FINAL
Site Inspection Report
Albany Army Aviation Support Facility #3
Latham, New York

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

June 2023

Prepared for:

Army National Guard Bureau
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Arlington, VA 22204

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Acronyms and Abbreviations

%	percent
°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
AASF	Army Aviation Support Facility
ACP	access control point
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film-forming foam
AFD	Albany Fire Department
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
CAMP	Community Air Monitoring Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CoC	chain of custody
CSM	conceptual site model
DA	Department of the Army
DoD	Department of Defense
DPT	direct push technology
DQO	data quality objective
DUA	data usability assessment
EDR™	Environmental Data Resources, Inc.™
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
FedEx	Federal Express
FTA	Fire Training Area
GIS	Geographic Information System
GPRS	Ground Penetrating Radar Systems
GPS	Global positioning system
HDPE	high-density polyethylene
HEF	High Expansion Foam
HFPO-DA	hexafluoropropylene oxide dimer acid
IDW	investigation-derived waste
ITRC	Interstate Technology Regulatory Council
LC/MS/MS	liquid chromatography with tandem mass spectrometry
MIL-SPEC	military specification
NELAP	National Environmental Laboratory Accreditation Program
ng/L	nanograms per liter
NYARNG	New York Army National Guard
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSD	Office of the Secretary of Defense

OWS	oil-water separator
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
PQAPP	Programmatic UFP-QAPP
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
SI	Site Inspection
SL	screening level
SOP	standard operating procedure
TOC	total organic carbon
TPP	Technical Project Planning
UFP	Uniform Federal Policy
US	United States
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Executive Summary

The Army National Guard (ARNG) G-9 is performing Preliminary Assessments (PAs) and Site Inspections (SIs) 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) dated 6 July 2022 (Assistant Secretary of Defense, 2022). The six compounds listed in the OSD memorandum include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), hexafluoropropylene oxide dimer acid (HFPO-DA)[1], and perfluorobutanesulfonic acid (PFBS). These compounds are collectively referred to as “relevant compounds” throughout the document and the applicable screening levels (SLs) are provided in **Table ES-1**.

The PA identified three Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed, or released historically (see **Table ES-2** for AOI locations). The objective of the SI is to identify whether there has been a release to the environment from the AOIs 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 SLs for relevant compounds. This SI was completed at the Albany Army Aviation Support Facility (AASF) #3 in Latham, New York and determined further evaluation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is warranted for AOI 1, AOI 2, and AOI 3. The Albany AASF #3 will also be referred to as the “facility” throughout this document.

Albany AASF #3 is in Latham, Albany County, which is located in eastern New York. The facility is on Albany International Airport property and leased to the New York ARNG. The facility is approximately 7 miles north-northwest from the Albany city center and 0.75 miles east of the southern end of Runway 1, at Albany International Airport. Interstate 87 is 0.25 miles to the east of the facility.

The PA identified three AOIs for investigation during the SI phase. SI sampling results from the three AOIs were compared to OSD SLs. **Table ES-2** summarizes the SI results for each AOI. Based on the results of this SI, further evaluation under CERCLA is warranted in a Remedial Investigation (RI) for AOI 1, AOI 2, and AOI 3.

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

Notes:
bgs = below ground surface; µg/kg = micrograms per kilogram; ng/L = nanograms per liter
a.) 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.
b.) 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 ES-2: Summary of Site Inspection Findings and Recommendations

AOI	Potential Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	AASF #3 Hangar Release/ Fire Response Unit	●	●	●	Proceed to RI
2	Garbage Truck Fire	◐	●	◐	Proceed to RI
3	Stockpiled Soil	◐	●	N/A	Proceed to RI

Legend:
N/A = not applicable
● = detected; exceedance of the screening levels
◐ = detected; no exceedance of the screening levels
○ = not detected

1. Introduction

1.1 Project Authorization

The Army National Guard (ARNG) G-9 is the lead agency in performing Preliminary Assessments (PAs) and Site Inspections (SIs) 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) 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 perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA)[1], and perfluorobutanesulfonic acid (PFBS) at ARNG facilities nationwide. The ARNG performed this SI at the Albany Army Aviation Support Facility (AASF) #3 in Latham, New York. The Albany AASF #3 is also referred to as the "facility" throughout this document.

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

1.2 SI Purpose

A PA was performed at Albany AASF #3 (AECOM Technical Services, Inc. [AECOM], 2020) that identified three Areas of Interest (AOIs) 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 AOIs 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.

[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.

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2. Facility Background

2.1 Facility Location and Description

Albany AASF #3 is in Latham, Albany County, which is located in eastern New York. The facility is on Albany International Airport property and leased to the New York ARNG (NYARNG) (**Figure 2-1**). The facility is approximately 7 miles north-northwest from the Albany city center and 0.75 miles east of the southern end of Runway 1, at Albany International Airport. Interstate 87 is 0.25 miles to the east of the facility.

Prior to 1977, the facility property was undeveloped. A small airplane hangar, which the NYARNG began operating immediately, was built shortly before 1983. Since that time, lease agreements for multiple additional parcels adjacent to the original facility property expanded the current property to a total of roughly 50 acres.

2.2 Facility Environmental Setting

Albany AASF #3 is located in a predominantly urban area comprised of a hilly mix of deciduous and evergreen trees, with an average elevation of 354 feet above mean sea level. According to the 2010 US Census, Albany County has a population of 305,506 and comprises 533 square miles of which only ten are water (US Census Bureau, 2010). Approximately 2 miles north of Albany AASF #3 is the Mohawk River, which trends west to east before it converges with the Hudson River roughly 4 miles to the northeast of AASF #3. Several towns are less than 2 miles from the Albany AASF #3, including the Town of Verdoy, located 1.25 miles to the north, and the Town of Colonie, located 1.75 miles to the southwest. There are also multiple industries located within a 2-mile radius of Albany AASF #3. The facility's topography is shown in **Figure 2-2**.

2.2.1 Geology

The facility is located south of the Mohawk River, within the southeastern geological region of the Hudson-Mohawk River Lowlands, which is a segment of the Mohawk River Basin physiographic province (US Geological Survey [USGS], 2006). This region extends eastward from the Great Lakes Lowlands to the Hudson Valley through the center of the basin. The Mohawk River valley is an area of generally subdued topography shaped over multiple periods of extensive glacial advancement and recession (deglaciation).

Deglaciation is responsible for thick deposits of fluvial sand, gravel, and lacustrine clay, silt, and fine sand found throughout the region. As a result, glacially derived landforms are present near the facility, including eskers, drumlins, recessional moraines, outwash systems, and massive deposits of sand and gravel, known as kame, laid down at the periphery of ice sheets during glacial drainage (Fairchild, 1896; Isachsen et al., 2000).

The facility lies on the southernmost edge of the Colonie Channel, a north-south oriented bedrock channel that runs from the Town of Colonie up through the Town of Malta (USGS, 2002). The majority of both the surface and underlying material of the facility are Pleistocene age unconsolidated glacial deposits, recent floodplain deposits, and lacustrine delta. These sediments consist of layers of fine sands and gravel underlain by silts and clays of variable thicknesses ranging between 20 to nearly 350 feet (USGS, 1964; USGS 1981b). These sediments were deposited fluvially against glacial ice but prograded into glacial Lake Albany, distinguished by steeply dipping forest beds, which indicate deposition in standing water (USGS, 1964). The nearshore lake sediments were reworked by wind, after the lake had drained, to form well-sorted blanket lake sands and dune fields; this creates permeable dunes and blanket sands that overlie thick sequences of relatively impermeable lacustrine silt and clay (USGS, 1988).

A previous subsurface investigation by the US Department of Agriculture Soil Conservation Service, who performs the National Cooperative Soil Survey, indicated that the upper 0-12 feet of the western side of the facility subsurface material is mostly various types of ground moraines and silt loam. This silt loam consists of low permeability, somewhat-poorly to poorly drained, fine-grained silts and clays with very slow infiltration rates. These soil layers can impede the downward movement of water, suggesting there is high surficial runoff from the facility to surrounding water body features. The central and eastern areas of the facility, however, are composed of fine sands with high infiltration rates and high permeability, causing this area to have more influence on the local groundwater flow.

Underneath the silt loam and fine-grained sands lies sedimentary bedrock such as shale, sandstone, and carbonate rocks. Many of the drinking water wells in the Mohawk River Basin are situated in bedrock; however, they do not yield as much as the unconsolidated sediments (USGS, 2006).

Soil borings completed during the SI found sand as the dominant lithology of the unconsolidated sediments below the Albany AASF #3. The borings were completed at depths between 5 and 15 feet below ground surface (bgs). The sands were described as silty sand, well-graded sand, and poorly graded sand. Many of the logs also reported varying percentages of gravel included near or at the surface of the boring. These results and facility observations are consistent with the reported depositional environment of the region and near surface fill material expected at a developed site. Boring logs are presented in **Appendix E**.

2.2.2 Hydrogeology

Based on review of USEPA's map of Sole Source Aquifers, Albany AASF #3 is not located above a sole source aquifer. Based on review of New York State Department of Environmental Conservation's (NYSDEC) Map of Principal and Primary Aquifers in New York State, the facility cantonment area is located over a primary aquifer spanning roughly 40 square miles as well as portions of two other aquifers. The unconsolidated sand and gravel units form a virtually continuous aquifer system underlying the Mohawk River Valley (USGS, 1981a). Water in the aquifer is principally under water-table conditions and in hydraulic contact with the Mohawk River, so that pumping of most wells in the area induces recharge from the river to an unknown extent (USGS, 2002).

An unconfined lacustrine sand aquifer is the surficial aquifer, and there are also parts of the Colonie Channel aquifer, which is confined within the deepest parts of the channel, is variably confined and unconfined within the shallower peripheral channel areas and consists of thin sand and gravel. The unconsolidated sand and gravel units yield the largest supply to wells in the Mohawk River Valley, with yields as much as nine million gallons per day across the entire aquifer (USGS, 1981a). Precipitation that infiltrates the land surface is the sole source of recharge to the lacustrine sand aquifer and recharges the alluvial aquifer and unconfined parts of the Colonie channel aquifer (USGS, 2002).

An Environmental Data Resources, Inc. (EDR™) Report included a well search for a 1-mile radius surrounding the facility (AECOM, 2020). 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. Well data from New York State indicated there are several potable wells within 4 miles of the facility, as shown on **Figure 2-3** (New York State, 2016). The depth to groundwater ranges between 4.5 and 150 feet bgs, with well depths ranging anywhere from 30 to 900 feet bgs and yield anywhere from 0.5 to 120 gallons per minute. Data from the USGS National Water Information System Mapper identified inactive monitoring wells within the 4-mile radius, but no active USGS monitoring wells were identified (USGS, 2020). The facility receives water from the Town of Colonie municipal water utility that sources water from Mohawk River and utilizes the Town of Colonie sanitary sewer system; there are no septic systems present at the facility.

Depths to water measured in April 2022 during the SI ranged from 0.56 to 5.72 feet bgs. Groundwater elevation contours from the SI are presented on **Figure 2-4** and indicate the groundwater flow direction at the facility is primarily to the west (which is different from the anticipated flow direction expected to be to the north).

2.2.3 Hydrology

The facility is in the Shakers Creek-Mohawk River Watershed (**Figure 2-5**), which is a part of the much larger Mohawk River Basin. The Mohawk River Basin covers 3,500 square miles, drains over 12,000 square miles of streams, and encompasses parts of 14 counties, including all of Montgomery County, most of Schoharie and Schenectady Counties, and parts of Herkimer, Hamilton, Fulton, Greene, Oneida, Saratoga, Albany, Lewis, Madison, Ostego, and Delaware Counties. The Mohawk River is a major tributary to the Hudson River, while the Schoharie and West Canada Creeks are major tributaries to the Mohawk River (USGS, 2006). The main channel of the Mohawk River runs west to east roughly 2 miles north of the facility and forms a floodplain. Surface water resources near the Albany AASF #3 include natural streams, rivers, and open water features (**Figure 2-5**).

The stormwater system at the facility routes surface runoff to a drainage ditch on the southwestern boundary of the facility. From the drainage ditch, the runoff travels south around the southern runway (Runway 1) and flows west-northwest before converging with Ann Lee Pond. Approximately 0.75 miles west of the facility is Shaker's Creek. Shakers Creek headwaters flow south to north from Ann Lee Pond and then west to east-northeast at the end of the Runway 19 of Albany International Airport (**Figure 2-5**). A second branch of Shakers Creek flows south to north 0.75 miles east of the facility, which converges with Shaker's Creek slightly east of Runway 19. Shaker's Creek empties into the Mohawk River less than 1 mile after the convergence of the eastern branch (**Figure 2-5**).

2.2.4 Climate

The climate is predominately continental, with an average annual temperature of 49.4 degrees Fahrenheit (°F). Seasonally, temperatures vary from an average summer high of 71.0 °F to average winter lows of 27.2 °F. The total mean annual precipitation is 40.68 inches. February is the driest month, with 2.28 inches of precipitation, while July is the wettest month, with 4.55 inches (National Oceanic and Atmospheric Association, 2022).

2.2.5 Current and Future Land Use

The facility is accessible through a guarded security gate off Old Niskayuna Road. The property is leased by the NYARNG, which conducts training of personnel and aircraft maintenance. There are no current expansion plans for the facility and, in general, the future land use at the facility is not expected to change. Surrounding current land use includes mostly aviation, commercial, industrial, and residential uses. Besides Albany International Airport, some of the closest commercial and industrial neighbors to Albany AASF #3 include a pool manufacturer, an auto glass repair company, and an industrial equipment supplier.

