	7.91	
	1355	18.00	7.21	0.875	7.2	-60.3	—	2.82	7.83	

COMMENTS Extremely Turbid. Dupe taken here. TD: 13.7 ft BTOC
Shake test performed; No bubbles observed.
RAASF-FD-GW-02 collected

SIGNATURE

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID RA4SF-06 SAMPLE NO. _____

WELL/SITE DESCRIPTION _____

DATE ___/___/___ TIME 1100 AIR TEMP. _____

WELL DEPTH _____ ft CASING HEIGHT 2.92 agS ft

WATER DEPTH ~~28.64~~ ft WELL DIAMETER _____ in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE _____ (gpm) (LPM)

PUMP TIME _____ min

WELL WENT DRY? ( ) Yes ( ) No PUMP TIME _____ min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME _____ min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond.	Temp.	ORP	Turb.	DO	Depth to Water from TOC	Pump Rate
3/24/R	1100		7.14	2.205	10.8	-7.7	-	6.29		0.3
	1105		7.12	2.210	10.7	24.6	-	6.37		
	1110		7.11	2.215	10.6	146.2	-	7.21		
	1115		7.11	2.31	10.6	144.7	-	7.84		
	1120		7.08	2.31	10.5	144.8	-	7.98		
	1125		7.05	2.32	10.3	144.9	-	8.19		
	1130		7.05	2.34	9.9	145.2	-	8.47		
	1135		7.06	2.34	9.8	145.3	-	9.10		
	1140		7.06	2.35	9.8	145.7	-	9.21		
	1145		7.05	2.37	9.7	145.3	-	9.43		
	1150		7.04	2.37	9.7	145.5	-	10.05		
	1155		7.04	2.36	9.7	145.2	-	10.28		
	1200		7.04	2.36	9.7	145.3	-	10.34		

COMMENTS _____

SIGNATURE _____

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID _____ SAMPLE NO. RAAS-07-GW

WELL/SITE DESCRIPTION Between fence/Road and Parking lot W of gate

DATE 03/24/22 TIME 0823 AIR TEMP. 49°F

WELL DEPTH _____ ft CASING HEIGHT _____ ft

WATER DEPTH 6.80 ft WELL DIAMETER 1 in

WATER COL. HEIGHT _____ ft SANDPACK DIAM. _____ in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE _____ (gpm) (LPM)

PUMP TIME _____ min

WELL WENT DRY? ( ) Yes ( ) No PUMP TIME _____ min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME _____ min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH pH	Cond. mS/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate L/Min
3/24	0837		7.41	1.61	8.2	-294.4	—	1.12		0.3
	0842		7.40	1.168	8.9	-326.2	—	3.41		0.3
	0847		7.38	1.163	9.3	-398.1	—	4.96		0.3
	0852		7.34	1.164	9.6	-446.9	—	7.38		0.3
	0857		7.32	1.65	9.6	-80.8	—	15.7		0.3
	0902		7.30	1.64	9.7	-45.7	—	20.8		0.3
	0907		7.29	1.65	9.8	-46.2	—	21.7		0.3
	0912		7.27	1.66	9.8	-46.5	—	24.3		0.3
	0917		7.26	1.67	9.9	-210.2	—	26.5		0.3
	0922		7.25	1.66	10.0	-39.6	—	29.3		0.3
	0927		7.21	1.65	10.4	-36.5	—	30.1		0.3
	0932		7.19	1.68	10.4	-30.7	—	25.9		0.3
	0937		7.18	1.63	10.5	-29.3	—	27.2		0.3

COMMENTS _____

SIGNATURE _____

EA Engineering, Science, and Technology, Inc.

WELL PURGING AND SAMPLING RECORD

WELL ID AOI 01-04 SAMPLE NO. AOI 01-04

WELL/SITE DESCRIPTION South of building

DATE 3/25/22 TIME _____ AIR TEMP. _____

WELL DEPTH 15.0 ft CASING HEIGHT _____ ft

WATER DEPTH 14.20 ft WELL DIAMETER 1 in

WATER COL. HEIGHT 0.80 ft SANDPACK DIAM. — in

EQUIVALENT VOLUME OF STANDING WATER _____ (gal) (L)

PUMP RATE 0.30 (gpm) (LPM)

PUMP TIME _____ min

WELL WENT DRY? (X) Yes ( ) No PUMP TIME _____ min

VOL. REMOVED _____ (gal) (L) RECOVERY TIME 180 min

PURGE AGAIN? (X) Yes ( ) No TOTAL VOL. REMOVED _____ (gal) (L)

Date	Time	Volume Removed Unit:	pH	Cond.	Temp.	ORP	Turb.	DO	Depth to Water from TOC	Pump Rate

COMMENTS Well was Dry upon installation, left overnight and was purged directly into bottles the next morning

SIGNATURE _____

AOI 01-04 = 14.20
AOI 01-02 = 8.54
AOI 01-01 = 8.46
RAASF-01 = 5.93
RAASF-02 = 0.75
RAASF-03 = 4.72
RAASF-04 = 5.45
RAASF-05 = 2.90
RAASF-06 = 8.64
RAASF-07 = 6.80

TAILGATE SAFETY MEETING

1. Reason for Briefing: 3/21/22			
	Daily Safety Briefing		New Site Procedure
X	Initial Safety Briefing		New Site Information
	New Task Briefing		Review of Site Information
	Periodic Safety Meeting		Other: (Specify)

2. Personnel Attending:

Name	Signature	Position
Mike Wright		SSHO
Frank Bungon		Geo
Emily Fennel		Geo
Brad Morgan		Driller
Roger Bixby		Helper
Brittany O'Brien-Drake		NYSDEC
Jennifer Li		AR NG

Briefing Given By:

3. Topics: (Check All That Apply)

X	Site Safety Personnel		Decontamination Procedures
X	Site/Work Area Description		Emergency Response/Equipment
X	Physical Hazards		On-Site Injuries/Illnesses
	Chemical/Biological Hazards		Reporting Procedures
	Heat/Cold Stress		Directions to Medical Facility
X	Work/Support Zones		Drug and Alcohol Policies
X	PPE		Medical Monitoring
	Safe Work Practices		Evacuation/Egress Procedures
X	Air Monitoring		Communications
X	Task Being Performed		Confined Spaces
	OE Precautions		Other:

4. Remarks:

TAILGATE SAFETY MEETING

3/22/21

1. Reason for Briefing:			
X	Daily Safety Briefing		New Site Procedure
	Initial Safety Briefing		New Site Information
	New Task Briefing		Review of Site Information
	Periodic Safety Meeting		Other: (Specify)

2. Personnel Attending:

Name	Signature	Position
Mike Wright		SSHO
Brodie Burton		Geo
Emily Fenner		Geo
Rich Arlington		Driller
Reggie Bull		Driller
Jennifer Li		PM

Briefing Given By:

3. Topics: (Check All That Apply)

	Site Safety Personnel		Decontamination Procedures
X	Site/Work Area Description		Emergency Response/Equipment
	Physical Hazards		On-Site Injuries/Illnesses
	Chemical/Biological Hazards		Reporting Procedures
X	Heat/Cold Stress		Directions to Medical Facility
	Work/Support Zones		Drug and Alcohol Policies
	PPE		Medical Monitoring
	Safe Work Practices		Evacuation/Egress Procedures
	Air Monitoring		Communications
	Task Being Performed		Confined Spaces
	OE Precautions		Other:

4. Remarks:

TAILGATE SAFETY MEETING

3/24/22

1. Reason for Briefing:			
X	Daily Safety Briefing		New Site Procedure
	Initial Safety Briefing		New Site Information
	New Task Briefing		Review of Site Information
	Periodic Safety Meeting		Other: (Specify)

2. Personnel Attending:		
Name	Signature	Position
Mike Wright		SS Lto
Roger Butrey		Driller
[illegible]		Driller
Emily Flower		Geo

Briefing Given By:

3. Topics: (Check All That Apply)			
	Site Safety Personnel		Decontamination Procedures
X	Site/Work Area Description		Emergency Response/Equipment
	Physical Hazards		On-Site Injuries/Illnesses
	Chemical/Biological Hazards		Reporting Procedures
	Heat/Cold Stress		Directions to Medical Facility
X	Work/Support Zones		Drug and Alcohol Policies
	PPE		Medical Monitoring
X	Safe Work Practices		Evacuation/Egress Procedures
	Air Monitoring		Communications
X	Task Being Performed		Confined Spaces
	OE Precautions		Other:

4. Remarks:

TAILGATE SAFETY MEETING

3/23/22

1. Reason for Briefing:			
X	Daily Safety Briefing		New Site Procedure
	Initial Safety Briefing		New Site Information
	New Task Briefing		Review of Site Information
	Periodic Safety Meeting		Other: (Specify)

2. Personnel Attending:		
Name	Signature	Position
Mike Wright		SSHO
Roger Bailey		Asst
Rich Keegan		Tech
Enock Bamyon		Geo
Emily Fenner		Geo

Briefing Given By:

3. Topics: (Check All That Apply)			
	Site Safety Personnel	X	Decontamination Procedures
	Site/Work Area Description		Emergency Response/Equipment
X	Physical Hazards		On-Site Injuries/Illnesses
	Chemical/Biological Hazards		Reporting Procedures
	Heat/Cold Stress		Directions to Medical Facility
	Work/Support Zones		Drug and Alcohol Policies
	PPE		Medical Monitoring
X	Safe Work Practices		Evacuation/Egress Procedures
	Air Monitoring		Communications
	Task Being Performed		Confined Spaces
	OE Precautions		Other:

4. Remarks:

NONE

TAILGATE SAFETY MEETING

3/25/22

1. Reason for Briefing:			
	Daily Safety Briefing		New Site Procedure
	Initial Safety Briefing		New Site Information
	New Task Briefing		Review of Site Information
	Periodic Safety Meeting		Other: (Specify)

2. Personnel Attending:		
Name	Signature	Position
Mike Wright		SS HO
Roger Bailey		
Mitch Thomson		
Emily Fenner		Geo
Robert Langston		Surveyor
Jeff Chamberlain		Surveyor

Briefing Given By:

3. Topics: (Check All That Apply)			
	Site Safety Personnel		Decontamination Procedures
	Site/Work Area Description		Emergency Response/Equipment
	Physical Hazards		On-Site Injuries/Illnesses
	Chemical/Biological Hazards		Reporting Procedures
	Heat/Cold Stress		Directions to Medical Facility
	Work/Support Zones		Drug and Alcohol Policies
	PPE		Medical Monitoring
	Safe Work Practices		Evacuation/Egress Procedures
	Air Monitoring		Communications
	Task Being Performed		Confined Spaces
	OE Precautions		Other:

4. Remarks:

INITIAL SAFETY INSPECTION CHECKLIST
(TO BE COMPLETED FIRST DAY OF SITE ACTIVITIES)

Site: Rochester AASF
Location: Rochester, NY
Project No.:
Client: USACE

Prepared by SSHO: Mike Wright
Project Manager: Mike Kepner
Date: 3/21/22

Rating	S	U	N/A	Comments/Immediate Corrective Action[a]
Accident Prevention Plan (APP) and Site Safety and Health Plan (SSHP) General Requirements				
Was a pre-entry safety briefing conducted? If so, did it include the following: • Site personnel and roles and authority to stop work? • Competent person(s) for identifying hazards? • Disclosure of potential hazards? • Emergency response procedures including rally point, contacts, location and directions of nearest medical support (hospital)? • Use of fire extinguishers • Vehicle rules/regulations? • Equipment to be used and those personnel qualified to use the equipment? • Methods of decontamination? • Storing/staging of wastes and materials? • Location/use of Safety Data Sheets? • Site control, including requirements for documenting entry into the site and procedures for entry and exit into work zones? • Task specific personal protective equipment (PPE) requirements? • Applicable standard operating procedures? • Environmental monitoring requirements and action levels? • Responsibilities for safety of personnel/property? • Safe work practices? • Procedures for maintaining personnel and site sanitation?	X			
Approved APP/SSHP onsite?	X			
APP/SSHP compliance agreement form signed by onsite personnel, including subcontractors?	X			
New activities or hazards identified and incorporated into revised APP/SSHP?	X			
Names of onsite personnel recorded on site sign-in sheet?	X			