2.2.6 Sensitive Habitat and Threatened/ Endangered Species

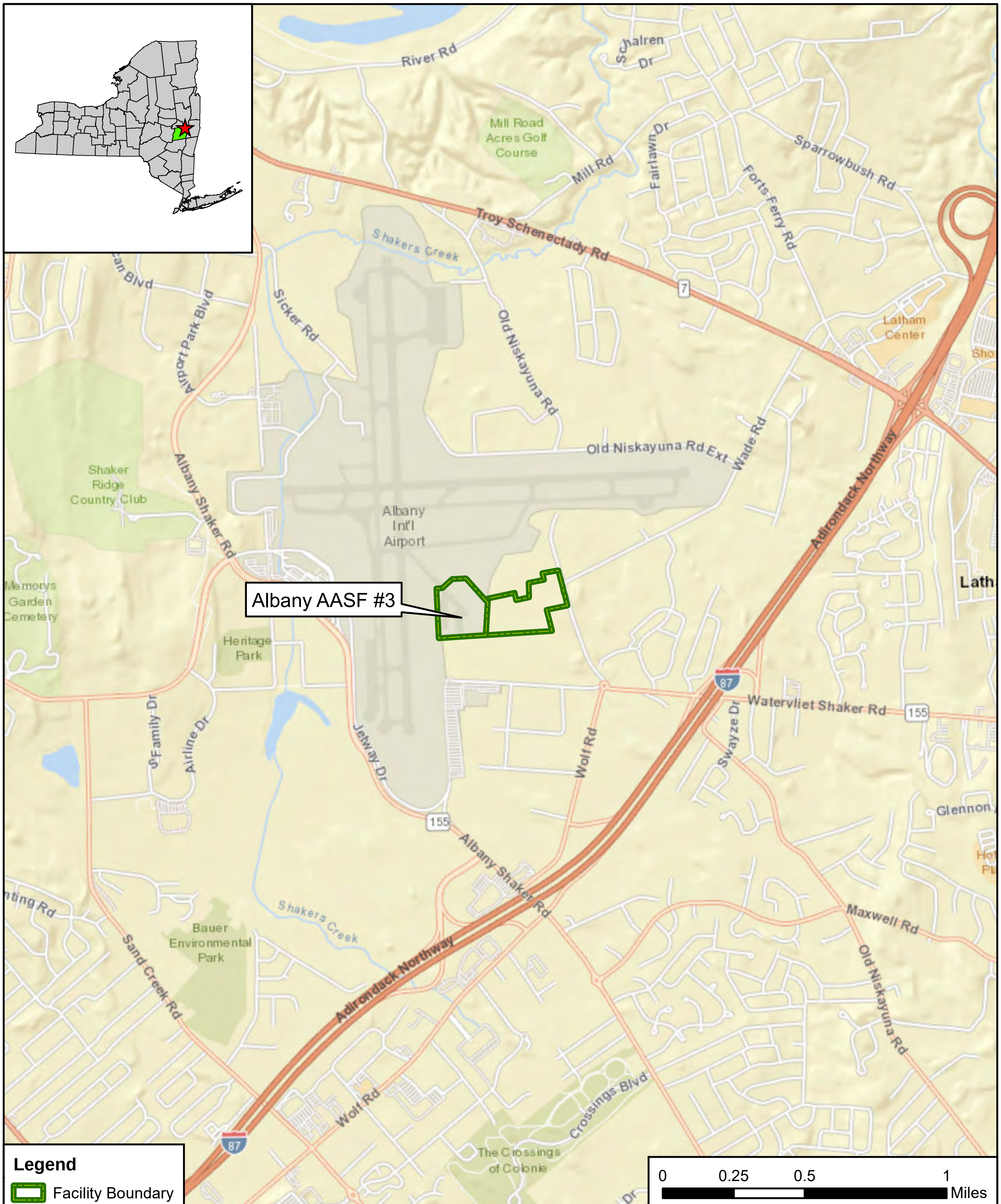
A wildlife survey has not occurred at the facility, and the facility does not have any significant areas of habitat. The following species have not been identified at the facility but may be present in the surrounding area.

The following insects and mammals are federally endangered, threatened, proposed, and/ or are listed as candidate species in Albany County, New York (US Fish and Wildlife Service [USFWS], 2022).

- **Insects:** Monarch butterfly, *Danaus plexippus* (candidate); Karner blue butterfly, *Lycaeides melissa samuelis* (endangered)
- **Mammals**: Tricolored bat, *Perimyotis subflavus* (under review), Little brown bat, *Myotis lucifugus* (under review); Indiana bat, *Myotis sodalis* (endangered); Northern Long-Eared Bat, *Myotis septentrionalis* (threatened)

2.3 History of PFAS Use

Two AOIs were identified in the PA where AFFF may have been used, stored, disposed, or released historically at the Albany AASF #3 (AECOM, 2020). AFFF may have historically been released at the facility during fire training, fire equipment maintenance, AFFF storage, and emergency response. An additional AOI, AOI 3, was identified during the SI planning phase (AECOM, 2021). The potential release areas were grouped into three AOIs based on preliminary data and presumed groundwater flow directions. A description of each AOI is presented in **Section 3**.



CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 2,640 feet	CHK BY	AB	5/12/2023
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	CM	5/12/2023

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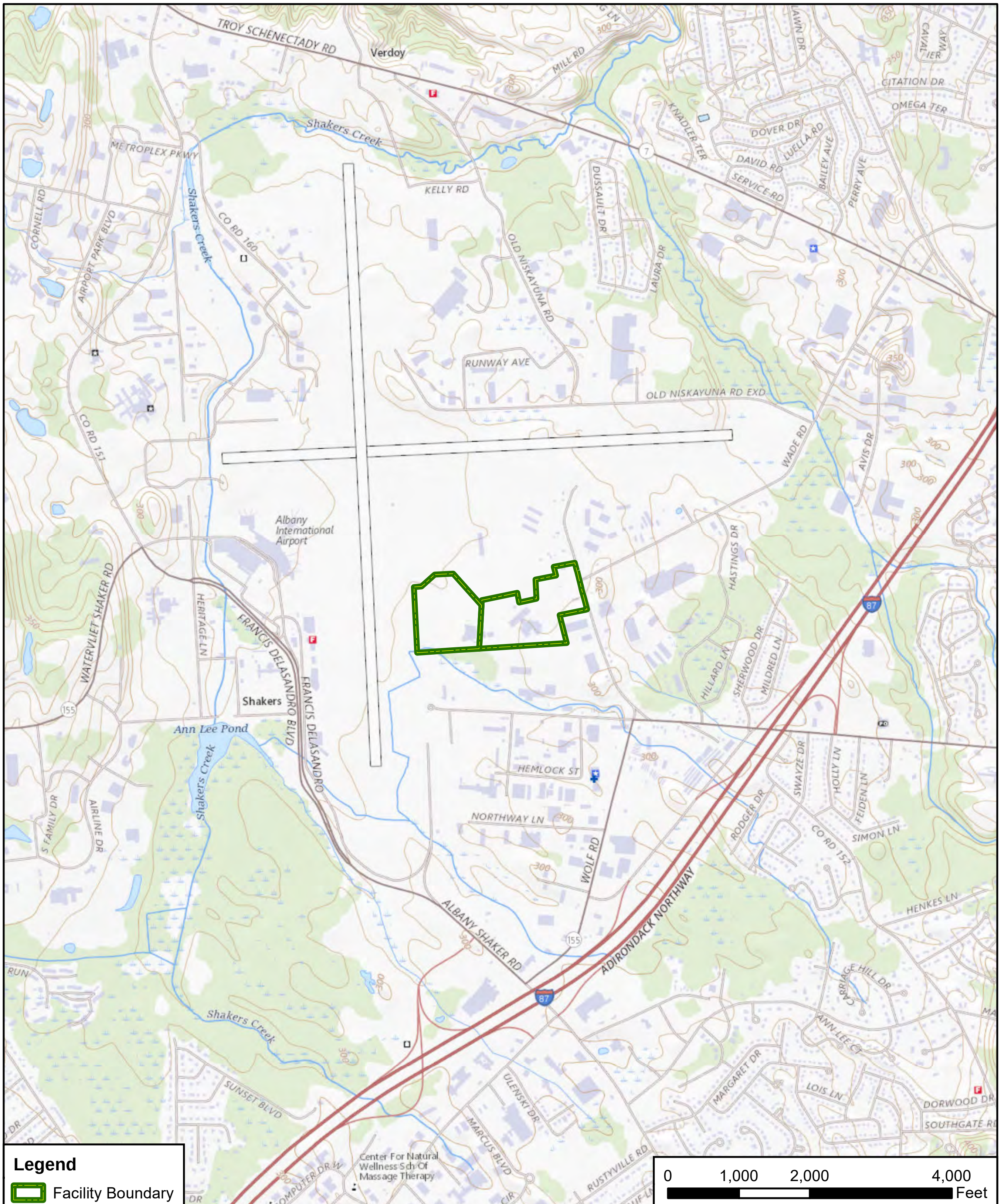
Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-1



CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
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SCALE	1 inch = 2,000 feet	CHK BY	AB	5/12/2023
Base Map: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program,		PM	CM	5/12/2023

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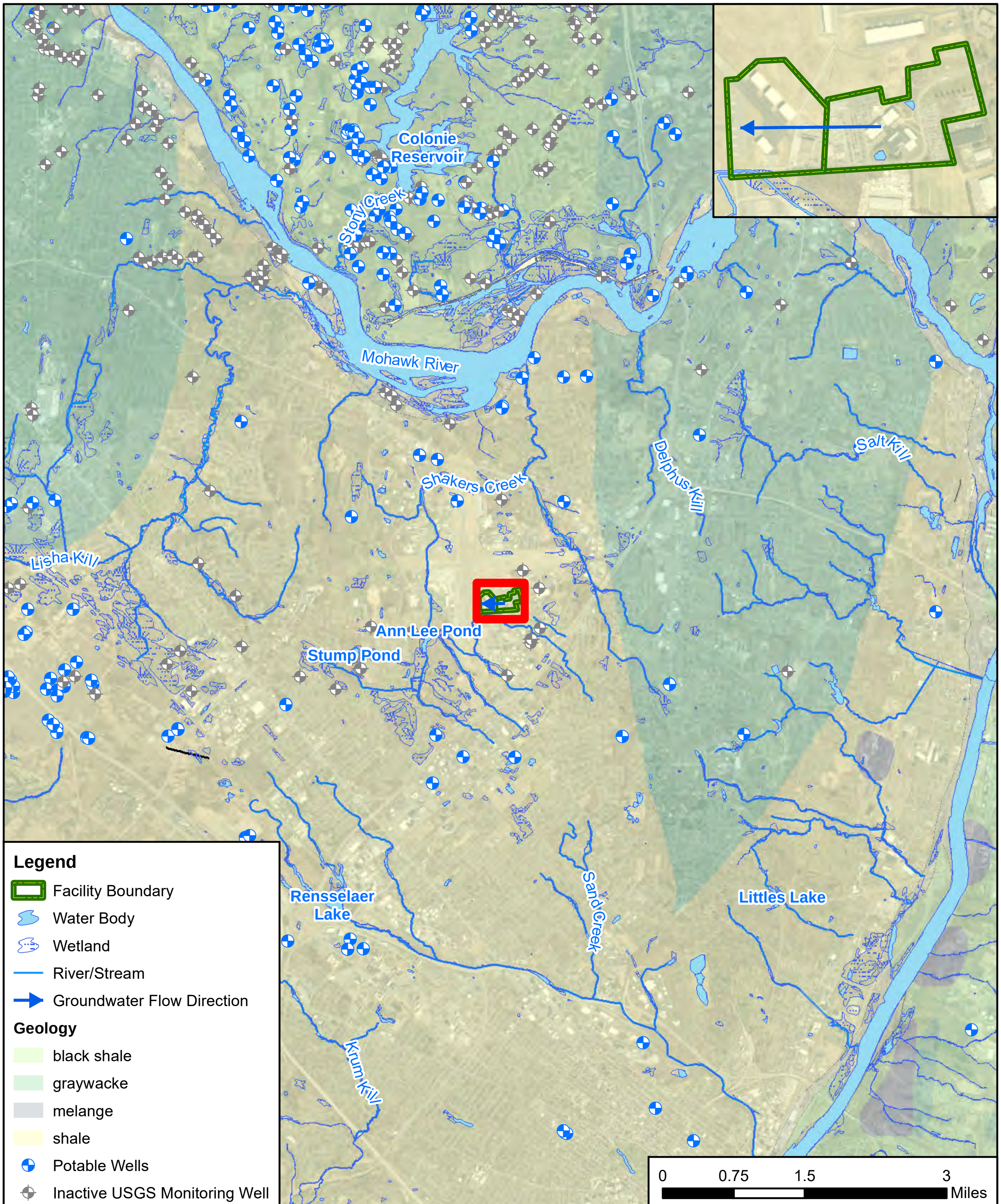
Facility Topography

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-2



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PROJECT	Site Inspection at Albany AASF #3, NY			
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Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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Groundwater Features

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-3

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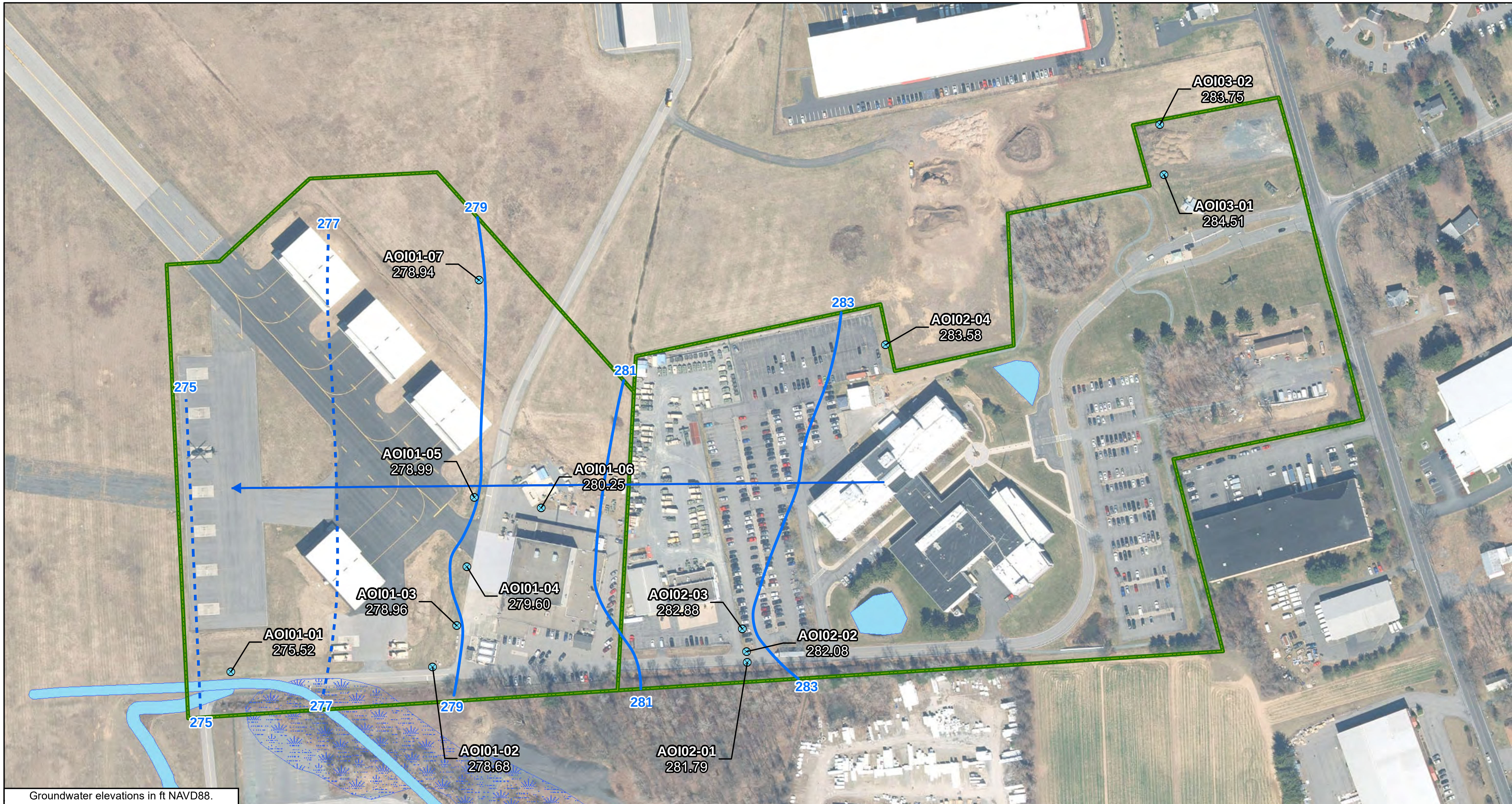

Groundwater elevations in ft NAVD88.

CLIENT	ARNG				
PROJECT	Site Inspection at Albany AASF #3, NY				
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch equals 200 feet	CHK BY	AB	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

Legend

- Soil Boring/Monitoring Well Location
- Facility Boundary
- Water Body
- Wetland
- River/Stream
- Groundwater Elevation Contour
- Inferred Groundwater Elevation Contour
- Groundwater Flow Direction

0 100 200 400 Feet

N

Groundwater Elevations, April 2022

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 2-4

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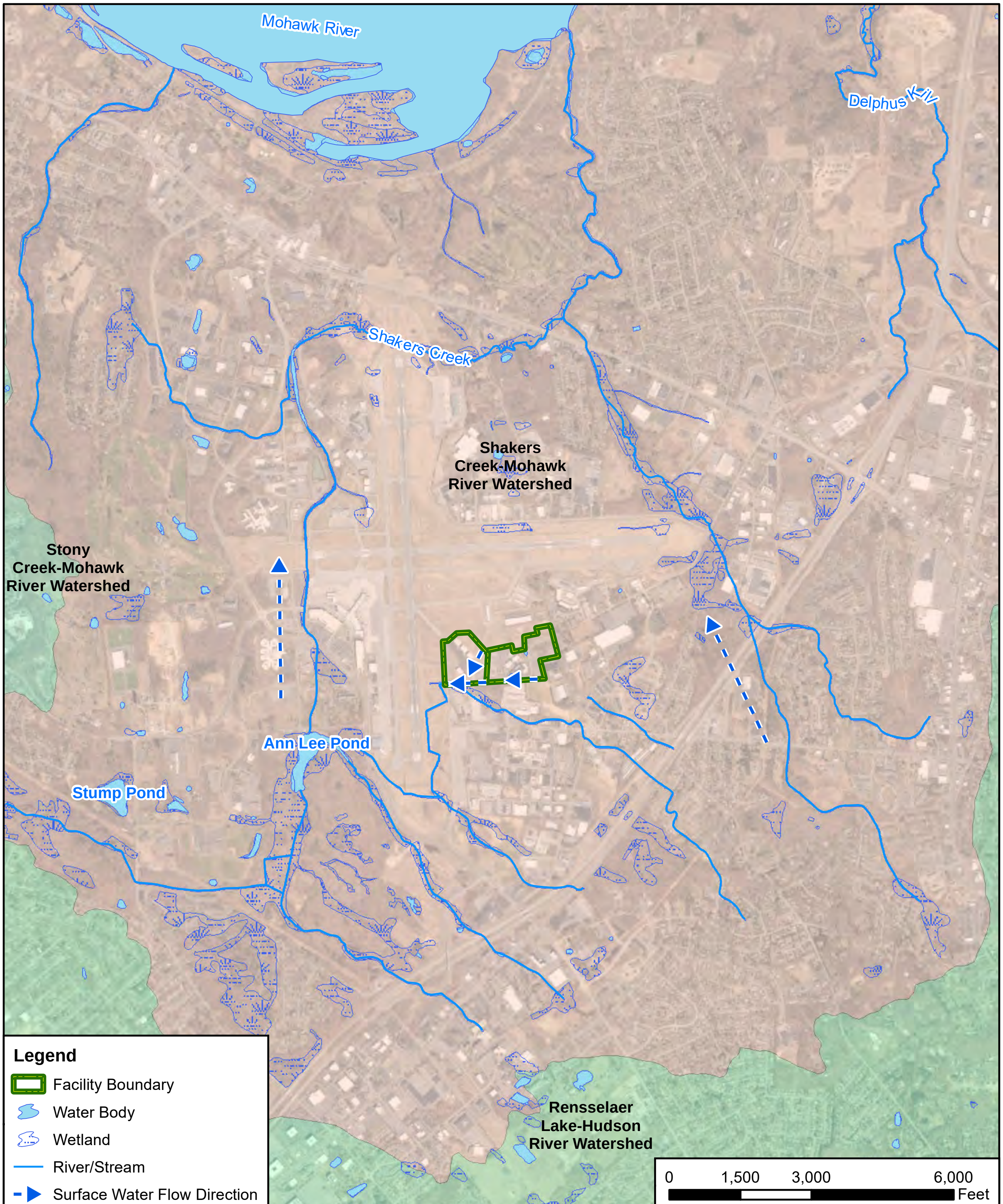

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 3,000 feet	CHK BY	AB	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

Surface Water Features

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-5

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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 and the additional information learned during the SI planning phase, four potential release areas were identified at Albany AASF #3 and grouped into three AOIs (AECOM, 2020). The potential release areas and adjacent potential sources are shown on **Figure 3-1**.

3.1 AOI 1 AASF #3 Hangar Release / Fire Response Unit

AOI 1 (~1.00 acres) encompasses two releases of the fire suppression system (2012 and 2021) from the AASF #3 Hangar and the former Fire Response Unit room. Two 200-gallon tanks are connected to the deluge system and are located in the former Fire Response Unit building. An initial testing of the fire suppression system in 2012 caused foam to completely fill the hangar. The hangar bay doors were opened and allowed the foam to spill out onto the tarmac and into the grass. The release was cleaned up and disposed of by a contractor. The PA findings indicated in 2012 the fire suppression system was primed with 3% AFFF; however, the existing fire suppression system is documented as containing JET-X 2.75% HEF as of August 1, 2007 (purchase date indicated on tag attached to tank). This finding was documented by ARNG during the SI field work in 2022 (see **Appendix C**). Based on this finding, it is unknown if the current system is the original fire suppression system or if a retrofit occurred around 2007. The information documented in the PA regarding the fire suppression system is based solely on the recollections of interviewed personnel from the Albany Fire Department (AFD) and NYARNG. No documentation (e.g., plans, permits, invoices) were found during the PA to confirm the use of AFFF in the fire suppression system. Uncertainty regarding the timing and use of AFFF at the facility remains; however, NYARNG continues to perform records searches to obtain additional information.

Albany AASF #3 had a Fire Response Unit during the 1980s that was disbanded in the early 1990s. During this time, a firetruck was reported to have been stationed in the Fire Response Unit, housed in a room attached to the northern side of the AASF #3 Hangar. The firetruck was reported to have a 150-gallon dual line of 3% AFFF and water tank and a 400-gallon Purple K tank. It is unknown where the firetruck was filled or washed or whether the firetruck leaked. There were no documented releases of AFFF within the Fire Response Unit. This unit existed between 1983 and 1992 and responded to all fire and emergency related incidents that occurred at the Albany AASF #3 and Albany International Airport, in conjunction with the AFD.

Between May and November 2020, the NYARNG constructed four new cold storage hangars (Hangars A through D) at Albany AASF #3 (**Figure 5-1**). The hangars do not have fire suppression systems, and at no time was any AFFF stored or used in the new hangars. During construction activities, soil was removed to approximately 4 feet bgs in portions of the grassy area between the Albany AASF #3 main hangar and Hangar D. Soil was also excavated in this area during construction of an underground stormwater detention system to the east of Hangar D. Additionally, in the grassy area between the main hangar and Hangars C and D, a pit was dug at each side of the taxiway/roadway in order to bore under the taxiway and roadway at a depth of approximately 6 feet bgs. Excavated soil was used as backfill material at the same location. Any excess soil from the excavation work was stockpiled to the north of the facility's access control point (ACP). The stockpiled soil was investigated as AOI 3 (see additional details below). These soil removal activities may have partially fallen within the footprint of the previous hangar release. However, facility staff indicated that an approximately 100-foot by 100-foot area within the grass to the west of the AASF remains intact from prior to construction activities.

In August 2021, it was reported that the AASF #3 Hangar had an accidental release of the fire suppression system. The discharge spilled onto the tarmac immediately west of the hangar and reached the grassy area, where several SI samples were subsequently collected, as already proposed in the SI QAPP Addendum to investigate the 2012 release at the same hangar (AECOM, 2021). The photographs of the fire suppression system release appear in **Appendix C**. An estimated 75-100 gallons of JET-X 2.75% HEF were released from the system. Clean-up activities were performed by a subcontractor the following day after release, which involved rising, wiping, and collection of rinse aid into drums. It was during this release that the fire suppression system was determined to have HEF and not AFFF. The fire suppression system is currently fitted with two 200-gallon tanks of JET-X 2.75% HEF. It is unknown if or when the fire suppression system were retrofitted with HEF rather than AFFF, as previously reported. The AASF #3 Hangar also contains storage of two 36-gallon floor units of Ansulite 3% AFFF concentrate.

3.2 AOI 2 Garbage Truck Fire

AOI 2 (~0.05 acres) encompasses the area where a fire occurred in the back of a garbage truck, southeast of the AASF #3 Hangar, in May 2017; the Colonie Fire Department responded to the incident. While the use of AFFF during the emergency response was not documented, photographs of the incident appear to show foam being used.

A stormwater drop inlet is located immediately north of the AOI 2 release area in the grass on the north side of the road. Historical photographs show that booms and socks were used to protect materials from the garbage truck fire from flowing into the stormwater drain.

3.3 AOI 3 Stockpiled Soil

Between May and November 2020, the NYARNG constructed four new cold storage hangars (Hangars A through D) at Albany AASF #3. During construction of the hangars and associated subsurface infrastructure, including an underground stormwater detention system, soil was removed from within the footprint of the potential release area at AOI 1, as described previously. Excess soil from the excavation work was stockpiled to the north of the facility's ACP. AOI 3 (~ 0.07 acres) encompasses the stockpiled soil, and according to interviewed facility staff, the stockpiles contain approximately 80 cubic yards of soil.

3.4 Adjacent Sources

Five off-facility, potential sources were identified adjacent to the Albany AASF #3 during the PA and are not associated with ARNG activities. The adjacent potential sources are shown on **Figure 3-1** and described in the following sections for informational purposes only and were not investigated as part of this SI.

3.4.1 Town of Colonie Fire Department Training Area

Less than one mile to the northeast of the facility is the fire training area used by the Colonie Fire Department. NYARNG staff indicated that live fire training has historically been conducted by local fire departments with AFFF at the location shown in **Figure 3-1**. This area is upgradient from the facility and it is possible that potential PFAS contamination from the fire training activities are migrating towards the facility.

3.4.2 Crushed Stone Area

Just north of the facility is the Crushed Stone Area where the AFD and NYARNG Fire Response Unit conducted joint live burn fire training once per year between 1983 and 1992. Sources indicated that fuels and AFFF were used during the fire training events. The AFFF used during these training events was left to dissipate on the grass and soil. In addition, joint nozzle testing also occurred during this period twice per year. Records indicate 20 gallons of 3% AFFF were used during the activities. The Crushed Stone Area is cross-gradient of the facility and it is possible the that potential PFAS contamination from the training events are migrating towards the facility.

3.4.3 Downgradient Sources

The remaining adjacent sources are the Albany Fire Station (Former and Current) and the Private Hangars. These adjacent sources are all located within the Albany International Airport and are downgradient of the facility. These adjacent potential sources are identified for informational purposes, and potential PFAS contamination from these downgradient adjacent sources are not anticipated to migrate towards the facility.