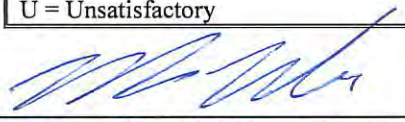
Rating	S	U	N/A	Comments/Immediate Corrective Action[a]
Applicable Safety Data Sheets onsite or available?	X			
Hazard labeling practices currently being used?	X			
Records of daily inspections available for review?	X			
Daily tailgate safety meetings conducted and documented?	X			
Onsite personnel meet SSHP requirements for medical examinations, fit testing (if applicable), and training (including subcontractors)?	X			
Documentation of training, medical examinations, and fit tests available from employer (as applicable)?	X			
Compliance with specified safe work practices?	X			
Exclusion (EZ), Contamination Reduction (CRZ), and Support Zones (SZ) delineated and enforced?	X			
Windsock, flag, or ribbons in place to indicate wind direction?	X			
SZ located upwind from EZ and CRZ, as practicable?	X			
Emergency Planning				
Emergency telephone numbers posted?	X			
Emergency telephone numbers up to date?	X			
Emergency route to hospital posted?	X			
Local emergency providers notified of site activities?	X			
Fire extinguisher on site, of adequate size, and inspected within past month?	X			
Review weather emergency procedures?	X			
Adequate safety equipment inventory available?	X			
First aid provider and first aid supplies available?	X			
Eyewash available?	X			
Communication equipment readily available for emergencies?	X			
Any reported accidents/incidents at this site? If so, are the accident/incident reports available for review?			X	
Air Monitoring				
Monitoring equipment specified in SSHP available and in working order (See Instrumentation list below)?	X			
Monitoring equipment calibrated and calibration records available?	X			
Personnel know how to operate monitoring equipment and equipment manuals available on site?	X			
Environmental monitoring performed as specified in SSHP?	X			
Air monitoring instrumentation includes: • Combustible gas meter?	X			
PPE (SSHO to enforce PPE requirements for EA and subcontractor employees)				
Proper dermal protection worn when handling/ contacting hazardous chemicals or contaminated environmental media?	X			

Rating	S	U	N/A	Comments/Immediate Corrective Action[a]
Required PPE (hard hats, safety boots / shoes, eye protection with side shields) being worn?	X			
PPE inspection completed by SSHO?	X			
Hearing protection available? Worn when required?	X			
Heavy Equipment Operations				
Equipment operators experienced/properly trained?	X			
Dust control measures implemented in EZ, as necessary?	X			
Equipment regularly inspected and maintained?	X			
Utility lines located and marked prior to construction activities?	X			
Clearance/digging permits kept onsite and available for review?	X			
When backing a vehicle up is a spotter used?	X			
Supplies				
Decontamination equipment and supplies on site?	X			
Fire extinguishers (functioning, inspected, and in field vehicles)?	X			
Spill cleanup supplies on site?	X			
Investigation-Derived Waste (IDW)				
Wastes properly disposed of?	X			
Designated location for drummed IDW?	X			
IDW containers properly labeled?	X			
Additional Comments:				

a. If a deficiency is noted that cannot be immediately corrected, the SSHO will monitor the progress in correcting the deficiency and will document following:

- Date the deficiency was identified
- Description of the deficiency
- Name of the person responsible for correcting the deficiency
- Projected date of correction
- Actual date of correction.

Notes:
N/A = Not applicable
S = Satisfactory
U = Unsatisfactory



Site Safety and Health Officer's Signature

3/21/22

Date

SAFETY INSPECTION REPORT

Site / Location: Rochester AASF Date: 3/22/22

Type of Inspection: ____ Initial X Daily ____ Weekly ____ Other

List Job Function Inspected: well Drilling / Sampling

Inspection List:

Category	Yes	No	NA	Comments
Biological Hazards – Installation Specific				
		X		
		X		
		X		
Work Environment				
Work area clean and orderly.	X			
Walk surface dry and/or slip-resistant.	X			
Spilled materials or liquids cleaned immediately.			X	
Trash in appropriate containers and removed as needed.	X			
Emergency Planning				
Emergency contacts phone numbers available.	X			
Emergency routes to hospital available.	X			
Weather forecast discussed for daily activities. Cold/Heat Stress discussed. Actions to take.	X			
First Aid kit(s) available.	X			
Eye wash station available.	X			
Current certified Fire Extinguisher available.	X			
Cell phones available.	X			
PPE				
Required PPE (safety shoes, gloves, safety glasses with side shields) worn.	X			
Safety Vest available and worn when needed.	X			
Proper dermal protection available for the task and worn.	X			
Hearing protection available and worn when needed.	X			
Utilities				
Local Diggers Hotline been contacted.	X			
Electrical been located. Buried Overhead (Been sheathed if within 10 ft /boom)	X			
Telephone	X			
Cable	X			
Buried water/sewer/gas.	X			
Vehicle/Pedestrian Traffic				
Lights in proper working order.	X			
Alarms working properly.	X			
Internal safety equipment in proper working order. (i.e. safety belts, shoulder harness)	X			

Spotter used if no backup alarm on vehicle.	X			
Category	**Yes**	**No**	**NA**	**Comments**
Miscellaneous				
Labor Law Compliance Poster Posted.			X	
Bulletin Board.			X	
Daily Tailgate Topic Posted.	X			

Deficiency Date:
Deficiency Description: N/A

Date of Correction:
Actual Date of Correction:

Re-Inspection Required: ____ Yes ____ No. Date Re-Inspection: ___/___/___

Signature: _____
Onsite SSHO

* Copy to Supervisor if Deficiencies or Corrective Action were found, noted or deemed necessary.

SAFETY INSPECTION REPORT

Site / Location: Rochester AASF Date: 3/23/22

Type of Inspection: ____ Initial ___x___ Daily ____ Weekly ____ Other

List Job Function Inspected: Drilling / Sampling

Inspection List:

Category	Yes	No	NA	Comments
Biological Hazards – Installation Specific				
		x		
		x		
		x		
Work Environment				
Work area clean and orderly.	x			
Walk surface dry and/or slip-resistant.	x			
Spilled materials or liquids cleaned immediately.			x	
Trash in appropriate containers and removed as needed.	x			
Emergency Planning				
Emergency contacts phone numbers available.	x			
Emergency routes to hospital available.	x			
Weather forecast discussed for daily activities. Cold/Heat Stress discussed. Actions to take.	x			
First Aid kit(s) available.	x			
Eye wash station available.	x			
Current certified Fire Extinguisher available.	x			
Cell phones available.	x			
PPE				
Required PPE (safety shoes, gloves, safety glasses with side shields) worn.	x			
Safety Vest available and worn when needed.	x			
Proper dermal protection available for the task and worn.	x			
Hearing protection available and worn when needed.	x			
Utilities				
Local Diggers Hotline been contacted.				
Electrical been located. Buried Overhead (Been sheathed if within 10 ft /boom)	X			
Telephone	x			
Cable	x			
Buried water/sewer/gas.	x			
Vehicle/Pedestrian Traffic				
Lights in proper working order.	x			
Alarms working properly.	x			
Internal safety equipment in proper working order. (i.e. safety belts, shoulder harness)	x			

Spotter used if no backup alarm on vehicle.	X			
Category	**Yes**	**No**	**NA**	**Comments**
Miscellaneous				
Labor Law Compliance Poster Posted.		X		
Bulletin Board.		X		
Daily Tailgate Topic Posted.	X			

Deficiency Date:
Deficiency Description: NONE

Date of Correction:
Actual Date of Correction:

Re-Inspection Required: ____ Yes ____ No. Date Re-Inspection: ____/____/___

Signature: _____
Onsite SSHO

* Copy to Supervisor if Deficiencies or Corrective Action were found, noted or deemed necessary.

SAFETY INSPECTION REPORT

Site / Location: Rochester AASF Date: 3/24/22

Type of Inspection: ____ Initial X Daily ____ Weekly ____ Other

List Job Function Inspected: Drilling sampling

Inspection List:

Category	Yes	No	NA	Comments
Biological Hazards – Installation Specific				
		X		
		X		
		X		
Work Environment				
Work area clean and orderly.	X			
Walk surface dry and/or slip-resistant.	X			
Spilled materials or liquids cleaned immediately.			X	
Trash in appropriate containers and removed as needed.	X			
Emergency Planning				
Emergency contacts phone numbers available.	X			
Emergency routes to hospital available.	X			
Weather forecast discussed for daily activities. Cold/Heat Stress discussed. Actions to take.	X			
First Aid kit(s) available.	X			
Eye wash station available.	X			
Current certified Fire Extinguisher available.	X			
Cell phones available.	X			
PPE				
Required PPE (safety shoes, gloves, safety glasses with side shields) worn.	X			
Safety Vest available and worn when needed.	X			
Proper dermal protection available for the task and worn.	X			
Hearing protection available and worn when needed.	X			
Utilities				
Local Diggers Hotline been contacted.	X			
Electrical been located. Buried Overhead (Been sheathed if within 10 ft /boom)	X			
Telephone	X			
Cable	X			
Buried water/sewer/gas.	X			
Vehicle/Pedestrian Traffic				
Lights in proper working order.	X			
Alarms working properly.	X			
Internal safety equipment in proper working order. (i.e. safety belts, shoulder harness)	X			

Spotter used if no backup alarm on vehicle.	X			
Category	**Yes**	**No**	**NA**	**Comments**
Miscellaneous				
Labor Law Compliance Poster Posted.		X		
Bulletin Board.		X		
Daily Tailgate Topic Posted.	X			

Deficiency Date:
Deficiency Description: NONE

Date of Correction:
Actual Date of Correction:

Re-Inspection Required: ____ Yes ____ No. Date Re-Inspection: ____/____/____

Signature: _____
Onsite SSHO

* Copy to Supervisor if Deficiencies or Corrective Action were found, noted or deemed necessary.

SAFETY INSPECTION REPORT

Site / Location: Rochester AASF Date: 3/25/22

Type of Inspection: ___ Initial ___X Daily ___ Weekly ___ Other

List Job Function Inspected: Survey / Well Abandonment

Inspection List:

Category	Yes	No	NA	Comments
Biological Hazards – Installation Specific				
		X		
		X		
		X		
Work Environment				
Work area clean and orderly.	X			
Walk surface dry and/or slip-resistant.	X			
Spilled materials or liquids cleaned immediately.			X	
Trash in appropriate containers and removed as needed.	X			
Emergency Planning				
Emergency contacts phone numbers available.	X			
Emergency routes to hospital available.	X			
Weather forecast discussed for daily activities. Cold/Heat Stress discussed. Actions to take.	X			
First Aid kit(s) available.	X			
Eye wash station available.	X			
Current certified Fire Extinguisher available.	X			
Cell phones available.	X			
PPE				
Required PPE (safety shoes, gloves, safety glasses with side shields) worn.	X			
Safety Vest available and worn when needed.	X			
Proper dermal protection available for the task and worn.	X			
Hearing protection available and worn when needed.	X			
Utilities				
Local Diggers Hotline been contacted.			X	
Electrical been located. Buried Overhead (Been sheathed if within 10 ft /boom)			X	
Telephone			X	
Cable			X	
Buried water/sewer/gas.			X	
Vehicle/Pedestrian Traffic				
Lights in proper working order.	X			
Alarms working properly.	X			
Internal safety equipment in proper working order. (i.e. safety belts, shoulder harness)	X			

Spotter used if no backup alarm on vehicle.	X			
Category	**Yes**	**No**	**NA**	**Comments**
Miscellaneous				
Labor Law Compliance Poster Posted.		X		
Bulletin Board.		X		
Daily Tailgate Topic Posted.	X			

Deficiency Date:
Deficiency Description: NONE

Date of Correction:
Actual Date of Correction:

Re-Inspection Required: ____ Yes ____ No. Date Re-Inspection: ____/____/____

Signature: _____
Onsite SSHO

* Copy to Supervisor if Deficiencies or Corrective Action were found, noted or deemed necessary.

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Print Form

Date of Inspection: 3/21/22

Location (Plant or Facility): Rochester AASF #2	Contract Number:
Contractor Name: EA Engineering	Project Name: ANG PFAS SI
Inspector Name (Print): Mike Wright	Inspector Signature:

This checklist serves as a guide only, it does not replace or eliminate the need to comply with the requirements set forth in Engineering Manual 385-1-1, Safety and Health Requirements Manual, dated 15 September 2008. The references included in this checklist correspond to the applicable sections of EM 385-1-1.

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
1. Is drilling equipment operated, inspected, and maintained as specified in the manufacturer's operating manual?	18.H.02	X			
2. Is a copy of the manual for all drilling equipment available?	18.H.02	X			
3. Has a survey been conducted to identify overhead electrical hazards and potential ground hazards and their locations identified in the site layout plan?	18.H.03	X			
4. Are all findings of the survey a part of the AHA?	18.H.03.b	X			
5. Does the AHA contain copies of Material Safety Data Sheets for all drilling fluids available?	18.H.03.a	X			
6. Have all members of the drilling crew been trained the operation, inspection, and maintenance of the equipment; the safety features and procedures to be used; and overhead electrical lines and underground hazards?	18.H.05	X			
7. Does the drilling equipment have two easily accessible emergency shut down devices (one for the operator and one for the helper)?	18.H.06	X			
8. Is the equipment posted with a warning of electrical hazards?	18.H.07	X			
9. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained?	18.H.07.b	X			
10. Before moving earth drilling equipment, has the travel route been surveyed for overhead and terrain hazards, particularly overhead electrical hazards, mast lowered?	18.H.08	X			
11. Is equipment set-up in a stable manner, with cribbing if necessary?	18.H.09	X			
12. Are outriggers being used in accordance with the manufacturer's recommendations, if drilling is in confined space are requirements of 34A followed?	18.H.09			X	NO outriggers or confined space
13. Are drill rigs properly secured/identified when parked on highway or shoulder?	18.H.10			X	not on Highway
14. Are drill crew members prohibited from wearing loose clothing, jewelry, or equipment which might become caught in moving machinery?	18.H.11.b	X			

TextField2

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Date of Inspection: 3/21/22

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
15. Are slip rings or other rod slipping devices on the drill?	18.H.11.h		X		use Drill head to pull rods
16. Are steps being taken to control dust?	18.H.11.i	X			
17. Are augers cleaned only when the rotating mechanism is in neutral and the auger is stopped?	18.H.11.j	X			
18. Are augers guarded?	18.H.11.j			X	No augers
19. Are open bore holes capped and flagged?	18.H.11.k			X	No open bore hole
20. Are open excavations barricaded?	18.H.11.k			X	No open excavation

Other Remarks

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Print Form

Date of Inspection: 3/22/22

Location (Plant or Facility)	Contract Number
Rochester AASF #2	
Contractor Name	**Project Name**
EA Engineering	ANG PFAS SI
Inspector Name (Print)	**Inspector Signature**
Mila Wright	

This checklist serves as a guide only, it does not replace or eliminate the need to comply with the requirements set forth in Engineering Manual 385-1-1, Safety and Health Requirements Manual, dated 15 September 2008. The references included in this checklist correspond to the applicable sections of EM 385-1-1.

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
1. Is drilling equipment operated, inspected, and maintained as specified in the manufacturer's operating manual?	18.H.02	X			
2. Is a copy of the manual for all drilling equipment available?	18.H.02	X			
3. Has a survey been conducted to identify overhead electrical hazards and potential ground hazards and their locations identified in the site layout plan?	18.H.03	X			
4. Are all findings of the survey a part of the AHA?	18.H.03.b	X			
5. Does the AHA contain copies of Material Safety Data Sheets for all drilling fluids available?	18.H.03.a	X			
6. Have all members of the drilling crew been trained the operation, inspection, and maintenance of the equipment; the safety features and procedures to be used; and overhead electrical lines and underground hazards?	18.H.05	X			
7. Does the drilling equipment have two easily accessible emergency shut down devices (one for the operator and one for the helper)?	18.H.06	X			
8. Is the equipment posted with a warning of electrical hazards?	18.H.07	X			
9. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained?	18.H.07.b	X			
10. Before moving earth drilling equipment, has the travel route been surveyed for overhead and terrain hazards, particularly overhead electrical hazards, mast lowered?	18.H.08	X			
11. Is equipment set-up in a stable manner, with cribbing if necessary?	18.H.09	X			
12. Are outriggers being used in accordance with the manufacturer's recommendations, if drilling is in confined space are requirements of 34A followed?	18.H.09			X	NO out riggers or confined spa
13. Are drill rigs properly secured/identified when parked on highway or shoulder?	18.H.10			X	NO Highway
14. Are drill crew members prohibited from wearing loose clothing, jewelry, or equipment which might become caught in moving machinery?	18.H.11.b	X			

TextField2

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Date of Inspection: 3/22/22

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
15. Are slip rings or other rod slipping devices on the drill?	18.H.11.h		X		use Drill head
16. Are steps being taken to control dust?	18.H.11.i	X			
17. Are augers cleaned only when the rotating mechanism is in neutral and the auger is stopped?	18.H.11.j	X			
18. Are augers guarded?	18.H.11.j			X	No augers
19. Are open bore holes capped and flagged?	18.H.11.k			X	No open boreholes
20. Are open excavations barricaded?	18.H.11.k			X	No open excavation

Other Remarks

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Print Form

Date of Inspection: 3/29/22

Location (Plant or Facility): Rochester AASF #2	Contract Number:
Contractor Name: EA Engineering	Project Name: ANG PFAS SI
Inspector Name (Print): Mike Wright	Inspector Signature:

This checklist serves as a guide only, it does not replace or eliminate the need to comply with the requirements set forth in Engineering Manual 385-1-1, Safety and Health Requirements Manual, dated 15 September 2008. The references included in this checklist correspond to the applicable sections of EM 385-1-1.

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
1. Is drilling equipment operated, inspected, and maintained as specified in the manufacturer's operating manual?	18.H.02	X			
2. Is a copy of the manual for all drilling equipment available?	18.H.02	X			
3. Has a survey been conducted to identify overhead electrical hazards and potential ground hazards and their locations identified in the site layout plan?	18.H.03	X			
4. Are all findings of the survey a part of the AHA?	18.H.03.b	X			
5. Does the AHA contain copies of Material Safety Data Sheets for all drilling fluids available?	18.H.03.a	X			
6. Have all members of the drilling crew been trained the operation, inspection, and maintenance of the equipment; the safety features and procedures to be used; and overhead electrical lines and underground hazards?	18.H.05	X			
7. Does the drilling equipment have two easily accessible emergency shut down devices (one for the operator and one for the helper)?	18.H.06	X			
8. Is the equipment posted with a warning of electrical hazards?	18.H.07	X			
9. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained?	18.H.07.b	X			
10. Before moving earth drilling equipment, has the travel route been surveyed for overhead and terrain hazards, particularly overhead electrical hazards, mast lowered?	18.H.08	X			
11. Is equipment set-up in a stable manner, with cribbing if necessary?	18.H.09	X			
12. Are outriggers being used in accordance with the manufacturer's recommendations, if drilling is in confined space are requirements of 34A followed?	18.H.09	X		X	No outriggers No confined space TextField2
13. Are drill rigs properly secured/identified when parked on highway or shoulder?	18.H.10	X		X	No highway
14. Are drill crew members prohibited from wearing loose clothing, jewelry, or equipment which might become caught in moving machinery?	18.H.11.b	X			

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Date of Inspection: 3/23/22

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
15. Are slip rings or other rod slipping devices on the drill?	18.H.11.h		X		use drill hd
16. Are steps being taken to control dust?	18.H.11.i	X			
17. Are augers cleaned only when the rotating mechanism is in neutral and the auger is stopped?	18.H.11.j		X		No Auger
18. Are augers guarded?	18.H.11.j		X		No Auger
19. Are open bore holes capped and flagged?	18.H.11.k		X		No open borehole
20. Are open excavations barricaded?	18.H.11.k		X		No Excavation

Other Remarks

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Print Form

Date of Inspection: 3/24/22

Location (Plant or Facility): Rochester ANGB HZ

Contract Number:

Contractor Name: EA Engineering

Project Name: ANG PFAS SI

Inspector Name (Print): Mike Wright

Inspector Signature:

This checklist serves as a guide only, it does not replace or eliminate the need to comply with the requirements set forth in Engineering Manual 385-1-1, Safety and Health Requirements Manual, dated 15 September 2008. The references included in this checklist correspond to the applicable sections of EM 385-1-1.

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
1. Is drilling equipment operated, inspected, and maintained as specified in the manufacturer's operating manual?	18.H.02	X			
2. Is a copy of the manual for all drilling equipment available?	18.H.02	X			
3. Has a survey been conducted to identify overhead electrical hazards and potential ground hazards and their locations identified in the site layout plan?	18.H.03	X			
4. Are all findings of the survey a part of the AHA?	18.H.03.b	X			
5. Does the AHA contain copies of Material Safety Data Sheets for all drilling fluids available?	18.H.03.a	X			
6. Have all members of the drilling crew been trained the operation, inspection, and maintenance of the equipment; the safety features and procedures to be used; and overhead electrical lines and underground hazards?	18.H.05	X			
7. Does the drilling equipment have two easily accessible emergency shut down devices (one for the operator and one for the helper)?	18.H.06	X			
8. Is the equipment posted with a warning of electrical hazards?	18.H.07	X			
9. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained?	18.H.07.b	X			
10. Before moving earth drilling equipment, has the travel route been surveyed for overhead and terrain hazards, particularly overhead electrical hazards, mast lowered?	18.H.08	X			
11. Is equipment set-up in a stable manner, with cribbing if necessary?	18.H.09	X			
12. Are outriggers being used in accordance with the manufacturer's recommendations, if drilling is in confined space are requirements of 34A followed?	18.H.09		X		NO outriggers on confined space TextField2
13. Are drill rigs properly secured/identified when parked on highway or shoulder?	18.H.10		X		NO Highway
14. Are drill crew members prohibited from wearing loose clothing, jewelry, or equipment which might become caught in moving machinery?	18.H.11.b	X			

U.S. Army Corps of Engineers
Safety Inspection Checklist
Drilling Equipment

Date of Inspection

Item Description	REF	Yes	No	N/A	Remarks (Any NO or N/A item)
15. Are slip rings or other rod slipping devices on the drill?	18.H.11.h		X		~~Kelly~~ Drill head
16. Are steps being taken to control dust?	18.H.11.i	X			
17. Are augers cleaned only when the rotating mechanism is in neutral and the auger is stopped?	18.H.11.j		X		No Augers
18. Are augers guarded?	18.H.11.j		X		No Auger
19. Are open bore holes capped and flagged?	18.H.11.k		X		No open bore hole
20. Are open excavations barricaded?	18.H.11.k		X		No excavations

Other Remarks

ENVIRONMENTAL MONITORING RECORD

Site: Rochester AASF #12

Project No.:

Instrument: Dust Trak II

	Time	Monitoring Location		Reading	Corrective Action Taken[a]
3/21/22	0905	RAASF-01	upwind	0.007 mg/m³	
	0950	RAASF-01	Downwind	0.004 mg/m³	
	1020	RAASF-01	Downwind	0.017 mg/m³	
	1240	RAASF-02	upwind	0.002 mg/m³	
	1310	RAASF-02	Downwind	0.010 mg/m³	
	1340	AOI-01	upwind	0.003 mg/m³	
	1410	AOI-01	Downwind	0.021 mg/m³	
3/22/22	0740	AOI-01	upwind	0.002 mg/m³	
	0810	AOI-01	Downwind	0.013 mg/m³	
	0920	RAASF-03	upwind	0.001 mg/m³	
	0950	RAASF-03	Downwind	0.001 mg/m³	
	1020	RAASF-03	Downwind	0.000 mg/m³	
	1120	RAASF-04	upwind	0.001 mg/m³	
	1150	RAASF-04	Downwind	0.007 mg/m³	

a. Corrective actions taken must be documented whenever readings at or above action levels are reached.

Comments:

Recorded By:

Site Health and Safety Officer

3/21/22

Date

ENVIRONMENTAL MONITORING RECORD

Site: Rochester AASF #2

Project No.:

Instrument: Dust Trak II

	Time	Monitoring Location		Reading	Corrective Action Taken[a]
3/22/22	1300	AOI01-02	upwind	0.002 mg/m³	
	1370	AOI01-02	Downwind	0.005 mg/m³	
	1400	AOI01-02	Downwind	0.004 mg/m³	
3/23/22	0715	KAASF-05	upwind	0.001 mg/m³	
	0800	RAASF-05	Downwind	0.009 mg/m³	
	0940	RAASF-06	Heavy Rain	N/A	
3/24/22	0730	AOI01-03	upwind	0.009 mg/m³	
	0800	AOI01-03	Downwind	0.126 mg/m³	
	0945	AOI01-04	upwind	0.003 mg/m³	
	1015	AOI01-04	Downwind	0.079 mg/m³	

a. Corrective actions taken must be documented whenever readings at or above action levels are reached.