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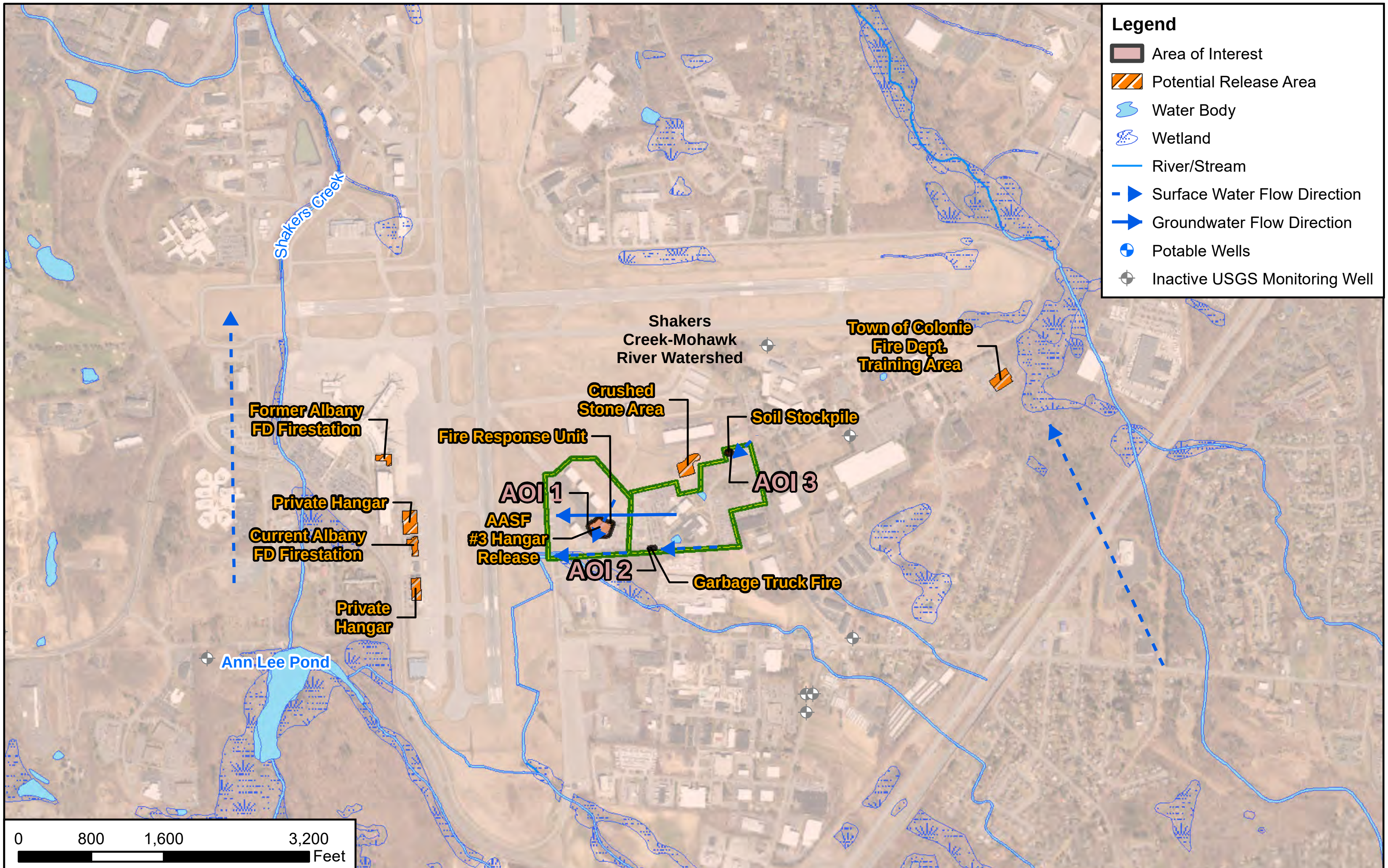

CLIENT	ARNG				
PROJECT	Site Inspection at Albany AASF #3, NY				
REVISED	5/12/2023	GIS BY	MS	5/12/2023	
SCALE	1 inch = 1,600 feet	CHK BY	AB	5/12/2023	
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023	

N

Areas of Interest

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 3-1

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4. Project Data Quality Objectives

As identified during the Data Quality Objective (DQO) process and outlined in the SI Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2021), the objective of the SI is to identify whether there has been a release to the environment at the AOIs identified in the PA. For each 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 each of the sampled AOIs.

4.1 Problem Statement

ARNG will recommend an AOI for Remedial Investigation (RI) if related soil and groundwater samples have concentrations of the relevant compounds above the OSD risk-based SLs. The SLs are presented in **Section 6.1** of this report.

4.2 Information Inputs

Primary information inputs included:

- The PA for Albany AASF #3 (AECOM, 2020);
- Analytical data from groundwater and soil samples collected as part of this SI in accordance with the site-specific Uniform Federal Policy (UFP)-QAPP Addendum (AECOM, 2021); and
- Field data collected during the SI, including groundwater elevation and water quality parameters measured at the time of sampling.

4.3 Study Boundaries

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

4.4 Analytical Approach

Samples were analyzed by Pace Analytical Gulf Coast, accredited under the Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP; Accreditation Number 74960) and the National Environmental Laboratory Accreditation Program (NELAP; Certificate Number 01955). Data were compared to applicable SLs within this document and decision rules as defined in the SI QAPP Addendum (AECOM, 2021).

4.5 Data Usability Assessment

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; DoD, 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 SI QAPP Addendum (AECOM, 2021).

5. Site Inspection Activities

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

- *Final Site Inspection Programmatic Uniform Federal Policy-Quality Assurance Project Plan (PQAPP)* dated March 2018 (AECOM, 2018a);
- *Final Programmatic Accident Prevention Plan* dated July 2018 (AECOM, 2018b);
- *Final Preliminary Assessment Report, Albany Army Aviation Support Facility #3, Latham, New York* dated April 2020 (AECOM, 2020);
- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Albany Army Aviation Support Facility #3, Latham, New York* dated July 2021 (AECOM, 2021); and
- *Final Site Safety and Health Plan, Albany Army Aviation Support Facility #3, Latham, New York* dated March 2022 (AECOM, 2022).

The SI field activities were conducted on 4 January 2022 and from 8 to 14 April 2022 and consisted of utility clearance, direct push boring, soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021), except as noted in **Section 5.8**.

The following samples were collected during the SI and analyzed for a subset of 18 compounds by liquid chromatography with tandem mass spectrometry (LC/MS/MS) compliant with Quality Systems Manual (QSM) 5.3 Table B-15 to fulfill the project DQOs:

- Thirty-six (36) soil samples from 13 boring locations and 8 hand auger locations;
- Thirteen (13) grab groundwater samples from 13 temporary wells;
- Twenty (20) quality assurance (QA)/quality control (QC) samples.

Figure 5-1 through **Figure 5-4** provide the sample locations for all media across the facility. **Table 5-1** presents the list of samples collected for each media. Field documentation is provided in **Appendix B**. A Log of Daily Notice of Field Activity was completed throughout the SI field activities, which is provided in **Appendix B1**. Sampling forms are provided in **Appendix B2**, Field Change Request Forms are provided in **Appendix B3**, investigation-derived waste (IDW) polygons are provided in **Appendix B4**, and land survey data are provided in **Appendix B5**. Additionally, a photographic log of field activities is provided in **Appendix C**.

5.1 Pre-Investigation Activities

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

5.1.1 Technical Project Planning

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

A combined TPP Meeting 1 and 2 was held on 3 September 2020, prior to SI field activities. The combined TPP Meeting 1 and 2 was conducted in general accordance with EM 200-1-2. The stakeholders for this SI include the ARNG, NYARNG, USACE, NYSDEC, and New York State Department of Health (NYSDOH). Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the SI QAPP Addendum (AECOM, 2021).

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

AECOM's drilling subcontractor, Cascade Technical Services, LLC. placed a ticket with the New York 811 utility clearance provider to notify them of intrusive work on 5 April 2022. Additionally, AECOM contracted Ground Penetrating Radar Systems (GPRS), a private utility location service, to perform utility clearance. GPRS performed utility clearance of the proposed boring locations on 8 April 2022 with input from the AECOM field team and Albany AASF #3 facility staff. General locating services and ground-penetrating radar were used to complete the clearance. Results of the utility clearing resulted in borings AOI01-01 and AOI01-02 being moved to the north side of the facility access road. This change is documented in **Appendix B3**. Additionally, the first 5 feet of each boring were pre-cleared using a hand auger to verify utility clearance in shallow subsurface where utilities would typically be encountered.

5.1.3 Source Water and Sampling Equipment Acceptability

The potable water source at Albany AASF #3 was sampled on 19 November 2021 to assess usability for decontamination of drilling equipment. Results of the sample collected at the outdoor spigot of the Maintenance Shop (ALB-DECON-01) confirmed this source to be acceptable for use in this investigation at the time of the analysis; 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. The results of the decontamination water sample associated with the wash rack spigot source used during the SI are provided in **Appendix F**. 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 sampling environment. The checklist of acceptable materials for use in the sampling environment was provided in the Standard Operating Procedures (SOPs) appendix to the SI QAPP Addendum (AECOM, 2021). Prior to the start of field work each day, a Sampling Checklist was completed as an additional layer of control. The checklist served as a daily reminder to each field team member regarding the allowable materials within the sampling environment.

5.2 Soil Borings and Soil Sampling

Soil borings were placed as close to the release areas as possible given the subsurface utilities in the area. Soil samples were collected via direct push technology (DPT), in accordance with the SI QAPP Addendum (AECOM, 2021). A GeoProbe® 7822 dual-tube sampling system was used to collect continuous soil cores to the target depth. A hand auger was used to collect soil from the top 5 feet of the boring, in accordance with AECOM utility clearance procedures. The soil boring locations are shown on **Figure 5-1** through **Figure 5-4**, and depths are provided **Table 5-1**.

Several boring locations were adjusted within a 50-foot offset for reasons including drill rig access, utility avoidance and bias toward sampling within observed drainage features.

In general, up to three discrete soil samples were collected from the vadose zone for chemical analysis from each soil boring: one surface soil sample (0 to 2 feet bgs), one subsurface soil sample approximately 2 feet above the groundwater table, and one subsurface soil sample at the mid-point between the surface and the groundwater table. Due to the shallow groundwater depths (less than 6 feet bgs) encountered at the majority of the boring locations, one or two discrete soil samples were typically collected from each boring location. At borings along the facility boundary (AOI01-07 and AOI02-04), only one soil sample was collected approximately 2 feet above the groundwater table in accordance with the SI QAPP Addendum (AECOM, 2021).

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

Soil borings completed during the SI found sand as the dominant lithology of the unconsolidated sediments below the Albany AASF #3. The borings were completed at depths between 5 and 15 feet bgs. The sands were described as silty sand, well graded sand, and poorly graded sand. Many of the logs also reported varying percentages of gravel included near or at the surface of the boring. These results and facility observations are consistent with the reported depositional environment of the region and near surface fill material expected at a developed site.

Each soil sample was collected into laboratory-supplied PFAS-free high-density polyethylene (HDPE) bottles and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via Federal Express (FedEx) under standard chain of custody (CoC) procedures to the laboratory and analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15, total organic carbon (TOC) (USEPA Method 9060A), and pH (USEPA Method 9045D) in accordance with the SI QAPP Addendum (AECOM, 2021). No clay lens was observed during drilling; therefore, no grain size sample was collected.

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. Matrix spike (MS)/MS 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 rinsate blanks 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 in accordance with the SI QAPP Addendum (AECOM, 2021) using bentonite chips at completion of sampling activities. The temporary well, AOI02-01, was installed in asphalt and additionally repaired with an asphalt cold patch.

5.2.1 Community Air Monitoring Program

Community air monitoring was performed in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP), Attachment 1A of the NYSDEC Division of Environmental Remediation-10 Technical Guidance for Site Investigation and Remediation. Air monitoring activities were implemented to protect the community from any potential airborne releases that could result from field activities associated with the SI (NYSDEC, 2010).

Continuous air monitoring was performed in the vicinity of the drill rig when intrusive activities were taking place. Air monitoring consisted of a dust monitor and PID placed on a tripod adjacent to the work areas, in a downwind location. Background (upwind) levels were measured each day prior to start-up of site activities and periodically throughout the day. Readings were regularly checked throughout the day and at no time exceeded the thresholds outlined in the SI QAPP Addendum (AECOM, 2021). Measurement records from the dust monitor and PID were not recorded or downloaded at the end of the field activities.

5.3 Temporary Well Installation and Groundwater Grab Sampling

Temporary wells were installed using a GeoProbe® 7822 dual-tube sampling system. Once the borehole was advanced to the desired depth, a temporary well was constructed with either a 5-foot section or 10-foot section of 1-inch Schedule 40 poly-vinyl chloride (PVC) screen with sufficient casing to reach ground surface. New PVC pipe and screen were used to avoid cross contamination between locations. The screen intervals for the temporary wells are provided in **Table 5-2**.

Groundwater samples were collected after a period of time following well installation to allow groundwater to infiltrate and recharge the temporary well screen intervals. After the recharge period, groundwater samples were collected using a peristaltic pump with PFAS-free HDPE tubing. The temporary wells were purged at a rate determined in the field to reduce turbidity and draw down prior to sampling. Water quality parameters (e.g., temperature, specific conductance, pH, dissolved oxygen, and oxidation-reduction potential) were measured using a water quality meter and recorded on the field sampling form (**Appendix B2**) before each grab sample was collected. Additionally, a subsample of each groundwater sample was collected in a separate container, and a shaker test was completed to identify if there were any foaming. Slight to moderate foaming was observed in sample locations AOI01-03 and AOI01-04.

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

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 in accordance with the PQAPP (AECOM, 2018a). A temperature blank was placed in each cooler to ensure that samples were preserved at or below 6°C during shipment.