Comments:

Recorded By:

Site Health and Safety Officer

3/22/22

Date

VISITORS LOG

Project Location: ANG PFAS SI **Month of:** March

DATE:	NAME:	AGENCY OR COMPANY:	PURPOSE OF VISIT:	SAFETY BRIEFING:	ESCORT REQ:	TIME IN:	TIME OUT:	REMARKS:
3/21/22	Mike Wright	EA	Inspection	Y	N	0730	1515	
3/21/22	Enock Bunyon	EA	Inspection	Y	N	0730		
3/21/22	Emily Fenner	EA	Inspector	Y	N	0730		
3/21/22	Rick Reagan	CRS	Inspection	Y	N	0730		
3/21/22	Roger Bailey	CRS	Inspector	Y	N	0730		
3/21/22	Brittany OBrien-Deuel	NYSDEC	Inspection	Y	N	0800		
3/21/22	Jennifer Li	ARNG	oversight	Y	N	0750		
3/22/22	Mike Wright	EA	Inspection	Y	N	0645	1500	
3/22/22	Enock Bunyon	EA	Inspection	Y	N	0645		
3/22/22	Emily Fenner	EA	Inspection	Y	N	0645		
3/22/22	Rick Reagan	CRS	"	Y	N	0645		
3/22	Roger Bailey	CRS	"	Y	N	0720		
3/22	Jennifer Li	ARNG	oversight	Y	N	0700		

VISITORS LOG

Project Location: Rochester **Month of:** March

DATE:	NAME:	AGENCY OR COMPANY:	PURPOSE OF VISIT:	SAFETY BRIEFING:	ESCORT REQ:	TIME IN:	TIME OUT:	REMARKS:
3/23/22	Mike Wright	EA	Inspection	Y	N	0640	1500	
3/23/22	Roger Bailey	CRS	Drilling	Y	N	0640	1500	
3/23/22	Rich Keagan	CRS	Drill	Y	N	0700	1500	
3/23/22	Enock Bamyan	EA	Ins	Y	N	0640	1500	
3/23/22	Emily Fenner	EA	Ins	Y	N	0640	1500	
3/24/22	Mike Wright	EA	Ins	Y	N	0630	1500	
3/24/22	Roger Bailey	CRS	Drilling	Y	N	645		
3/24/22	Rich Keagan	CRS	Drilling	Y	N	700		
3/24/22	Emily Fenner	EA	Ins	Y	N	0630		

VISITORS LOG

Project Location: Rochester **Month of:** March

DATE:	NAME:	AGENCY OR COMPANY:	PURPOSE OF VISIT:	SAFETY BRIEFING:	ESCORT REQ:	TIME IN:	TIME OUT:	REMARKS:
3/25/22	Mike Wright	EA	Ins	Yes	No	0640	1430	
3/25/22	Roger Bailey	CRS	Drilling	yes	no	645	↓	
3/25/22	Rich Brogan	CRS	Drilling	YES	No	0700		
3/25/22	Emily Fenner	EA	Ins	yes	no	0640		
3/25/22	Rob Landon	Ravi	Survey	Yes	No	0800	1330	
3/25/22	Jeff Chamberlain	Ravi	Survey	yes	No	0800	1330	

11. ACCIDENT PREVENTION PLAN REVIEW RECORD

Project: Site Inspections for Per-and Polyfluoroalkyl Substances Impacted Sites – ARNG Installations

Installation: _____

I have read the Site Safety and Health Plan and Accident Prevention Plan, along with the Installation-Specific Addenda, and have been briefed on the nature, level, and degree of exposure likely as a result of participation in this project. I agree to conform to the requirements of this Plan and associated addenda.

Print Name	Signature	Affiliation	Date
Mike Wright		EA	3/18/22
Enock Bunyon		EA	3/18/22
Emily Fenner		EA	3/21/22
Ruth Thigpen		CRS	3/21/22
Roger Bailey		CRS	3/21/22
Brittany O'Brien-Drake		NYSDEC	3/21/22
Jennifer Li		ARNG	3/21/22

Appendix B3

Survey Data

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N

GRIA NY ARNG Army Aviation Location

Sample Locations

Point #	Northing	Easting	Gnd. Elev.	TOP Elev.	Description
2000	1135786.92	1391575.49	538.77	541.87	AO 01-02
2001	1135699.29	1390995.95	537.90	538.72	AO 01-01
2002	1135876.49	1390559.62	529.16	529.72	RAASF-02
2003	1136377.37	1390809.90	533.72	535.73	RAASF-03
2004	1136174.04	1391571.99	538.93	541.15	RAASF-04
2005	1135962.33	1392061.25	539.09	541.68	RAASF-05
2006	1135650.24	1392223.74	530.90	533.50	RAASF-06
2007	1135627.84	1391599.63	536.36	539.55	AO 01-03
2008	1135437.33	1391531.54	538.17	541.08	RAASF-07
2009	1135573.95	1391298.00	537.88	538.79	AO 01-04
2010	1135399.02	1390593.55	530.22	533.66	RAASF-01

Gnc.=Ground Elevation
TOP=Top of Pipe Elevation

SURVEY NOTES:

UNITS OF MEASURE: US SURVEY FEET

HORIZONTAL COORDINATE SYSTEM: N.A.D. '83(2011) N.Y.S.P.C.S. WESTERN ZONE

VERTICAL COORDINATE SYSTEM: N.A.V.D. '88

SURVEY FIELDWORK COMPLETED BY RAVI ENGINEERING AND LAND SURVEYING ON 3/25/22 WITH WIND AND RAINY SITE CONDITIONS.

100 0 100 200 300

SCALE 1"= 100'

REVISIONS: | BY: DATE:

SURVEY PLAN
SHOWING SAMPLE LOCATIONS
LOCATED AT:
NEW YORK ARNG ARMY AVIATION SUPPORT FACILITY #2
FREDERICK DOUGLASS-GREATER ROCHESTER INTERNATIONAL AIRPORT
LOCATED IN
CITY OF ROCHESTER, MONROE COUNTY, NEW YORK

Date : 4/4/22 | Drawn By: JFF | Scale : 1' - 100' | Project # 23-22-009A

RAVI ENGINEERING & LAND SURVEYING, P.C.
2110 South Clinton Avenue, Suite 1
Rochester, New York 14618
TL: (585) 223-3660 FX: (585) 697-1764
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2. ONLY COPIES OF THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S STAMPED SEAL SHALL BE CONSIDERED VALID TRUE COPIES.

3. THIS MAP MAY NOT BE USED IN CONJUNCTION WITH A "SURVEY WITHOUT" OR SIMILAR DESIGNATION OF SURVEY AMENDMENT TO OBTAIN TITLE INSURANCE FOR ANY SUBSEQUENT CONVEYANCE OR MORTGAGE.

4. THIS PARCEL IS SUBJECT TO ANY EASEMENTS OR ENCUMBRANCES OF RECORD.

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Appendix B4

Field Change Request Form

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FIELD CHANGE REQUEST FORM

ARNG PFAS SITE INSPECTION PROGRAM

Contract: W912DR-19-D-005

Installation: Rochester AASF

Project No. 634250383

Requested By: Michael Kepner, Task Manager

Field Change Request Number: 01

Description of Modification: Addition of sand around temporary slotted screen of well AOI01-02 and offsetting of one soil boring/temporary monitoring well location

Reason for Modifications: On 3/23/2022 an attempt was made to sample water at temporary well AOI01-02, however it was not successful due to an abundance of fines migrating through the screen, resulting in a slurry-like sample. Sand was added to the boring around the slotted screen to act as a sand pack and the well was resampled successfully on 3/24/2022.

Stiff silt refusal was encountered at the proposed soil boring/temporary monitoring well location AOI01-04 at a depth of 15 feet below ground surface (bgs). As such, per the QAPP, two offsets were performed. Based on the small grass area and the presence of several utilities in the vicinity of the boring, offset options were limited to areas approximately 8' to the east and west of the original location. At both offsets, refusal was encountered at approximately 15' bgs. There was some moisture in the original boring and a well was set in hopes that a sample can be collected on 3/25/2022.

This field change request form is intended to document changes that were discussed and approved by the project team.

Approval

Representing: EA

By: Michael Kepner

Title: Task Manager

Date: 3/24/2022

Representing: EA

By: Michael O'Neil

Title: Project Manager

Date: 3/24/2022

Representing: ARNG

By: LI.JENNIFER.JEH-HSUNG.1590287950 Digitally signed by LI.JENNIFER.JEH-HSUNG.1590287950 Date: 2022.03.25 08:59:11 -04'00'

Title: Project Manager

Date: 3/25/2022

Representing: USACE

By: PECK.TIMOTHY.JOSEPH.1252325553 Digitally signed by PECK.TIMOTHY.JOSEPH.1252325553 Date: 2022.03.25 08:51:02 -04'00'

Title:

Date:

Appendix C

Photographic Log

Appendix C - Photographic Log

Site Inspection for PFAS	Rochester AASF #2	Rochester, New York

Photograph No. 01

Date 21 March 2022
Time 1015

Description:
Installation of temporary well point RAASF-01.

Orientation:
West

Photograph No. 02

Date 21 March 2022
Time 1315

Description:
Representative view of groundwater purging and monitoring setup using PFAS-free bladder pump.

Orientation:
Northwest

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Appendix D

Technical Project Planning Meeting Minutes

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Appendix E

Boring Logs

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EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG		**Location:** Rochester AASF
	Project: PFAS SI		
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** AOI01-01
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**
Water Level:	8.87 ft below TOC		**Drilling** Start: DATE: 3/21/2022 TIME: 1400 / Finish: DATE: 3/22/2022 TIME: 0830
Time:	1115		
Date:	3/22/2022		

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description:

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	1400: 10YR 2/2. Dry, brown silt, some clay. Sample collected from 0-2 ft interval. Sample ID: AOI-01-SB-0-2.
				1	
				2	
				3	1430: 10YR 2/2. Dry, brown silty clay, some large gravel.
				4	
				5	1445: 10YR 2/2. Dry, brown silt, some clay. Some very large gravel, piece of filter fabric.
				6	715: Dry brown pulverized limestone. Trace silt.
				7	730: 2.5YR 4/5. Dry brown clay bands of reddish brown. Sample collected from 6-7 ft interval. Sample ID: AOI-01-SB-6-7.
				8	
				9	
				10	0800: 2.5YR 4/5. Dry, brown clay. Trace large gravel. Sample collected from 11-12 ft interval. Sample ID: AOI-01-SB-11-12.
				11	
				12	
				13	0815: 2.5YR 4/5: Wet, brown fine sandy silt, some clay.
				14	
		PVC 10 Slot		15	0830: 10YR 2/2. Wet brown sandy silt, some stones and large gravel.
				16	
				17	
				18	
				19	
				20	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	20	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	15	To	20	ft bgs
Riser Interval:	0	To	15	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright
Drilling Contractor: Cascade
Date: 3/21/2022
Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG **Project:** PFAS SI		**Location:** Rochester AASF
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** AOI01-02
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**
Coordinates: Northing ____ Easting: ____			
TOC Elevation:			**Drilling**
Surface Elevation:	**Water Level:** 8.25 ft below TOC		**Start** DATE: 3/22/2022 TIME: 1320 / **Finish** DATE: 3/22/2022 TIME: 1430
Reference Elevation:	**Time:** 0830		
Reference Description:	**Date:** 3/23/2022		

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	
				1	
				2	1320: 10YR 3/3. Dry, brown silt, little clay. Sample collected from 0-2 ft interval. Sample ID: AOI01-02-SB-0-2.
				3	
				4	
				5	
				6	
				7	1340: 10YR 3/3. Dry brown silt, little clay, little clay, some gravel. Sample collected from 5-6 ft interval. Sample ID: AOI01-02-SB-5-6.
				8	
				9	
				10	1400: Dry, brown silt, little clay, little gravel. Sample collected from 10-11 ft interval. Sample ID: AOI-02-SB-10-11.
				11	
				12	
		PVC		13	1415: 10YR 3/3. Wet, brown silt, little clay, little gravel..
				14	
		Soil		15	
				16	15-15.5 ft: 10 YR 4/2. Wet, grey-brown silt, little fine sand. 15.5-15.8 ft: 10 YR 4/1. Wet grey fine sand. Trace silt. 15.8-17.2 ft: 10 YR 4/1. Wet grey silty clay, little gravel. 17.2-17.5 ft: 10 YR 4/1. Wet grey medium sand. 17.5-17.7 ft: 10 YR 4/1. Wet grey fine sand. 17.7-18 ft: 10 YR 4/1. Wet grey silt, little clay.
				17	
				18	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	18	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	13	To	18	ft bgs
Riser Interval:	0	To	13	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright Date: 3/22/2022

Drilling Contractor: Cascade Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description:

Job. No.	Client:	USACE/ARNG	Location:
634250383	Project:	PFAS SI	Rochester AASF
Drilling Method:			**Soil Boring/Well Number:**
DPT 7822DT			AOI01-03
Sampling Method:			**Sheet 1 of 1**
DPT / Hand Auger			

				Drilling	
Water Level:	8.64 ft below TOC			**Start**	**Finish**
Time:	945			DATE: 3/23/2022	DATE: 3/24/2022
Date:	3/24/2022			TIME: 1430	TIME: 830

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	10YR 3/3 Dry brown silty clay, some gravel Sample collected from 3-4 ft interval. Sample ID: AOI-03-SB-3-4.
				1	
				2	
				3	
				4	
				5	5-6.3 ft : 5YR 5/4 moist brown clay, little silt
				6	
				7	6.3-8 ft: 10YR 5/4 Moist brown silty fine sand Sample collected from 6-7 ft interval. Sample ID: AOI-03-SB-6-7.
		PVC		8	10YR 5/4 Wet brown silty fine sand, trace gravel
				9	
		Slot		10	
				11	
		10		12	10YR 4/4 Wet-moist brown silty fine sand, some gravel
				13	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	13	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	8	To	13	ft bgs
Riser Interval:	0	To	8	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright Date: 3/23/2022
Drilling Contractor: Cascade Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG	**Project:** PFAS SI	**Location:** Rochester AASF
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** AOI01-04
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description:

				Drilling Start	Drilling Finish
Water Level:	14.2 ft below TOC				
Time:	800			DATE: 3/24/2022	DATE: 3/24/2022
Date:	3/25/2022			TIME: 0930	TIME: 1100

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	10YR 3/3 Moist brown silt, some gravel Sample collected from 0-2 ft interval. Sample ID: AOI-04-SB-0-2.
				1	
				2	10YR 3/3 Moist brown silt, some gravel
				3	
				4	Moist gray silt, little gravel Sample collected from 4-5 ft interval. Sample ID: AOI-04-SB-4-5.
				5	Moist gray silt, little clay, little gravel
				6	
				7	
				8	Moist brown sand silt , some gravel Sample collected from 9-10 ft interval. Sample ID: AOI-04-SB-9-10.
				9	
		PVC		10	Moist brown sand silt , some gravel
				11	
				12	
		10 Slot		13	Moist very hard gray sandy silt, little gravel
				14	
				15	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	15	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	10	To	15	ft bgs
Riser Interval:	0	To	10	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright
Drilling Contractor: Cascade
Date: 3/23/2022
Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG	**Project:** PFAS SI	**Location:** Rochester AASF
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-01
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description:

				Drilling	
Water Level:	6.5 ft below TOC			**Start**	**Finish**
Time:	1241			DATE: 3/21/2022	DATE: 3/21/2022
Date:	3/21/2022			TIME: 930	TIME: 1030

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
			0	0	0-0.5 ft: 10YR 2/2. Moist brown silt, trace gravel. 0.5-1 ft: 10YR 2/2. Moist, brown silt, little gravel. 1-1.5 ft: 10YR 2/2. Dry, brown, silty clay, trace gravel. 1.5-2 ft: 10YR 2/2. Dry brown silt, some clay, trace gravel. Sample collected from 0-2 ft interval. Sample ID: RAASF-01-SB-0-2.
				1	
				2	
			0	3	945: 10YR 2/2. Dry, brown, silty clay.
				4	
			0	5	955: 10YR 3/3. Dry, brown, silty clay.
				6	
			0	7	1000: 10YR 4/4. Dry brown clay. Very dense. Sample collected from 5-6 ft interval. Sample ID: RAASF-01-SB-5-6. Sample collected 9-10 ft interval. Sample ID: RAASF-01-SB-9-10.
				8	
				9	
				10	1015: 10YR 4/4. Wet brown fine to medium sand.
			0	11	
				12	11-12.4 ft: 10YR 4/4. Wet, brown very coarse sand. Some large gravel. 12.4-15 ft: 10YR 6/2. Moist light brown-gray dense silt.
		PVC	0	13	
				14	
		Slot 10		15	15-15.4 ft: 10 YR 6/2. Wet, brown-grey large gravel. 15.4-19 ft: 10YR 6/2. Wet brown-grey clay. Trace gravel. 19-20 ft: 10YR 6/2. Wet brown-grey silt. Trace gravel.
				16	
				17	
			0	18	
				19	
				20	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	18	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	13	To	18	ft bgs
Riser Interval:	0	To	13	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright
Drilling Contractor: Cascade
Date: 3/21/2022
Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG		**Location:** Rochester AASF
	Project: PFAS SI		
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-02
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**
Coordinates: Northing ____ Easting: ____			
TOC Elevation:			**Drilling**
Surface Elevation:	**Water Level:**	1.25 ft below TOC	**Start** DATE: 3/21/2022 TIME: 1230 / **Finish** DATE: 3/21/2022 TIME: 1330
Reference Elevation:	**Time:**	0815	
Reference Description:	**Date:**	3/21/2022	

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	1230: 10YR 2/2. Moist brown silt. Few gravels. Sample collected from 0-2 ft interval. Sample ID: RAASF-02-SB-0-2.
				1	1245: 10YR 2/2. Moist brown silt. Some clay. Few gravels.
				2	1300: 10YR 3/3. Moist brown silty clay. Trace gravel. Sample collected from 2-3 ft interval. Sample ID: RAASF-02-SB-2-3.
				3	
				4	1315: 10YR 3/3. Wet brown silty clay. Trace gravel.
		PVC Slot		5	1330: 2.5YR 4/4. Wet, dense, reddish brown clay.
				6	
				7	
				8	
				9	
				10	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	10	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	5	To	10	ft bgs
Riser Interval:	0	To	5	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright Date: 3/21/2022

Drilling Contractor: Cascade Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG	**Project:** PFAS SI	**Location:** Rochester AASF
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-03
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description:

				Drilling	
Water Level:	5.45 ft below TOC			**Start**	**Finish**
Time:	1320			DATE: 3/22/2022	DATE: 3/22/2022
Date:	3/22/2022			TIME: 0920	TIME: 1100

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	10YR 2/2. Dry brown silty clay. Sample collected from 0-2 ft interval. Sample ID: RAASF-03-SB-0-2.
				1	
				2	10YR 2/2. Dry brown silty clay
				3	
				4	10YR 2/2. Dry, brown, silty clay, trace gravel.
				5	5-10ft: 7.5YR 4/5. Dry brown dense clay. Sample collected from 6-7 ft interval. Sample ID: RAASF-03-SB-6-7.
				6	
				7	
				8	
				9	
				10	10-13ft: 7.5YR 4/5. Dry brown dense clay Sample collected from 11-12 ft interval. Sample ID: RAASF-03-SB-11-12.
				11	
				12	
				13	13-14ft: 2.5YR 4/5. Moist-wet brown clay
				14	
		PVC		15	2.5 YR 4/5. Wet, brown clay
				16	
		Slot 10		17	
				18	2.5YR 5/2. Wet brown-grey clay.
				19	
				20	2.5YR 5/2. Wet brown-grey silty sand
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	20	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	15	To	20	ft bgs
Riser Interval:	0	To	15	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright
Drilling Contractor: Cascade
Date: 3/22/2022
Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG		**Location:** Rochester AASF
	Project: PFAS SI		
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-04
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**
Coordinates: Northing ____ Easting: ____			
TOC Elevation:			**Drilling**
Surface Elevation:	**Water Level:** 5.35 ft below TOC		**Start** DATE: 3/22/2022 TIME: 1115 / **Finish** DATE: 3/22/2022 TIME: 1300
Reference Elevation:	**Time:** 737		
Reference Description:	**Date:** 3/23/2022		

Surface Conditions: Grass
Weather: Sun
Temperature: 40-50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	10YR 4/4. Dry brown silty clay. Sample collected from 0-2 ft interval. Sample ID: RAASF-04-SB-0-2.
				1	
				2	10YR 4/4. Dry brown silty clay Sample collected from 3-4 ft interval. Sample ID: RAASF-04-SB-3-4.
				3	
				4	
				5	10YR 4/4. Dry Brown clay with couple silt lens Sample collected from 5-6 ft interval. Sample ID: RAASF-04-SB-5-6.
				6	10YR 4/4. Wet brown silt, loose trace gravel
				7	10YR 4/4. Moist brown silt, dense
		PVC / Soil / 10		8	8-8.25 ft : 10YR 4/4. Moist-dry brown silt, pulverized rocks (dense)
				9	
				10	10 YR 4/4. Wet brown silt, loose trace gravel
				11	
				12	10YR 5/1. Moist dense grey silty sand
				13	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	13	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	8	To	13	ft bgs
Riser Interval:	0	To	8	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright Date: 3/22/2022

Drilling Contractor: Cascade Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG		**Location:** Rochester AASF
	Project: PFAS SI		
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-05
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**
Coordinates: Northing ____ Easting: ____			
TOC Elevation:			**Drilling**
Surface Elevation:	**Water Level:** 3.66 ft below TOC		**Start** DATE: 3/23/2022 TIME: 715 / **Finish** DATE: 3/23/2022 TIME: 915
Reference Elevation:	**Time:** 1250		
Reference Description:	**Date:** 3/23/2022		

Surface Conditions: Grass
Weather: Sun
Temperature: 50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	10YR 3/3. Moist Brown silty clay with trace gravels Sample collected from 0-2 ft interval. Sample ID: RAASF-05-SB-0-2.
				1	
				2	10 YR 3/3. Moist brown silty clay, some gravel
				3	
				4	
				5	10YR 3/3. Moist brown silty sand, some gravel. Sample collected from 5-6 ft interval. Sample ID: RAASF-05-SB-5-6.
				6	10YR 3/5 .Wet brown silty sand, some gravel
				7	
		PVC		8	
				9	
		Slot		10	10 YR 3/3. Wet brown sandy silt, some gravel
				11	
		10		12	
				13	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	13	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	8	To	13	ft bgs
Riser Interval:	0	To	8	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright Date: 3/23/2022

Drilling Contractor: Cascade Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG	**Project:** PFAS SI	**Location:** Rochester AASF
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-06
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**

Coordinates: Northing _____ Easting: _____
TOC Elevation:
Surface Elevation:
Reference Elevation:
Reference Description:

				Drilling	
Water Level:	8.64 ft below TOC			**Start**	**Finish**
Time:	1100			DATE: 3/23/2022	DATE: 3/23/2022
Date:	3/24/2022			TIME: 930	TIME: 1100

Surface Conditions: Grass
Weather: Sun
Temperature: 50 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	10YR 3/3. Moist Brown silty clay with trace gravels Sample collected from 0-2 ft interval. Sample ID: RAASF-06-SB-0-2.
				1	
				2	
				3	2.5YR 4/5. Moist brown silty clay Sample collected from 4-5 ft interval. Sample ID: RAASF-06-SB-4-5.
				4	
				5	2.5YR 4/5. Moist brown clay Sample collected from 8-9 ft interval. Sample ID: RAASF-06-SB-8-9.
				6	
				7	
				8	
				9	2.5 YR 4/5. Wet brown silty clay
				10	10-14.3ft: 2.5YR 4/5 Wet brown clay
				11	
				12	
		PVC		13	
				14	
					14.3-15ft: 2.5YR 5/1 Wet gray sandy silt
		Slot 10		15	2.5YR 5/1. Wet gray silt
				16	
				17	
				18	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	18	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	13	To	18	ft bgs
Riser Interval:	0	To	13	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright
Drilling Contractor: Cascade
Date: 3/23/2022
Driller: Rich Reagan

EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Job. No. 634250383	**Client:** USACE/ARNG		**Location:** Rochester AASF
	Project: PFAS SI		
Drilling Method: DPT 7822DT			**Soil Boring/Well Number:** RAASF-07
Sampling Method: DPT / Hand Auger			**Sheet 1 of 1**
Coordinates: Northing ____ Easting: ____			
TOC Elevation:			**Drilling**
Surface Elevation:	**Water Level:** 6.80 ft below TOC		**Start** DATE: 3/23/2022 TIME: 1122 / **Finish** DATE: 3/23/2022 TIME: 1300
Reference Elevation:	**Time:** 0823		
Reference Description:	**Date:** 3/24/2022		

Surface Conditions: Grass
Weather: Sun
Temperature: 49 degrees F

USCS Class.	In. Record/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	
				0	
				1	
			0	2	10YR 3/3. Dry brown silt, little clay Sample collected from 0-2 ft interval. Sample ID: RAASF-07-SB-0-2. Sample collected from 3-4 ft interval. Sample ID: RAASF-07-SB-3-4.
				3	
				4	
				5	10YR 3/3. Moist brown silt, some gravel Sample collected from 5-6 ft interval. Sample ID: RAASF-07-SB-5-6.
			0	6	
				7	10YR 3/3. Wet brown silt, some gravel
			0	8	
				9	
				10	
				11	
			0	12	10YR 3/3. Wet brown silt, some gravel
		PVC		13	
				14	
				15	
		Soil		16	2.5YR 5/4. Wet gray sandy silt, some gravel
			0	17	
				18	
					End of Exploration.