Following well surveying (described below in **Section 5.5**), temporary wells were abandoned in accordance with the SI QAPP Addendum (AECOM, 2021) by removing the PVC and backfilling the hole with bentonite chips. Upon completion of well abandonment, the ground surface at each location was patched to match existing surrounding conditions.

5.4 Synoptic Water Level Measurements

Groundwater elevation measurements were collected from the 13 new temporary monitoring wells prior to groundwater purging and sampling. Water level measurements were taken from the northern side of the well casing. A groundwater flow contour map is provided in **Figure 2-4**. Groundwater elevation data are provided in **Table 5-2**. It should be noted that the groundwater flow direction was anticipated to be to the north, but based on SI-specific data was determined to be to the west. This resulted in two downgradient boring locations to be cross-gradient (AOI01-07 and AOI02-04). This development did not result in a data gap or otherwise impact the SI results or recommendations.

5.5 Surveying

The northern side of each well casing was surveyed by New York-licensed land surveyors following guidelines provided in the SOPs provided in the SI QAPP Addendum (AECOM, 2021). Survey data from the newly installed wells on the facility were collected on 14 April 2022 in the applicable North American Datum of 1983 in New York State Plane System Coordinate System, East Zone (horizontal) and North American Vertical Datum 1988 (vertical). The surveyed well data are provided in **Appendix B5**.

5.6 Investigation-Derived Waste

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

Soil IDW (i.e., soil cuttings) generated during the SI activities had no evidence of contamination (e.g., no visual or olfactory evidence of contamination, no elevated readings on the PID); therefore, the soil IDW was returned to the ground surface on the downgradient side of the borehole. The soil IDW was not sampled and assumes the characteristics of the associated soil samples collected from that source location.

Liquid IDW generated during SI activities (i.e., purge water and decontamination fluids) were contained in properly labeled, 55-gallon steel drums, and left onsite in a designated waste storage area. The liquid IDW was not sampled and assumes the characteristics of the associated groundwater samples collected from that source location. ARNG will manage and dispose of the liquid IDW under a separate contract in accordance with SOP No. 042A for Treating Liquid Investigation-Derived Material (Purge water, drilling water, and decontamination fluids) (EA Engineering, Science, and Technology, Inc., 2021). ARNG will further coordinate with the NYSDEC to ensure proper disposal is in accordance with Section 6 of New York Codes, Rules, and Regulations (NYCRR) Part 364 and the Army Guidance for Addressing Releases of PFAS, Q18 (DA, 2018).

Geographic coordinates were collected using a Global positioning system (GPS) around each location where IDW was placed (i.e., an IDW polygon). The IDW polygons are displayed on the figure in **Appendix B4**.

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

5.7 Laboratory Analytical Methods

Samples were analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15 at Pace Analytical Gulf Coast in Baton Rouge, Louisiana, a DoD ELAP and NELAP certified laboratory. Select soil samples were also analyzed for TOC using USEPA Method 9060A and pH by USEPA Method 9045D.

5.8 Deviations from SI QAPP Addendum

Two deviations from the SI QAPP Addendum are noted below and documented in Field Change Request Forms (**Appendix B3**):

- During a review of the sampling locations with the drilling subcontractor prior to field mobilization, it was determined that AOI01-01 and AOI01-02 were located too close to an existing electrical line. To accommodate the health and safety concerns, the two boring locations were relocated to the north side of the adjacent access road, and the final locations were confirmed during the subsequent private utility clearance event.
- During a site walk, NYSDEC requested an additional surface soil sample be collected south of AOI02-01. This surface soil sample location was designated as AOI02-05 and was collected via a hand auger in the field.

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Albany AASF #3, New York

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs)	LC/MS/MS compliant with QSM 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
Soil Samples						
AOI01-01-SB-00-02	04/11/22 10:55	0 - 2	x			
AOI01-01-SB-03-04	04/11/22 11:00	3 - 4	x			
AOI01-01-SB-05.6-06.2	04/11/22 09:45	5.6 - 6.2	x			
AOI01-02-SB-00-02	04/11/22 12:45	0 - 2	x			
AOI01-02-SB-03-04	04/11/22 12:50	3 - 4	x			
AOI01-03-SB-00-02	04/11/22 13:35	0 - 2	x			
AOI01-03-SB-02-03	04/11/22 13:40	2 - 3	x			
AOI01-04-SB-00-02	04/11/22 15:10	0 - 2	x			
AOI01-04-SB-03-04	04/11/22 15:15	3 - 4	x			
AOI01-05-SB-00-02	04/12/22 12:30	0 - 2	x			
AOI01-05-SB-03-04	04/12/22 12:40	3 - 4	x			
AOI01-SB-DUP-2	04/12/22 12:40	3 - 4	x			DUP for AOI01-05-SB-03-04
AOI01-06-SB-00-02	04/12/22 11:15	0 - 2	x			
AOI01-06-SB-02-02.7	04/12/22 11:20	2 - 2.7	x	x	x	
AOI01-06-SB-02-02.7-MS	04/12/22 11:20	2 - 2.7		x	x	MS
AOI01-06-SB-02-02.7-MSD	04/12/22 11:20	2 - 2.7		x	x	MSD
AOI01-07-SB-00-02	04/12/22 09:30	0 - 2	x			
AOI01-07-SB-00-02-MS	04/12/22 09:30	0 - 2	x			MS
AOI01-07-SB-00-02-MSD	04/12/22 09:30	0 - 2	x			MSD
AOI01-08-SB-00-02	04/11/22 14:20	0 - 2	x			
AOI01-SB-DUP-1	04/11/22 14:20	0 - 2	x			DUP for AOI01-08-SB-00-02
AOI01-09-SB-00-02	04/11/22 16:15	0 - 2	x			
AOI02-01-SB-00.9-03.5	04/14/22 09:45	0.9 - 3.5	x			
AOI02-SB-DUP-3	04/14/22 09:45	0.9 - 3.5	x			DUP for AOI02-01-SB-00.9-03.5
AOI02-01-SB-03.5-04.3	04/14/22 09:55	3.5 - 4.3	x	x	x	
AOI02-SB-DUP-4	04/14/22 09:55	3.5 - 4.3	x	x	x	DUP for AOI02-01-SB-03.5-04.3
AOI02-01-SB-03.5-04.3-MS	04/14/22 09:55	3.5 - 4.3	x			MS
AOI02-01-SB-03.5-04.3-MSD	04/14/22 09:55	3.5 - 4.3	x			MSD
AOI02-02-SB-00-02	04/12/22 16:05	0 - 2	x			
AOI02-02-SB-03-03.7	04/12/22 16:10	3 - 3.7	x			
AOI02-03-SB-00-02	04/13/22 09:35	0 - 2	x			
AOI02-03-SB-02-02.7	04/13/22 09:40	2 - 2.7	x			
AOI02-04-SB-05-05.5	04/12/22 14:25	5 - 5.5	x			
AOI02-05-SB-00-02	04/14/22 10:45	0 - 2	x			
AOI03-01-SB-00-01	04/13/22 11:00	0 - 1	x			
AOI03-02-SB-00-01	04/13/22 11:50	0 - 1	x			
AOI03-03-SB-00-02	01/04/22 12:35	0 - 2	x			
AOI03-03-SB-02-04	01/04/22 12:50	2 -4	x			
AOI03-04-SB-00-02	01/04/22 09:50	0 - 2	x			
AOI03-04-SB-00-02-DUP	01/04/22 09:50	0 - 2	x			DUP
AOI03-04-SB-02-04	01/04/22 10:10	2 -4	x			
AOI03-05-SB-00-02	01/04/22 10:40	0 - 2	x			
AOI03-05-SB-02-04	01/04/22 11:00	2 -4	x			
AOI03-06-SB-00-02	01/04/22 12:00	0 - 2	x			
AOI03-06-SB-02-04	01/04/22 12:15	2 -4	x			
AOI03-07-SB-00-02	01/04/22 11:20	0 - 2	x			
AOI03-07-SB-02-04	01/04/22 11:40	2 -4	x			

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Albany AASF #3, New York

Sample Identification	Sample Collection Date/Time	Sample Depth (feet bgs)	LC/MS/MS compliant with QSM 5.3 Table B-15	TOC (USEPA Method 9060A)	pH (USEPA Method 9045D)	Comments
Groundwater Samples						
AOI01-01-GW	04/11/22 13:00	NA	x			
AOI01-02-GW	04/11/22 14:45	NA	x			
AOI01-03-GW	04/12/22 10:05	NA	x			
AOI01-04-GW	04/12/22 13:55	NA	x			
DUP-GW-01	04/12/22 13:55	NA	x			DUP for AOI01-04-GW
AOI01-04-GW-MS	04/12/22 13:55	NA	x			MS
AOI01-04-GW-MSD	04/12/22 13:55	NA	x			MSD
AOI01-05-GW	04/12/22 15:40	NA	x			
AOI01-06-GW	04/13/22 09:20	NA	x			
AOI01-07-GW	04/12/22 12:10	NA	x			
AOI02-01-GW	04/14/22 13:05	NA	x			
AOI02-02-GW	04/13/22 11:30	NA	x			
AOI02-03-GW	04/13/22 12:55	NA	x			
AOI02-DUP-GW-02	04/13/22 13:00	NA	x			DUP for AOI02-03-GW
AOI02-04-GW	04/13/22 14:30	NA	x			
AOI03-01-GW	04/14/22 11:00	NA	x			
AOI03-02-GW	04/14/22 09:50	NA	x			
Quality Control Samples						
ALB-DECON-01	11/19/21 08:20	NA	x			decontamination water sample
ALB-ERB-01	01/04/22 13:10	NA	x			from hand auger
EB-1 041122	04/11/22 09:25	NA	x			from DPT shoe
EB-2-041422	04/14/22 11:20	NA	x			from acetate liner
EB-3-041422	04/14/22 11:35	NA	x			from hand auger

Notes:
bgs = below ground surface
DPT = direct push technology
DUP = duplicate
EB = equipment rinsate blank
LC/MS/MS = Liquid Chromatography Mass Spectrometry
MS/MSD = matrix spike/ matrix spike duplicate
QSM = Quality Systems Manual
TOC = total organic carbon
USEPA = United States Environmental Protection Agency

Table 5-2
Soil Boring Depths, Temporary Well Screen Intervals, and Groundwater Elevations
Site Inspection Report, Albany AASF #3, New York

Area of Interest	Boring Location	Soil Boring Depth (feet bgs)	Temporary Well Screen Interval (feet bgs)	Top of Casing Elevation (feet NAVD88)	Ground Surface Elevation (feet NAVD88)	Depth to Water[2] (feet btoc)	Depth to Water (feet bgs)	Groundwater Elevation (feet NAVD88)
1	AOI01-01	15	5- 15	281.92	280.98	6.40	5.46	275.52
	AOI01-02	8	3 - 8	282.36	280.40	3.68	1.72	278.68
	AOI01-03	7	2 - 7	284.40	281.39	5.44	2.43	278.96
	AOI01-04	8	3 - 8	283.35	280.68	3.75	1.08	279.60
	AOI01-05	8	3 - 8	283.30	281.29	4.31	2.30	278.99
	AOI01-06	7	2 - 7	284.47	281.51	4.22	1.26	280.25
	AOI01-07	6	1 - 6	280.94	279.50	2.00	0.56	278.94
2	AOI02-01	8	3 - 8	288.10	285.72	6.31	3.93	281.79
	AOI02-02	8	3 - 8	287.77	285.07	5.69	2.99	282.08
	AOI02-03	7	2 - 7	287.83	284.34	4.95	1.46	282.88
	AOI02-04	10	4.5 - 9.5 [1]	290.05	289.30	6.47	5.72	283.58
3	AOI03-01	5	0 - 5	286.61	285.26	2.10	0.75	284.51
	AOI03-02	5	0 - 5	286.30	284.63	2.55	0.88	283.75

Notes:

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

[2]Depth to Water measured between 4/11/22 and 4/14/22

bgs = below ground surface

btoc = below top of casing

NA = not applicable

NAVD88 = North American Vertical Datum 1988

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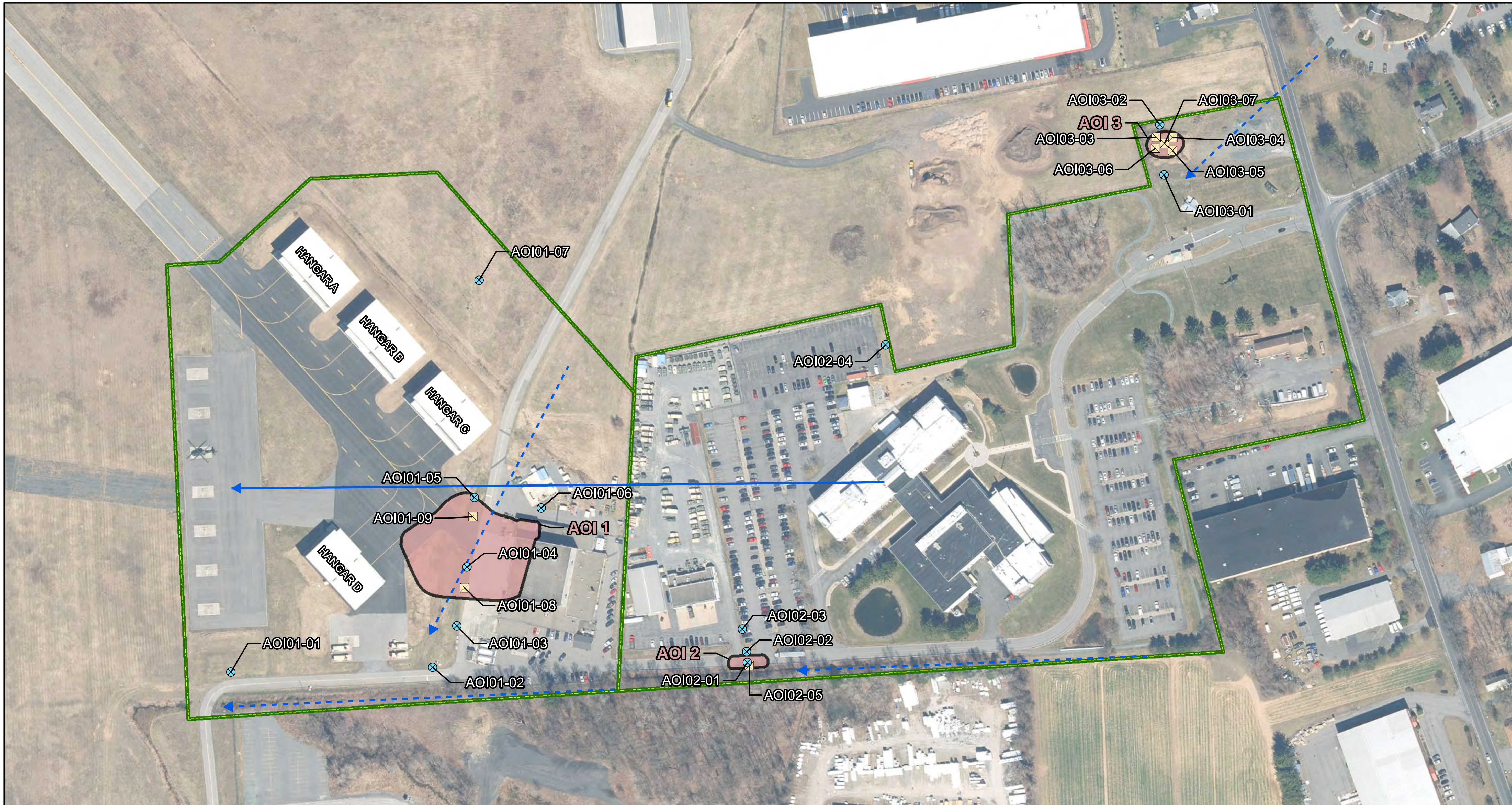

CLIENT	ARNG				
PROJECT	Site Inspection at Albany AASF #3, NY				
REVISED	5/12/2023	GIS BY	MS	5/12/2023	
SCALE	1 inch equals 200 feet	CHK BY	AB	5/12/2023	
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023	

Legend

- Soil Boring/Monitoring Well Location
- Hand Auger Soil Sample Location
- Area of Interest
- Facility Boundary
- Surface Water Flow Direction
- Groundwater Flow Direction

0 100 200 400 Feet

N

Site Inspection Sample Locations

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 5-1

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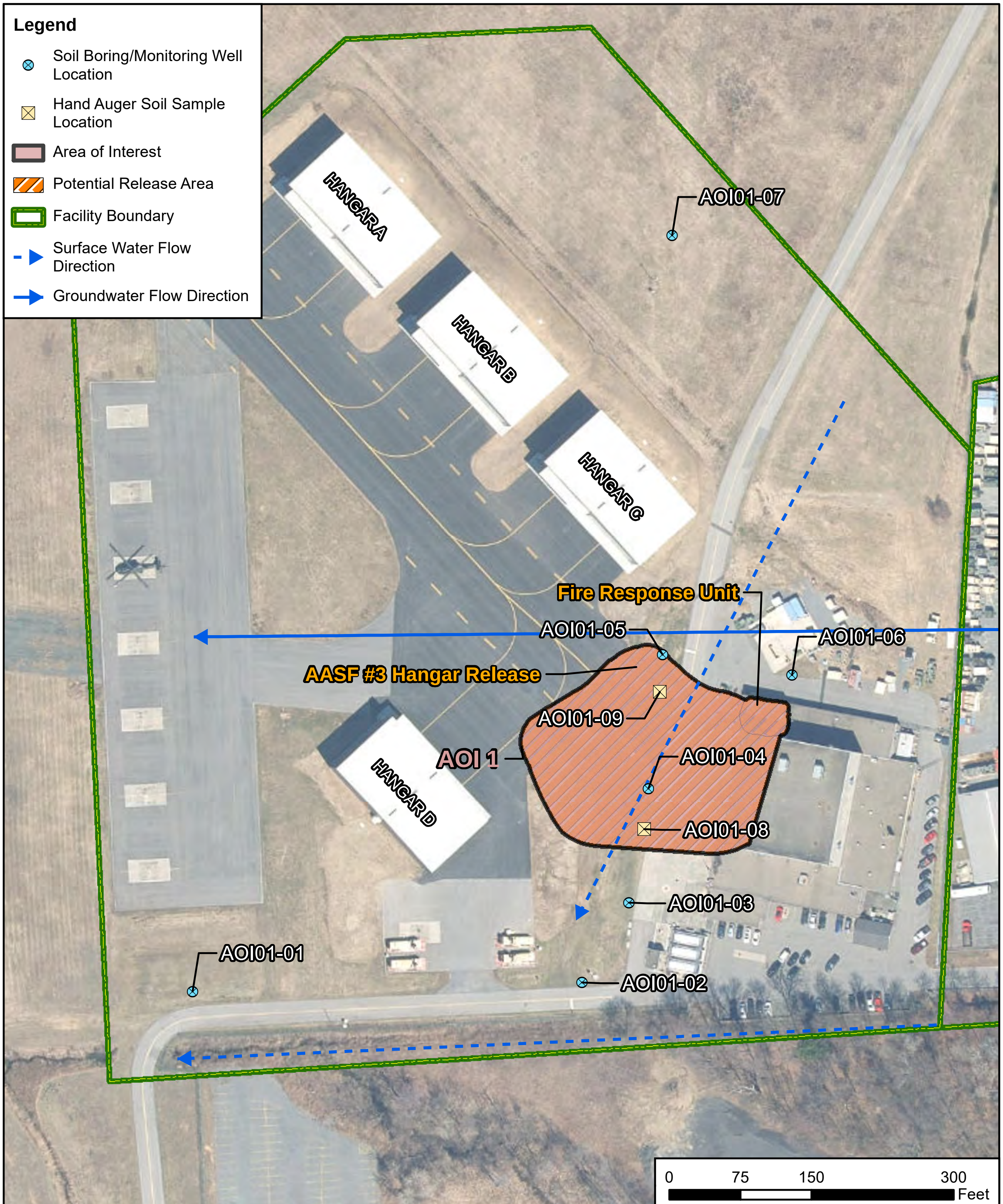

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 150 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

Site Inspection
Sample Locations - AOI 1

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-2

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 100 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

Site Inspection
Sample Locations - AOI 2

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-3

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 80 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

Site Inspection Sample Locations - AOI 3

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-4

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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 each AOI is provided in **Section 6.3** through **Section 6.5**. **Table 6-2** through **Table 6-4** present results in soil or groundwater for the relevant compounds. 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 6 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[b]	Residential (Soil) (µg/kg)[a] 0-2 feet bgs	Industrial/ Commercial Composite Worker (Soil) (µg/kg)[a] 2-15 feet bgs	Tap Water (Groundwater) (ng/L)[a]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:
bgs = below ground surface; µg/kg = micrograms per kilogram; ng/L = nanograms per liter
a.) 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.
b.) 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.

The data in the subsequent sections are compared to the SLs presented in **Table 6-1**. The SLs for groundwater are based on direct ingestion. The SLs for soil are based on incidental ingestion and are applied to the depth intervals reasonably anticipated to be encountered by the receptors identified at the facility: the residential scenario is applied to surface soil results (0 to 2 feet bgs) and the industrial/commercial worker scenario is applied to shallow subsurface soil results (2 to 15 feet bgs). The SLs are not applied to deep subsurface soil results (>15 feet bgs) because 15 feet is the anticipated limit of construction activities.

6.2 Soil Physicochemical Analyses

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

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

6.3 AOI 1

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1: AASF #3 Hangar Release / Fire Response Unit. The soil and groundwater results are summarized on **Table 6-2** through **Table 6-4**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.3.1 AOI 1 Soil Analytical Results

Figure 6-1 through **Figure 6-5** present the ranges of detections in soil. **Table 6-2** and **Table 6-3** summarize the soil results.

Surface soil was sampled from 0 to 2 feet bgs at boring locations AOI01-01 through AOI01-09. PFOS was detected above the SL of 13 micrograms per kilogram (µg/kg) at two of nine boring locations: AOI01-04 and AOI01-08 at concentrations of 60.1 and 14.1 µg/kg, respectively. PFOA, PFHxS, PFNA, and PFBS were also detected at concentrations less than 1.24 µg/kg, and all detections were below their SLs.

Soil was sampled from the shallow subsurface interval (between 2 and 6.2 feet bgs) from boring locations AOI01-01 through AOI01-06. All detected concentrations for PFOA, PFOS, PFHxS, PFNA, and PFBS were below their SLs by at least one order of magnitude. PFOS was the most frequently and highest detected compound, with a maximum concentration of 14.7 µg/kg, an order of magnitude below the SL of 160 µg/kg.

6.3.2 AOI 1 Groundwater Analytical Results

Figure 6-6 and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-4** summarizes the groundwater results.

Groundwater was sampled from temporary monitoring wells AOI01-01 through AOI01-07. PFOA, PFOS, PFHxS, and PFNA were detected above their SLs in groundwater, and at least one SL exceedance was measured in all temporary wells, except for AOI01-07, located north and side-gradient to the AOI 1 source area. The exceedances of the SLs ranged in concentrations from 8.55 to 61.9 nanograms per liter (ng/L) (PFOA), 57.8 to 15,000 ng/L (PFOS), and 139 to 1,180 ng/L (PFHxS). The SL of 6 ng/L for PFNA was exceeded at one temporary well, AOI01-06, at a concentration of 13.3 ng/L. PFBS was detected in all temporary wells below the SL of 601 ng/L, with a maximum concentration of 51.6 ng/L.

6.3.3 AOI 1 Conclusions

Based on the results of the SI, PFOS was detected in soil at concentrations above the SL. PFOA, PFOS, PFHxS, and PFNA were also detected in groundwater at concentrations above their respective SLs. Based on the exceedances of the SLs in soil and groundwater, further evaluation at AOI 1 is warranted.

6.4 AOI 2

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 2: Garbage Truck Fire. The results in soil and groundwater are summarized on **Table 6-2** through **Table 6-4**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.4.1 AOI 2 Soil Analytical Results

Figure 6-1 through **Figure 6-5** present the ranges of detections in soil. **Table 6-2** and **Table 6-3** summarize the soil results.

Surface soil was sampled from 0 to 2 feet bgs at boring locations AOI02-02, AOI02-03, and AOI02-05; surface soil was also sampled at AOI02-01 from 0.9 to 3.5 feet bgs just below the asphalt. PFOS and PFNA were detected in surface soil at concentrations below their SLs. PFOS was detected in all borings at concentrations ranging from 0.071 J (estimated) to 0.492 J µg/kg. PFNA was detected in two borings at concentrations of 0.031 J and 0.029 J µg/kg. PFOA, PFHxS, and PFBS were not detected in surface soil.

Soil was sampled from the shallow subsurface interval (between 2 and 5.5 feet bgs) from boring locations AOI02-01 through AOI02-04. PFOS, PFHxS, and PFBS were detected at concentrations less than 0.398 µg/kg, and all detections were below their SLs. PFOA and PFNA were not detected in shallow subsurface soil.

6.4.2 AOI 2 Groundwater Analytical Results

Figure 6-6 and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-4** summarizes the groundwater results.

Groundwater was sampled from temporary monitoring wells AOI2-01 through AOI2-04. PFOA and PFOS were detected above their SLs in groundwater. PFOA exceeded the SL of 6 ng/L in temporary well AOI02-03, at concentrations 10.5 and 9.97 ng/L (duplicate). PFOS was above the SL of 4 ng/L in all wells (ranging from 11.6 to 21.8 ng/L) except AOI02-04, which was located north and side-gradient to the AOI 2 source area. PFHxS, PFNA, and PFBS were also detected in groundwater below their SLs.

6.4.3 AOI 2 Conclusions

Based on the results of the SI, PFOS, PFHxS, PFNA, and PFBS were detected in soil at concentrations below their SLs. PFOA and PFOS were detected in groundwater at concentrations above their SLs. Based on the exceedances of the SLs in groundwater, further evaluation at AOI 2 is warranted.

6.5 AOI 3

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 3: Stockpiled Soil. The results in soil and groundwater are presented in **Table 6-2** through **Table 6-4**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.5.1 AOI 3 Soil Analytical Results

Figure 6-1 through **Figure 6-5** present the ranges of detections in soil. **Table 6-2** and **Table 6-3** summarize the soil results.

Surface soil was sampled from 0 to 2 feet bgs at boring locations AOI03-03 through AOI03-07 per the SI QAPP Addendum (AECOM, 2021). Due to groundwater being encountered at 1 foot bgs at AOI03-01 and AOI03-02, surface soil was sampled from 0 to 1 foot bgs at those locations. PFOA, PFOS, PFHxS, and PFNA were detected in surface soil below their SLs. PFOS was the most frequently and highest detected compound, with a maximum concentration of 3.44 µg/kg. PFBS was not detected in surface soil.

Soil was sampled from the shallow subsurface interval (2 to 4 feet bgs) from boring locations AOI03-03 through AOI03-07. PFOA, PFOS, PFHxS, and PFNA were detected below their SLs in shallow subsurface soil. PFOS was the most frequently and highest detected compound and at the highest concentrations; with a maximum concentration of 4.12 µg/kg, two orders of magnitude below the SL of 160 µg/kg. PFBS was not detected in shallow subsurface soil.

6.5.2 AOI 3 Groundwater Analytical Results

Figure 6-6 and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-4** summarizes the groundwater results.