Temporary Monitoring Well Construction Information

Monitoring Well Diameter:	1	in		
Bottom of Monitoring Well:	18	ft bgs		
Stick Up or Flush Mount:	Stickup in open borehole			
Screen Interval:	13	To	18	ft bgs
Riser Interval:	0	To	13	ft bgs
Sand Pack Interval:	none	To		ft bgs
Bentonite Seal:	none	To		ft bgs
Grout Interval:	none	To		ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point:	N/A	ft
Bottom of Tubing:		ft
Top of Sand Pack:		ft
Top of Bentonite Seal:		ft

Logged by: M. Wright Date: 3/23/2022

Drilling Contractor: Cascade Driller: Rich Reagan

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Appendix F

Analytical Results

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PFAS Results in Surface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		AOI01-01				AOI01-02				AOI01-02				AOI01-03				AOI01-04			
Sample Name		AOI01-01-SB-0-2				AOI01-02-SB-0-2				RAASF-FD-SB-03				AOI01-03-SB-0-2				AOI01-04-SB-0-2			
Parent Sample ID										AOI01-02-SB-0-2											
Sample Date		3/21/2022				3/22/2022				3/22/2022				3/23/2022				3/24/2022			
Depth (ft bgs)		0-2				0-2				0-2				0-2				0-2			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																					
4:2 Fluorotelomer sulfonate	--	<	1.8	2.3	U	<	1.8	2.2	U	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.2	U
6:2 Fluorotelomer sulfonate	--	<	1.8	2.3	U	<	1.8	2.2	U	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.2	U
8:2 Fluorotelomer sulfonate	--	<	1.8	3.4	U	<	1.8	3.3	U	<	1.9	3.5	U	<	1.7	3.3	U	<	1.8	3.3	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.46	2.3	UJ	<	0.45	2.2	U	<	0.47	2.4	U	<	0.43	2.2	UJ	<	0.44	2.2	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.46	2.3	UJ	<	0.45	2.2	U	<	0.47	2.4	U	<	0.43	2.2	UJ	<	0.44	2.2	U
Perfluorobutanesulfonic acid (PFBS)	1900	<	1.8	2.3	U	<	1.8	2.2	U	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.2	U
Perfluorobutanoic acid	--	<	1.8	2.3	U	<	1.8	2.2	U	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.2	U
Perfluorodecanesulfonic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluorodecanoic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluorododecanoic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluoroheptanesulfonic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluoroheptanoic acid	--	<	0.46	0.69	U	0.27	0.45	0.67	J	0.4	0.47	0.71	J	0.23	0.43	0.65	J	<	0.44	0.66	U
Perfluorohexanesulfonic acid (PFHxS)	130	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	0.24	0.44	0.66	J
Perfluorohexanoic acid	--	<	0.46	0.69	U	0.27	0.45	0.67	J	0.37	0.47	0.71	J	0.23	0.43	0.65	J	<	0.44	0.66	U
Perfluorononanesulfonic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluorononanoic acid (PFNA)	19	<	0.46	0.69	U	<	0.45	0.67	U	0.31	0.47	0.71	J	<	0.43	0.65	U	<	0.44	0.66	U
Perfluorooctanesulfonamide	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluorooctanesulfonic acid (PFOS)	13	<	0.46	0.69	U	<	0.67	0.67	U	1	0.47	0.71	J+	<	0.43	0.65	U	1.4	0.44	0.66	
Perfluorooctanoic acid (PFOA)	19	<	0.46	0.69	U	0.36	0.45	0.67	J	0.63	0.47	0.71	J	<	0.43	0.65	U	0.29	0.44	0.66	J
Perfluoropentanesulfonic acid	--	<	0.46	3.4	U	<	0.45	3.3	U	<	0.47	3.5	U	<	0.43	3.3	U	<	0.44	3.3	U
Perfluoropentanoic acid	--	<	0.46	0.69	U	0.39	0.45	0.67	J	0.62	0.47	0.71	J	0.63	0.43	0.65	J	<	0.44	0.66	U
Perfluorotetradecanoic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluorotridecanoic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U
Perfluoroundecanoic acid	--	<	0.46	0.69	U	<	0.45	0.67	U	<	0.47	0.71	U	<	0.43	0.65	U	<	0.44	0.66	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ug/kg = Microgram(s) per kilogram.

LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
. ft bgs = Feet below ground surface.
< = Analyte not detected above the LOD.
-- = No screening level available.

1. The Screening Levels for soil are based on a residential scenario for direct ingestion of contaminated soil.
2. Assistant Secretary of Defense. July 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. May 2022.

PFAS Results in Surface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	RAASF-01				RAASF-02				RAASF-02				RAASF-03				RAASF-04			
	Sample Name	RAASF-01-SB-0-2				RAASF-02-SB-0-2				RAASF-FD-SB-01				RAASF-03-SB-0-2				RAASF-04-SB-0-2			
	Parent Sample ID									RAASF-02-SB-0-2											
	Sample Date	3/21/2022				3/21/2022				3/21/2022				3/22/2022				3/22/2022			
	Depth (ft bgs)	0-2				0-2				0-2				0-2				0-2			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																					
4:2 Fluorotelomer sulfonate	--	<	2	2.5	U	<	2	2.5	U	<	2.2	2.8	U	<	1.8	2.3	U	<	2.1	2.6	U
6:2 Fluorotelomer sulfonate	--	<	2	2.5	U	<	2	2.5	U	<	2.2	2.8	U	<	1.8	2.3	U	<	2.1	2.6	U
8:2 Fluorotelomer sulfonate	--	<	2	3.7	U	<	2	3.8	U	<	2.2	4.2	U	<	1.8	3.4	U	<	2.1	3.9	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.49	2.5	U	<	0.5	2.5	U	<	0.56	2.8	U	<	0.46	2.3	UJ	<	0.52	2.6	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.49	2.5	U	<	0.5	2.5	U	<	0.56	2.8	U	<	0.46	2.3	UJ	<	0.52	2.6	UJ
Perfluorobutanesulfonic acid (PFBS)	1900	<	2	2.5	U	<	2	2.5	U	<	2.2	2.8	U	<	1.8	2.3	U	<	2.1	2.6	U
Perfluorobutanoic acid	--	<	2	2.5	U	<	2	2.5	U	<	2.2	2.8	U	<	1.8	2.3	U	<	2.1	2.6	U
Perfluorodecanesulfonic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorodecanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorododecanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluoroheptanesulfonic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluoroheptanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorohexanesulfonic acid (PFHxS)	130	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorohexanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorononanesulfonic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorononanoic acid (PFNA)	19	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorooctanesulfonamide	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorooctanesulfonic acid (PFOS)	13	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorooctanoic acid (PFOA)	19	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluoropentanesulfonic acid	--	<	0.49	3.7	U	<	0.5	3.8	U	<	0.56	4.2	U	<	0.46	3.4	U	<	0.52	3.9	U
Perfluoropentanoic acid	--	<	0.49	0.74	U	0.52	0.5	0.75	J	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorotetradecanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluorotridecanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U
Perfluoroundecanoic acid	--	<	0.49	0.74	U	<	0.5	0.75	U	<	0.56	0.84	U	<	0.46	0.69	U	<	0.52	0.78	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ug/kg = Microgram(s) per kilogram.

LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
ft bgs = Feet below ground surface.
< = Analyte not detected above the LOD.
-- = No screening level available.

1. The Screening Levels for soil are based on a residential scenario for direct ingestion of contaminated soil.
2. Assistant Secretary of Defense. July 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. May 2022.

PFAS Results in Surface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		RAASF-05				RAASF-06				RAASF-06				RAASF-07			
Sample Name		RAASF-05-SB-0-2				RAASF-06-SB-0-2				RAASF-FD-SB-04				RAASF-07-SB-0-2			
Parent Sample ID										RAASF-06-SB-0-2							
Sample Date		3/23/2022				3/23/2022				3/23/2022				3/23/2022			
Depth (ft bgs)		0-2				0-2				0-2				0-2			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																	
4:2 Fluorotelomer sulfonate	--	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.7	2.2	U
6:2 Fluorotelomer sulfonate	--	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.7	2.2	U
8:2 Fluorotelomer sulfonate	--	<	1.8	3.4	U	<	1.9	3.6	U	<	1.9	3.6	U	<	1.7	3.2	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.46	2.3	U	<	0.48	2.4	U	<	0.48	2.4	U	<	0.43	2.2	UJ
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.46	2.3	U	<	0.48	2.4	U	<	0.48	2.4	U	<	0.43	2.2	UJ
Perfluorobutanesulfonic acid (PFBS)	1900	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.7	2.2	U
Perfluorobutanoic acid	--	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.7	2.2	U
Perfluorodecanesulfonic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorodecanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorododecanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluoroheptanesulfonic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluoroheptanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorohexanesulfonic acid (PFHxS)	130	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorohexanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorononanesulfonic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorononanoic acid (PFNA)	19	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorooctanesulfonamide	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorooctanesulfonic acid (PFOS)	13	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorooctanoic acid (PFOA)	19	<	0.46	0.69	U	0.25	0.48	0.72	J	<	0.48	0.73	U	<	0.43	0.65	U
Perfluoropentanesulfonic acid	--	<	0.46	3.4	U	<	0.48	3.6	U	<	0.48	3.6	U	<	0.43	3.2	U
Perfluoropentanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorotetradecanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluorotridecanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U
Perfluoroundecanoic acid	--	<	0.46	0.69	U	<	0.48	0.72	U	<	0.48	0.73	U	<	0.43	0.65	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ug/kg = Microgram(s) per kilogram.

LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
ft bgs = Feet below ground surface.
< = Analyte not detected above the LOD.
-- = No screening level available.

1. The Screening Levels for soil are based on a residential scenario for direct ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

PFAS Results in Shallow Subsurface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		AOI01-01				AOI01-02				AOI01-03				AOI01-04			
Sample Name		AOI01-01-SB-6-7				AOI01-02-SB-5-6				AOI01-03-SB-3-4				AOI01-04-SB-4-5			
Parent Sample ID																	
Sample Date		3/22/2022				3/22/2022				3/24/2022				3/24/2022			
Depth (ft bgs)		6-7				5-6				3-4				4-5			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																	
4:2 Fluorotelomer sulfonate	--	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.3	U	<	1.7	2.2	U
6:2 Fluorotelomer sulfonate	--	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.3	U	<	1.7	2.2	U
8:2 Fluorotelomer sulfonate	--	<	1.9	3.5	U	<	1.7	3.3	U	<	1.8	3.4	U	<	1.7	3.3	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.47	2.4	UJ	<	0.43	2.2	UJ	<	0.45	2.3	UJ	<	0.44	2.2	UJ
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.47	2.4	UJ	<	0.43	2.2	UJ	<	0.45	2.3	UJ	<	0.44	2.2	UJ
Perfluorobutanesulfonic acid (PFBS)	25000	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.3	U	<	1.7	2.2	U
Perfluorobutanoic acid	--	<	1.9	2.4	U	<	1.7	2.2	U	<	1.8	2.3	U	<	1.7	2.2	U
Perfluorodecanesulfonic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorodecanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorododecanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluoroheptanesulfonic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluoroheptanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorohexanesulfonic acid (PFHxS)	1600	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorohexanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorononanesulfonic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorononanoic acid (PFNA)	250	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorooctanesulfonamide	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorooctanesulfonic acid (PFOS)	160	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorooctanoic acid (PFOA)	250	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluoropentanesulfonic acid	--	<	0.47	3.5	U	<	0.43	3.3	U	<	0.45	3.4	U	<	0.44	3.3	U
Perfluoropentanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	0.35	0.45	0.68	J	<	0.44	0.65	U
Perfluorotetradecanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluorotridecanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U
Perfluoroundecanoic acid	--	<	0.47	0.71	U	<	0.43	0.65	U	<	0.45	0.68	U	<	0.44	0.65	U

Notes:
J = Estimated concentration.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ug/kg = Microgram(s) per kilogram.

LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
ft bgs = Feet below ground surface.
< = Analyte not detected above the LOD.
-- = No screening level available.

1. The Screening Levels for soil are based on an industrial/commercial worker scenario for direct ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

PFAS Results in Shallow Subsurface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		RAASF-01				RAASF-02				RAASF-03				RAASF-04			
Sample Name		RAASF-01-SB-5-6				RAASF-02-SB-2-3				RAASF-03-SB-6-7				RAASF-04-SB-3-4			
Parent Sample ID																	
Sample Date		3/21/2022				3/21/2022				3/22/2022				3/22/2022			
Depth (ft bgs)		5-6				2-3				6-7				3-4			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																	
4:2 Fluorotelomer sulfonate	--	<	1.9	2.4	U	<	1.9	2.3	U	<	2	2.6	U	<	2	2.5	U
6:2 Fluorotelomer sulfonate	--	<	1.9	2.4	U	<	1.9	2.3	U	<	2	2.6	U	<	2	2.5	U
8:2 Fluorotelomer sulfonate	--	<	1.9	3.6	U	<	1.9	3.5	U	<	2	3.8	U	<	2	3.7	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.48	2.4	U	<	0.47	2.3	UJ	<	0.51	2.6	U	<	0.5	2.5	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.48	2.4	U	<	0.47	2.3	UJ	<	0.51	2.6	U	<	0.5	2.5	UJ
Perfluorobutanesulfonic acid (PFBS)	25000	<	1.9	2.4	U	<	1.9	2.3	U	<	2	2.6	U	<	2	2.5	U
Perfluorobutanoic acid	--	<	1.9	2.4	U	<	1.9	2.3	U	<	2	2.6	U	<	2	2.5	U
Perfluorodecanesulfonic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorodecanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorododecanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluoroheptanesulfonic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluoroheptanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorohexanesulfonic acid (PFHxS)	1600	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorohexanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorononanesulfonic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorononanoic acid (PFNA)	250	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorooctanesulfonamide	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorooctanesulfonic acid (PFOS)	160	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorooctanoic acid (PFOA)	250	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluoropentanesulfonic acid	--	<	0.48	3.6	U	<	0.47	3.5	U	<	0.51	3.8	U	<	0.5	3.7	U
Perfluoropentanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorotetradecanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluorotridecanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U
Perfluoroundecanoic acid	--	<	0.48	0.73	U	<	0.47	0.7	U	<	0.51	0.77	U	<	0.5	0.75	U

Notes:
J = Estimated concentration.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ug/kg = Microgram(s) per kilogram.

LOD = Limit of Detection. . ft bgs = Feet below ground surface.
LOQ = Limit of Quantitation. < = Analyte not detected above the LOD.
Qual = Qualifier. -- = No screening level available.

1. The Screening Levels for soil are based on an industrial/commercial worker scenario for direct ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

PFAS Results in Shallow Subsurface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		RAASF-05				RAASF-06				RAASF-07			
Sample Name		RAASF-05-SB-5-6				RAASF-06-SB-4-5				RAASF-07-SB-3-4			
Parent Sample ID													
Sample Date		3/23/2022				3/23/2022				3/23/2022			
Depth (ft bgs)		5-6				4-5				3-4			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)													
4:2 Fluorotelomer sulfonate	--	<	1.7	2.1	U	<	1.9	2.4	U	<	1.6	2	U
6:2 Fluorotelomer sulfonate	--	<	1.7	2.1	U	<	1.9	2.4	U	<	1.6	2	U
8:2 Fluorotelomer sulfonate	--	<	1.7	3.2	U	<	1.9	3.6	U	<	1.6	3	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.42	2.1	UJ	<	0.48	2.4	UJ	<	0.4	2	UJ
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.42	2.1	UJ	<	0.48	2.4	UJ	<	0.4	2	UJ
Perfluorobutanesulfonic acid (PFBS)	25000	<	1.7	2.1	U	<	1.9	2.4	U	<	1.6	2	U
Perfluorobutanoic acid	--	<	1.7	2.1	U	<	1.9	2.4	U	<	1.6	2	U
Perfluorodecanesulfonic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorodecanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorododecanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluoroheptanesulfonic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluoroheptanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorohexanesulfonic acid (PFHxS)	1600	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorohexanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorononanesulfonic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorononanoic acid (PFNA)	250	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorooctanesulfonamide	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorooctanesulfonic acid (PFOS)	160	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorooctanoic acid (PFOA)	250	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluoropentanesulfonic acid	--	<	0.42	3.2	U	<	0.48	3.6	U	<	0.4	3	U
Perfluoropentanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorotetradecanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluorotridecanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U
Perfluoroundecanoic acid	--	<	0.42	0.63	U	<	0.48	0.72	U	<	0.4	0.59	U

Notes:
J = Estimated concentration.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ug/kg = Microgram(s) per kilogram.

LOD = Limit of Detection. ft bgs = Feet below ground surface.
LOQ = Limit of Quantitation. < = Analyte not detected above the LOD.
Qual = Qualifier. -- = No screening level available.

1. The Screening Levels for soil are based on an industrial/commercial worker scenario for direct ingestion of contaminated soil.
2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

PFAS Results in Deep Subsurface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID		AOI01-01				AOI01-01				AOI01-02				AOI01-03				AOI01-04			
Sample Name		AOI01-01-SB-11-12				RAASF-FD-SB-02				AOI01-02-SB-10-11				AOI01-03-SB-6-7				AOI01-04-SB-9-10			
Parent Sample ID						AOI01-SB-11-12															
Sample Date		3/22/2022				3/22/2022				3/22/2022				3/24/2022				3/24/2022			
Depth (ft bgs)		11-12				11-12				10-11				6-7				9-10			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																					
4:2 Fluorotelomer sulfonate	--	<	2	2.5	U	<	2	2.4	U	<	1.7	2.1	U	<	1.7	2.1	U	<	1.6	2.1	U
6:2 Fluorotelomer sulfonate	--	<	2	2.5	U	<	2	2.4	U	<	1.7	2.1	U	2.1	1.7	2.1		<	1.6	2.1	U
8:2 Fluorotelomer sulfonate	--	<	2	3.7	U	<	2	3.7	U	<	1.7	3.2	U	<	1.7	3.2	U	<	1.6	3.1	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.5	2.5	U	<	0.49	2.4	U	<	0.42	2.1	UJ	<	0.43	2.1	U	<	0.41	2.1	UJ
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.5	2.5	U	<	0.49	2.4	U	<	0.42	2.1	UJ	<	0.43	2.1	U	<	0.41	2.1	UJ
Perfluorobutanesulfonic acid (PFBS)	25000	<	2	2.5	U	<	2	2.4	U	<	1.7	2.1	U	<	1.7	2.1	U	<	1.6	2.1	U
Perfluorobutanoic acid	--	<	2	2.5	U	<	2	2.4	U	<	1.7	2.1	U	<	1.7	2.1	U	<	1.6	2.1	U
Perfluorodecanesulfonic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorodecanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorododecanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluoroheptanesulfonic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluoroheptanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorohexanesulfonic acid (PFHxS)	1600	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorohexanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorononanesulfonic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorononanoic acid (PFNA)	250	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorooctanesulfonamide	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorooctanesulfonic acid (PFOS)	160	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorooctanoic acid (PFOA)	250	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluoropentanesulfonic acid	--	<	0.5	3.7	U	<	0.49	3.7	U	<	0.42	3.2	U	<	0.43	3.2	U	<	0.41	3.1	U
Perfluoropentanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorotetradecanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluorotridecanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U
Perfluoroundecanoic acid	--	<	0.5	0.75	U	<	0.49	0.73	U	<	0.42	0.63	U	<	0.43	0.64	U	<	0.41	0.62	U

Notes:
J = Estimated concentration.

U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.

UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.

µg/kg = Microgram(s) per kilogram.

LOD = Limit of Detection. ft bgs = Feet below ground surface.
LOQ = Limit of Quantitation. < = Analyte not detected above the LOD.
Qual = Qualifier. -- = No screening level available.

1. The Screening Levels for soil are based on an industrial/commercial worker scenario for direct ingestion of contaminated soil.

2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

PFAS Results in Deep Subsurface Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	RAASF-01				RAASF-03				RAASF-04				RAASF-06				RAASF-07			
	Sample Name	RAASF-01-SB-9-10				RAASF-03-SB-11-12				RAASF-04-SB-5-6				RAASF-06-SB-8-9				RAASF-07-SB-5-6			
	Parent Sample ID																				
	Sample Date	3/21/2022				3/22/2022				3/22/2022				3/23/2022				3/23/2022			
	Depth (ft bgs)	9-10				11-12				5-6				8-9				5-6			
Analyte	**Screening Level[1,2]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (µg/kg)																					
4:2 Fluorotelomer sulfonate	--	<	2.1	2.6	U	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.6	2	U
6:2 Fluorotelomer sulfonate	--	<	2.1	2.6	U	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.6	2	U
8:2 Fluorotelomer sulfonate	--	<	2.1	3.9	U	<	1.8	3.4	U	<	1.9	3.6	U	<	1.9	3.5	U	<	1.6	3	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.52	2.6	U	<	0.45	2.3	U	<	0.48	2.4	U	<	0.47	2.4	UJ	<	0.41	2	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	0.52	2.6	U	<	0.45	2.3	U	<	0.48	2.4	UJ	<	0.47	2.4	UJ	<	0.41	2	U
Perfluorobutanesulfonic acid (PFBS)	25000	<	2.1	2.6	U	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.6	2	U
Perfluorobutanoic acid	--	<	2.1	2.6	U	<	1.8	2.3	U	<	1.9	2.4	U	<	1.9	2.4	U	<	1.6	2	U
Perfluorodecanesulfonic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorodecanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorododecanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluoroheptanesulfonic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluoroheptanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorohexanesulfonic acid (PFHxS)	1600	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorohexanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorononanesulfonic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorononanoic acid (PFNA)	250	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorooctanesulfonamide	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorooctanesulfonic acid (PFOS)	160	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorooctanoic acid (PFOA)	250	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluoropentanesulfonic acid	--	<	0.52	3.9	U	<	0.45	3.4	U	<	0.48	3.6	U	<	0.47	3.5	U	<	0.41	3	U
Perfluoropentanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorotetradecanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluorotridecanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U
Perfluoroundecanoic acid	--	<	0.52	0.79	U	<	0.45	0.68	U	<	0.48	0.72	U	<	0.47	0.71	U	<	0.41	0.61	U

Notes:
J = Estimated concentration.

U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.

UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.

µg/kg = Microgram(s) per kilogram.

LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
ft bgs = Feet below ground surface.
< = Analyte not detected above the LOD.
-- = No screening level available.

1. The Screening Levels for soil are based on an industrial/commercial worker scenario for direct ingestion of contaminated soil.

2. Assistant Secretary of Defense. 2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

General Chemistry Results in Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID	AOI01-03			
Sample Name	AOI01-03-SB-3-5			
Parent Sample ID				
Sample Date	3/23/2022			
Depth (ft bgs)	3-5			
Analyte	**Result**	**LOD**	**LOQ**	**Qual**
pH (SW9045D) (SU)	7.1	0.01	0.01	
Temperature (SW9045D) (°C)	21.3	0.01	0.01	
Total Organic Carbon (SW9060) (mg/kg)	3900	240	360	

Notes:
SU= Standard unit.
°C = Degrees Celsius.
mg/kg= Milligram(s) per kilogram.
ft bgs = Feet below ground surface.
LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.

Grain Size Results in Soil, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

Location ID	AOI01-03			
Sample Name	AOI01-03-SB-3-5			
Parent Sample ID				
Sample Date	3/23/2022			
Depth (ft bgs)	3-5			
Analyte	**Result**	**LOD**	**LOQ**	**Qual**
Grain Size (ASTM D422) (%)				
Sieve, 75000 microns (75 mm)	100	1	1	
Sieve, 37500 microns (37.5 mm)	100	1	1	
19 mm	100	1	1	
No. 4 sieve (4.75 mm)	89	1	1	
Sieve, 3350 microns (3.35 mm)	84.7	1	1	
No. 8 sieve (2.36 mm)	78.2	1	1	
No. 16 sieve (1.18 mm)	75.9	1	1	
0.6 mm	74.1	1	1	
0.3 mm	70.8	1	1	
No. 100 sieve (0.15 mm)	65.3	1	1	
No. 200 sieve (0.075 mm)	58.8	1	1	
0.064 mm (Hydrometer)	56	1	1	
0.05 mm (Hydrometer)	49	1	1	
0.02 mm (Hydrometer)	36.5	1	1	
0.005 mm (Hydrometer)	24.5	1	1	
0.002 mm (Hydrometer)	17.5	1	1	
0.001 mm (Hydrometer)	13.5	1	1	

Notes:
mm = Millimeter(s).
ft bgs = Feet below ground surface.
LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
% = Percent passing.

PFAS Results in Groundwater, Site Inspection Report, Rochester Army Aviation Support Facility #2, New York

	Location ID	AOI01-01				AOI01-02				AOI01-03				AOI01-04				RAASF-01			
	Sample Name	AOI01-01-GW				AOI01-02-GW				AOI01-03-GW				AOI01-04-GW				RAASF-01-GW			
	Parent Sample ID																				
	Sample Date	3/22/2022				3/24/2022				3/24/2022				3/25/2022				3/21/2022			
Analyte	**Screening Level[1]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (ng/L)																					
4:2 Fluorotelomer sulfonate	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	U	<	0.83	1.7	U
6:2 Fluorotelomer sulfonate	--	<	3.9	4.9	U	110	3.5	4.4		30	3.2	4	J-	7.1	5.6	7		15	3.3	4.2	
8:2 Fluorotelomer sulfonate	--	<	2	3	U	<	1.8	2.6	U	1.1	1.6	2.4	J	<	2.8	4.2	U	<	1.7	2.5	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.98	3	U	<	0.88	2.6	U	<	0.8	2.4	U	<	1.4	4.2	U	<	0.83	2.5	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	1.2	2	U	<	1.1	1.8	U	<	0.96	1.6	U	<	1.7	2.8	U	<	1	1.7	U
Perfluorobutanesulfonic acid (PFBS)	601	<	0.98	2	U	<	0.88	1.8	U	1.1	0.8	1.6	J	<	1.4	2.8	U	0.89	0.83	1.7	J
Perfluorobutanoic acid	--	110	3.9	4.9		11	3.5	4.4	J+	23	3.2	4		41	5.6	7	J+	32	3.3	4.2	
Perfluorodecanesulfonic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	U	<	0.83	1.7	U
Perfluorodecanoic acid	--	<	0.98	2	U	<	0.88	1.8	U	0.75	0.8	1.6	J	<	1.4	2.8	U	<	0.83	1.7	U
Perfluorododecanoic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	UJ	<	0.83	1.7	U
Perfluoroheptanesulfonic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	U	<	0.83	1.7	U
Perfluoroheptanoic acid	--	<	0.98	2	U	1.8	0.88	1.8		11	0.8	1.6		<	1.4	2.8	U	14	0.83	1.7	
Perfluorohexanesulfonic acid (PFHxS)	39	<	0.98	2	U	1.8	0.88	1.8		1	0.8	1.6	J	<	1.4	2.8	U	<	0.83	1.7	U
Perfluorohexanoic acid	--	15	0.98	2		3.9	0.88	1.8		28	0.8	1.6		2.4	1.4	2.8	J	39	0.83	1.7	
Perfluorononanesulfonic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	U	<	0.83	1.7	U
Perfluorononanoic acid (PFNA)	6	<	0.98	2	U	<	0.88	1.8	U	1.4	0.8	1.6	J	<	1.4	2.8	U	0.67	0.83	1.7	J
Perfluorooctanesulfonamide	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	0.84	1.4	2.8	J	<	0.83	1.7	U
Perfluorooctanesulfonic acid (PFOS)	4	<	0.98	2	U	<	0.88	1.8	U	1.8	0.8	1.6	J+	<	1.4	2.8	U	<	0.83	1.7	U
Perfluorooctanoic acid (PFOA)	6	0.63	0.98	2	J	1.3	0.88	1.8	J	8.1	0.8	1.6		0.86	1.4	2.8	J	4.8	0.83	1.7	
Perfluoropentanesulfonic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	U	<	0.83	1.7	U
Perfluoropentanoic acid	--	52	0.98	2		6.8	0.88	1.8		43	0.8	1.6		32	1.4	2.8		64	0.83	1.7	
Perfluorotetradecanoic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	UJ	<	0.83	1.7	U
Perfluorotridecanoic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	UJ	<	0.83	1.7	U
Perfluoroundecanoic acid	--	<	0.98	2	U	<	0.88	1.8	U	<	0.8	1.6	U	<	1.4	2.8	U	<	0.83	1.7	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
J- = Estimated concentration, biased low.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ng/L = Nanogram(s) per liter.
LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
< = Analyte not detected above the LOD.
-- = No screening level available.
1. Assistant Secretary of Defense.2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

PFAS Results in Gr

	Location ID	RAASF-01				RAASF-02				RAASF-03				RAASF-04			
	Sample Name	RAASF-FD-GW-01				RAASF-02-GW				RAASF-03-GW				RAASF-04-GW			
	Parent Sample ID	RAASF-01-GW															
	Sample Date	3/21/2022				3/22/2022				3/22/2022				3/23/2022			
Analyte	**Screening Level[1]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (ng/L)																	
4:2 Fluorotelomer sulfonate	--	<	0.84	1.7	U	<	0.9	1.8	U	<	1.1	2.2	U	<	1	2.1	U
6:2 Fluorotelomer sulfonate	--	19	3.3	4.2		3.8	3.6	4.5	J	<	4.3	5.4	U	54	4.1	5.2	
8:2 Fluorotelomer sulfonate	--	<	1.7	2.5	U	<	1.8	2.7	U	<	2.2	3.2	U	<	2.1	3.1	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.84	2.5	U	<	0.9	2.7	U	<	1.1	3.2	U	<	1	3.1	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	1	1.7	U	<	1.1	1.8	U	<	1.3	2.2	U	<	1.2	2.1	U
Perfluorobutanesulfonic acid (PFBS)	601	0.77	0.84	1.7	J	2.3	0.9	1.8		<	1.1	2.2	U	0.82	1	2.1	J
Perfluorobutanoic acid	--	39	3.3	4.2		20	3.6	4.5	J+	30	4.3	5.4		16	4.1	5.2	
Perfluorodecanesulfonic acid	--	<	0.84	1.7	U	<	0.9	1.8	U	<	1.1	2.2	U	<	1	2.1	U
Perfluorodecanoic acid	--	<	0.84	1.7	U	<	0.9	1.8	U	<	1.1	2.2	U	<	1	2.1	U
Perfluorododecanoic acid	--	<	0.84	1.7	U	<	0.9	1.8	UJ	<	1.1	2.2	U	<	1	2.1	U
Perfluoroheptanesulfonic acid	--	<	0.84	1.7	U	<	0.9	1.8	U	<	1.1	2.2	U	<	1	2.1	U
Perfluoroheptanoic acid	--	17	0.84	1.7		8	0.9	1.8		<	1.1	2.2	U	0.55	1	2.1	J
Perfluorohexanesulfonic acid (PFHxS)	39	<	0.84	1.7	U	12	0.9	1.8		<	1.1	2.2	U	3.8	1	2.1	
Perfluorohexanoic acid	--	43	0.84	1.7		14	0.9	1.8		<	1.1	2.2	U	1.2	1	2.1	J
Perfluorononanesulfonic acid	--	<	0.84	1.7	U	<	0.9	1.8	U	<	1.1	2.2	U	<	1	2.1	U
Perfluorononanoic acid (PFNA)	6	0.79	0.84	1.7	J	1.3	0.9	1.8	J	<	1.1	2.2	U	<	1	2.1	U
Perfluorooctanesulfonamide	--	<	0.84	1.7	U	<	0.9	1.8	UJ	<	1.1	2.2	U	<	1	2.1	U
Perfluorooctanesulfonic acid (PFOS)	4	<	0.84	1.7	U	5.2	0.9	1.8		<	1.1	2.2	U	2.9	1	2.1	J+
Perfluorooctanoic acid (PFOA)	6	5.4	0.84	1.7		7.5	0.9	1.8		<	1.1	2.2	U	1	1	2.1	J
Perfluoropentanesulfonic acid	--	<	0.84	1.7	U	2.3	0.9	1.8		<	1.1	2.2	U	<	1	2.1	U
Perfluoropentanoic acid	--	71	0.84	1.7		21	0.9	1.8		1.1	1.1	2.2	J	1.5	1	2.1	J
Perfluorotetradecanoic acid	--	<	0.84	1.7	U	<	0.9	1.8	UJ	<	1.1	2.2	U	<	1	2.1	U
Perfluorotridecanoic acid	--	<	0.84	1.7	U	<	0.9	1.8	UJ	<	1.1	2.2	U	<	1	2.1	U
Perfluoroundecanoic acid	--	<	0.84	1.7	U	<	0.9	1.8	U	<	1.1	2.2	U	<	1	2.1	U

Notes:
J = Estimated concentration.
J+ = Estimated concentration, biased high.
J- = Estimated concentration, biased low.
U = The analyte was not detected at a level greater than or equal to the adjusted detection limit.
UJ = Analyte was not detected and was reported less than LOD. Associated numerical value is approximate.
ng/L = Nanogram(s) per liter.
LOD = Limit of Detection.
LOQ = Limit of Quantitation.
Qual = Qualifier.
< = Analyte not detected abov
-- = No screening level availab
1. Assistant Secretary of Defense.2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

PFAS Results in Gr

	Location ID	RAASF-05				RAASF-05				RAASF-06				RAASF-07			
	Sample Name	RAASF-05-GW				RAASF-FD-GW-02				RAASF-06-GW				RAASF-07-GW			
	Parent Sample ID					RAASF-05-GW											
	Sample Date	3/23/2022				3/23/2022				3/24/2022				3/24/2022			
Analyte	**Screening Level[1]**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**	**Result**	**LOD**	**LOQ**	**Qual**
PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (ng/L)																	
4:2 Fluorotelomer sulfonate	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
6:2 Fluorotelomer sulfonate	--	<	3.6	4.5	U	<	3.6	4.5	U	<	3.2	4	U	<	3.2	4.1	U
8:2 Fluorotelomer sulfonate	--	<	1.8	2.7	U	<	1.8	2.7	U	<	1.6	2.4	U	<	1.6	2.4	U
N-ethyl perfluorooctanesulfonamidoacetic acid	--	<	0.9	2.7	U	<	0.9	2.7	U	<	0.79	2.4	U	<	0.81	2.4	U
N-methyl perfluorooctanesulfonamidoacetic acid	--	<	1.1	1.8	U	<	1.1	1.8	U	<	0.95	1.6	U	<	0.97	1.6	U
Perfluorobutanesulfonic acid (PFBS)	601	0.51	0.9	1.8	J	0.47	0.9	1.8	J	<	0.79	1.6	U	<	0.81	1.6	U
Perfluorobutanoic acid	--	<	3.6	4.5	U	<	3.6	4.5	U	4.4	3.2	4		15	3.2	4.1	
Perfluorodecanesulfonic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluorodecanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluorododecanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluoroheptanesulfonic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluoroheptanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	1.5	0.79	1.6	J	<	0.81	1.6	U
Perfluorohexanesulfonic acid (PFHxS)	39	<	0.9	1.8	U	<	0.9	1.8	U	1.3	0.79	1.6	J	<	0.81	1.6	U
Perfluorohexanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	1.5	0.79	1.6	J	7.4	0.81	1.6	
Perfluorononanesulfonic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluorononanoic acid (PFNA)	6	<	0.9	1.8	U	<	0.9	1.8	U	0.48	0.79	1.6	J	<	0.81	1.6	U
Perfluorooctanesulfonamide	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluorooctanesulfonic acid (PFOS)	4	<	0.9	1.8	U	<	0.9	1.8	U	<	1.6	1.6	U	<	0.81	1.6	U
Perfluorooctanoic acid (PFOA)	6	<	0.9	1.8	U	<	0.9	1.8	U	1.9	0.79	1.6		<	0.81	1.6	U
Perfluoropentanesulfonic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluoropentanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	1.6	0.79	1.6		19	0.81	1.6	
Perfluorotetradecanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluorotridecanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U
Perfluoroundecanoic acid	--	<	0.9	1.8	U	<	0.9	1.8	U	<	0.79	1.6	U	<	0.81	1.6	U

Notes:
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1. Assistant Secretary of Defense.2022. Risk-Based Screening Levels in Groundwater and Soil using EPA's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1. July 2022.

Values exceeding the Screening Level are shaded gray.

Appendix G

Laboratory Reports

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