Groundwater was sampled from temporary wells AOI03-01 and AOI03-02. PFOA and PFOS were detected in both wells and exceeded their SLs. PFOA was detected above the SL of 6 ng/L, at concentrations of 13.7 and 17.9 ng/L. PFOS was detected above the SL of 4 ng/L, at concentrations of 11.4 and 24.6 ng/L. PFHxS, PFNA, and PFBS were also detected in groundwater below their respective SLs.

6.5.3 AOI 3 Conclusions

Based on the results of the SI, PFOA, PFOS, PFHxS, and PFNA were detected in soil at concentrations below their respective SLs. PFOA and PFOS were detected in groundwater at concentrations above their respective SLs. Based on the exceedances of the SLs in groundwater, further evaluation at AOI 3 is warranted.

Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI01															
	Sample ID	AOI01-01-SB-00-02		AOI01-02-SB-00-02		AOI01-03-SB-00-02		AOI01-04-SB-00-02		AOI01-05-SB-00-02		AOI01-06-SB-00-02		AOI01-07-SB-00-02		AOI01-08-SB-00-02	
	Sample Date	04/11/2022		04/11/2022		04/11/2022		04/11/2022		04/12/2022		04/12/2022		04/12/2022		04/11/2022	
	Depth	0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																	
PFBS	1900	ND	U	ND	U	ND	U	0.039	J	ND	U	ND	U	0.028	J	ND	U
PFHxS	130	0.250	J	ND	U	0.102	J	1.24		0.332	J	0.260	J	0.088	J	0.146	J
PFNA	19	0.060	J	0.071	J	0.057	J	0.037	J	0.077	J	0.039	J	0.079	J	0.058	J
PFOA	19	0.164	J	0.104	J	0.177	J	0.174	J	0.229	J	ND	U	0.242	J	0.136	J
PFOS	13	7.45		0.538	J	4.70		60.1		6.40		6.33		0.310	J	14.1	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References
a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on residential scenario for direct ingestion of contaminated soil.

Interpreted Qualifiers
J = Estimated concentration
U = The analyte was not detected at a level greater than or equal to the adjusted DL
UJ = The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Notes
ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI01				AOI02										AOI03			
	Sample ID	AOI01-SB-DUP-1		AOI01-09-SB-00-02		AOI02-01-SB-00.9-03.5		AOI02-SB-DUP-3		AOI02-02-SB-00-02		AOI02-03-SB-00-02		AOI02-05-SB-00-02		AOI03-01-SB-00-01		AOI03-02-SB-00-01	
	Sample Date	04/12/2022		04/11/2022		04/14/2022		04/14/2022		04/12/2022		04/13/2022		04/14/2022		04/13/2022		04/13/2022	
	Depth	0-2 ft		0-2 ft		0.9-3.5 ft		0.9-3.5 ft		0-2 ft		0-2 ft		0-2 ft		0-1 ft		0-1 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																			
PFBS	1900	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	130	0.121	J	0.086	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFNA	19	0.042	J	ND	U	ND	U	ND	U	0.031	J	0.029	J	ND	U	0.028	J	0.072	J
PFOA	19	ND	UJ	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOS	13	12.0		8.88		0.071	J	0.087	J	0.463	J	0.492	J	0.080	J	0.320	J	0.638	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References
a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on residential scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers
J = Estimated concentration
U = The analyte was not detected at a level greater than or equal to the adjusted DL
UJ = The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Notes
ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.
AOI01-SB-DUP-1 collected from AOI01-08-SB
AOI02-SB-DUP-3 collected from AOI02-01-SB

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI03											
	Sample ID	AOI03-03-SB-00-02		AOI03-04-SB-00-02		AOI03-04-SB-00-02-DUP		AOI03-05-SB-00-02		AOI03-06-SB-00-02		AOI03-07-SB-00-02	
	Sample Date	01/04/2022		01/04/2022		01/04/2022		01/04/2022		01/04/2022		01/04/2022	
	Depth	0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft	
Analyte	**OSD Screening Level [a]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)													
PFBS	1900	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	130	0.047	J	0.163	J	0.145	J	0.078	J	0.116	J	0.163	J
PFNA	19	0.096	J	0.069	J	0.089	J	0.060	J	0.076	J	0.101	J
PFOA	19	0.107	J	0.151	J	0.196	J	0.120	J	0.146	J	0.191	J
PFOS	13	0.441	J	2.67		2.19		1.23		3.44		3.12	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References
a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on residential scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers
J = Estimated concentration
U = The analyte was not detected at a level greater than or equal to the adjusted DL
UJ = The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.

Notes
ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

Table 6-3
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Shallow Subsurface Soil
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI01																AOI02			
	Sample ID	AOI01-01-SB-03-04		AOI01-01-SB-05.6-06.2		AOI01-02-SB-03-04		AOI01-03-SB-02-03		AOI01-04-SB-03-04		AOI01-05-SB-03-04		AOI01-SB-DUP-2		AOI01-06-SB-02-02.7		AOI02-01-SB-03.5-04.3		AOI02-02-SB-03-03.7	
	Sample Date	04/11/2022		04/11/2022		04/11/2022		04/11/2022		04/11/2022		04/12/2022		04/12/2022		04/12/2022		04/14/2022		04/12/2022	
	Depth	3-4 ft		5.6-6.2 ft		3-4 ft		2-3 ft		3-4 ft		3-4 ft		3-4 ft		2-2.7 ft		3.5-4.3 ft		3-3.7 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																					
PFBS	25000	0.027	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	1600	3.23		0.433	J	ND	U	0.036	J	0.398	J	2.18		2.09		0.196	J	ND	U	ND	U
PFNA	250	0.049	J	0.057	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOA	250	0.726	J	0.193	J	ND	U	ND	U	ND	U	0.148	J	0.133	J	ND	U	ND	U	ND	U
PFOS	160	10.7		14.7		0.063	J	1.22		10.3		0.925	J	0.597	J	3.87		0.398	J	0.148	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers

J = Estimated concentration

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

Notes

ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.

AOI01-SB-DUP-2 collected from AOI01-05-SB

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

Table 6-3
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Shallow Subsurface Soil
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI02				AOI03									
	Sample ID	AOI02-03-SB-02-02.7		AOI02-04-SB-05-05.5		AOI03-03-SB-02-04		AOI03-04-SB-02-04		AOI03-05-SB-02-04		AOI03-06-SB-02-04		AOI03-07-SB-02-04	
	Sample Date	04/13/2022		04/12/2022		01/04/2022		01/04/2022		01/04/2022		01/04/2022		01/04/2022	
	Depth	2-2.7 ft		5-5.5 ft		2-4 ft		2-4 ft		2-4 ft		2-4 ft		2-4 ft	
Analyte	**OSD Screening Level [a]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)															
PFBS	25000	ND	U	0.032	J	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	1600	ND	U	0.166	J	ND	U	0.144	J	0.079	J	0.133	J	0.091	J
PFNA	250	ND	U	ND	U	0.078	J	0.090	J	0.130	J	0.131	J	0.098	J
PFOA	250	ND	U	ND	U	ND	U	0.193	J	0.219	J	0.235	J	0.179	J
PFOS	160	0.139	J	0.230	J	0.391	J	2.20		1.87		4.12		2.00	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References
a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022. Soil screening levels based on industrial/commercial composite worker scenario for incidental ingestion of contaminated soil.

Interpreted Qualifiers
J = Estimated concentration
U = The analyte was not detected at a level greater than or equal to the adjusted DL

Notes
ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

Table 6-4
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI01														AOI02	
	Sample ID	AOI01-01-GW		AOI01-02-GW		AOI01-03-GW		AOI01-04-GW		DUP-GW-01		AOI01-05-GW		AOI01-06-GW		AOI01-07-GW		AOI02-01-GW	
	Sample Date	04/11/2022		04/11/2022		04/12/2022		04/12/2022		04/12/2022		04/12/2022		04/13/2022		04/12/2022		04/14/2022	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, LCMSMS compliant with QSM 5.3 Table B-15 (ng/l)																			
PFBS	601	9.07		2.05	J	3.54	J	48.5		51.6		49.6		7.55		1.90	J	ND	U
PFHxS	39	276		6.51		24.4		1120		1180		597		139		14.6		1.59	J
PFNA	6	1.72	J	1.31	J	ND	U	4.90		5.06		2.46	J	13.3		ND	U	ND	U
PFOA	6	29.6		2.71	J	8.55		58.7		61.9		31.5		28.5		1.46	J	4.50	
PFOS	4	533		57.8		95.8		14100	J	15000		1190		391		1.31	J	16.6	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References
a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022 Groundwater screening levels based on residential scenario for direct ingestion of groundwater.

Interpreted Qualifiers
J = Estimated concentration
U = The analyte was not detected at a level greater than or equal to the adjusted DL

Notes
ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.
DUP-GW-01 collected from AOI01-04

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

Table 6-4
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Albany AASF #3

	Area of Interest	AOI02								AOI03			
	Sample ID	AOI02-02-GW		AOI02-03-GW		AOI02-DUP-GW-02		AOI02-04-GW		AOI03-01-GW		AOI03-02-GW	
	Sample Date	04/13/2022		04/13/2022		04/13/2022		04/13/2022		04/14/2022		04/14/2022	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, LCMSMS compliant with QSM 5.3 Table B-15 (ng/l)													
PFBS	601	1.21	J	6.69		6.28		ND	U	3.30	J	1.87	J
PFHxS	39	ND	U	2.89	J	2.34	J	ND	U	3.36	J	2.42	J
PFNA	6	1.80	J	2.13	J	2.08	J	ND	U	ND	U	1.17	J
PFOA	6	1.51	J	10.5		9.97		ND	U	17.9		13.7	
PFOS	4	11.6		21.8		20.4		ND	U	24.6		11.4	

Grey Fill: Detected concentration exceeded OSD Screening Levels

References

a. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels Calculated for PFOA, PFOS, PFBS, PFHxS, and PFNA in Groundwater or Soil using USEPA's Regional Screening Level Calculator. HQ=0.1, May 2022 Groundwater screening levels based on residential scenario for direct ingestion of groundwater.

Interpreted Qualifiers

J = Estimated concentration

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

Notes

ND = Analyte not detected above the LOD. LOD values are presented in Appendix F.

AOI02-DUP-GW-02 collected from AOI02-03

Chemical Abbreviations

PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

Acronyms and Abbreviations

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

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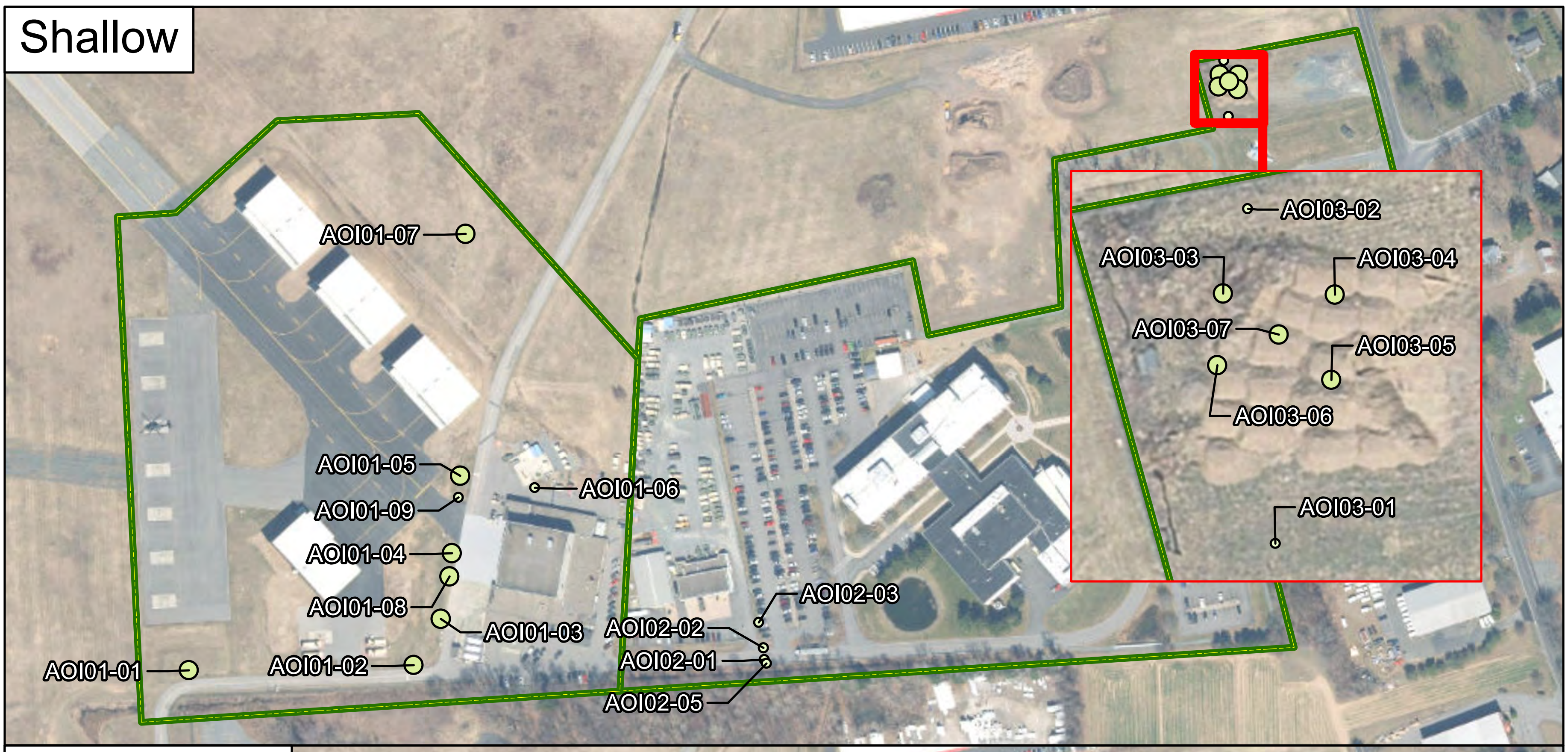

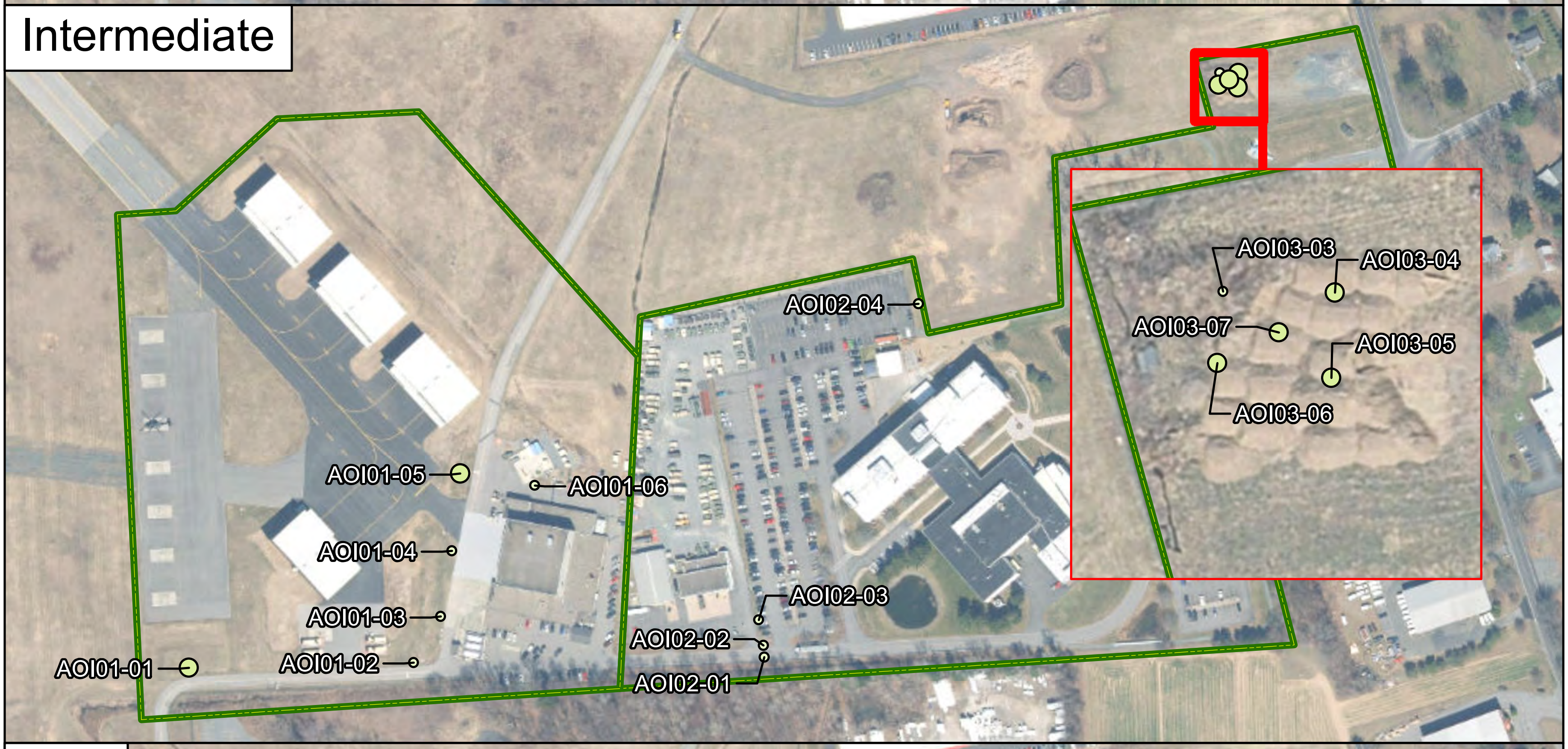

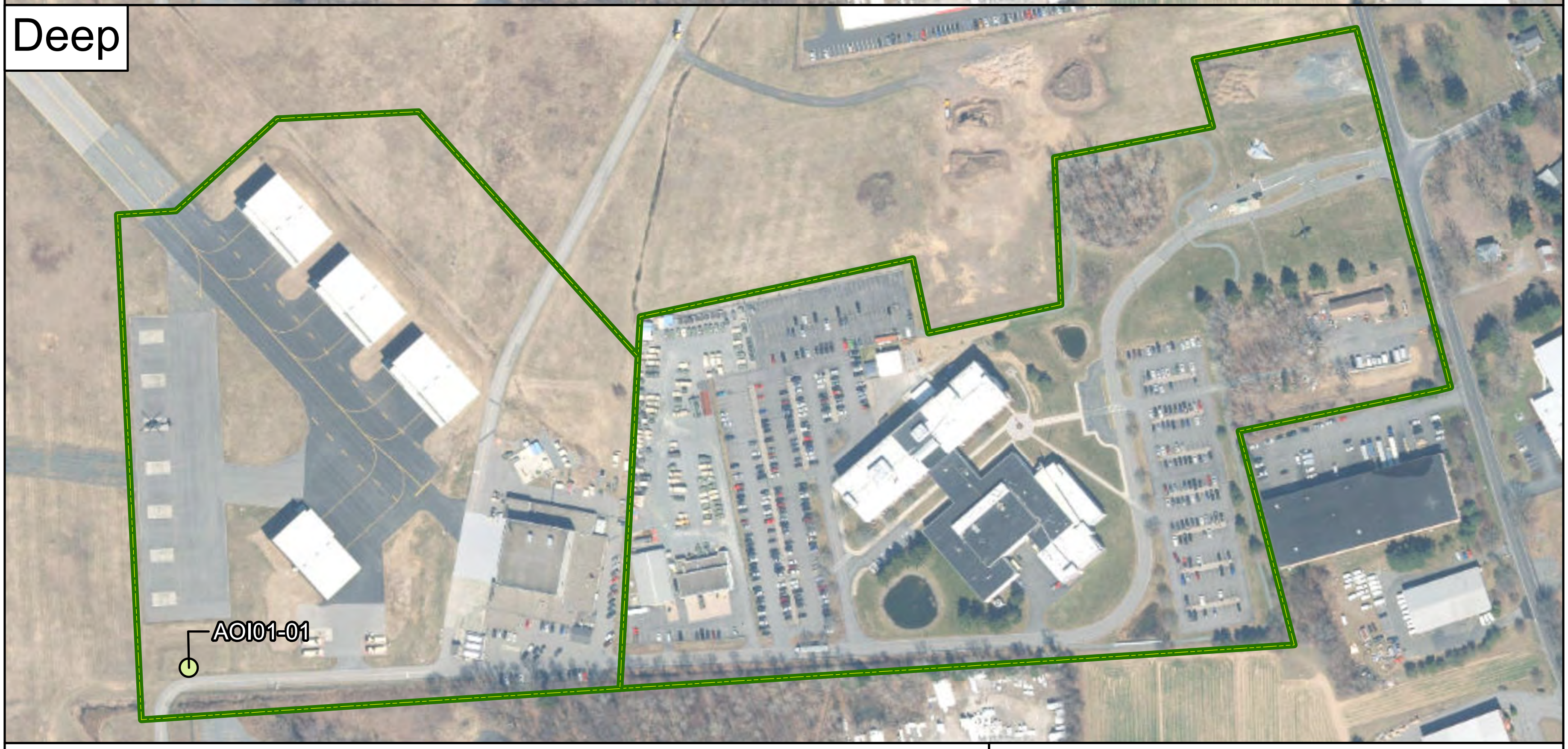

Legend

Facility Boundary

PFOA Residential Soil Screening Level 0-2 ft bgs: 19µg/kg

PFOA Industrial Soil Screen Level 2-15 ft bgs: 250 µg/kg

PFOA Results (µg/Kg)

- ND
- >ND - 19
- >19 - 250
- >250 - 2,500
- >2,500

N

0 150 300 600 Feet

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFOA Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 300 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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Figure 6-1

Legend

Facility Boundary

PFOS Residential Soil Screening Level 0-2 ft bgs: 13 µg/kg

PFOS Industrial Soil Screen Level 2-15 ft bgs: 160 µg/kg

PFOS Results (µg/Kg)

- ND
- >ND - 13
- >13 - 160
- >160 - 1,600
- >1,600

N

0 150 300 600 Feet

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFOS Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 300 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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Figure 6-2

Legend

Facility Boundary

PFBS Residential Soil Screening Level 0-2 ft bgs: 1,900 μg/kg

PFBS Industrial Soil Screen Level 2-15 ft bgs: 25,000 μg/kg

PFBS Results (μg/Kg)

- ND
- >ND - 10
- >10 - 1,900
- >1,900 - 25,000
- >25,000

N

0 150 300 600 Feet

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFBS Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 300 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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Figure 6-3

Legend

Facility Boundary

PFHxS Residential Soil Screening Level 0 - 2 ftbgs: 130 μg/kg

PFHxS Industrial Soil Screen Level 2-15 ftbgs: 1,600 μg/kg

PFHxS Results (μg/Kg)

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

N

0 140 280 560 Feet

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFHxS Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 300 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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Figure 6-4

Legend

Facility Boundary

PFNA Residential Soil Screening Level 0 - 2 ft bgs: 19 µg/kg

PFNA Industrial Soil Screen Level 2-15 ft bgs: 250 µg/kg

PFNA Results (µg/Kg)

- ND
- >ND - 19
- >19 - 250
- >250 - 2,500
- >2,500

N

0 150 300 600 Feet

Exceedances of the OSD SL are depicted with a yellow halo.
Depth intervals shown represent respective sampling position within a given soil boring location.

PFNA Detections in Soil

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 300 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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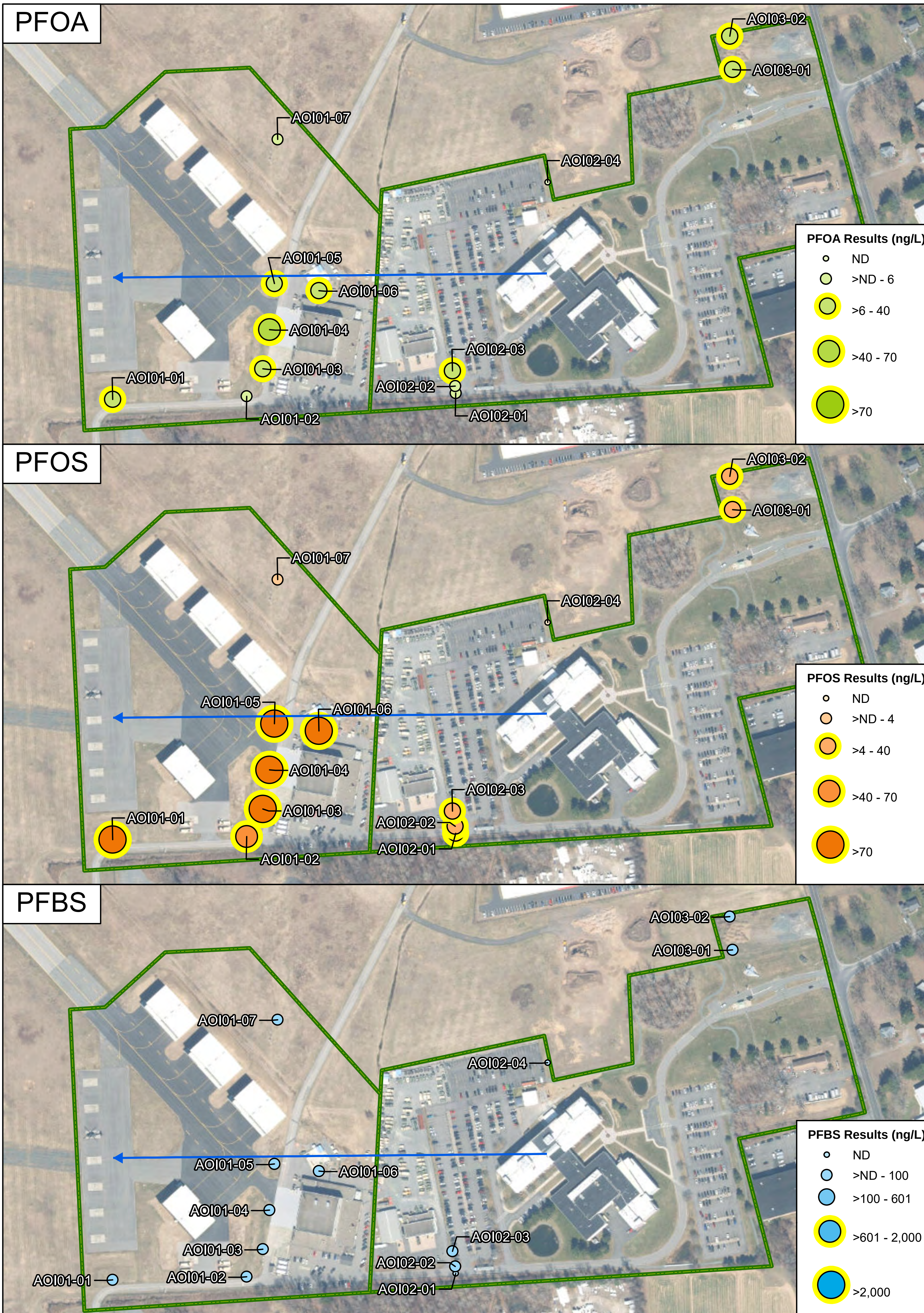
Figure 6-5



Legend

Facility Boundary

Groundwater Flow Direction

PFOA Groundwater Screening Level: 6 ng/L

PFOS Groundwater Screening Level: 4 ng/L

PFBS Groundwater Screening Level: 601 ng/L

N

0 150 300 600 Feet

Exceedances of the OSD SL are depicted with a yellow halo.

PFOA, PFOS, and PFBS Detections in Groundwater

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 300 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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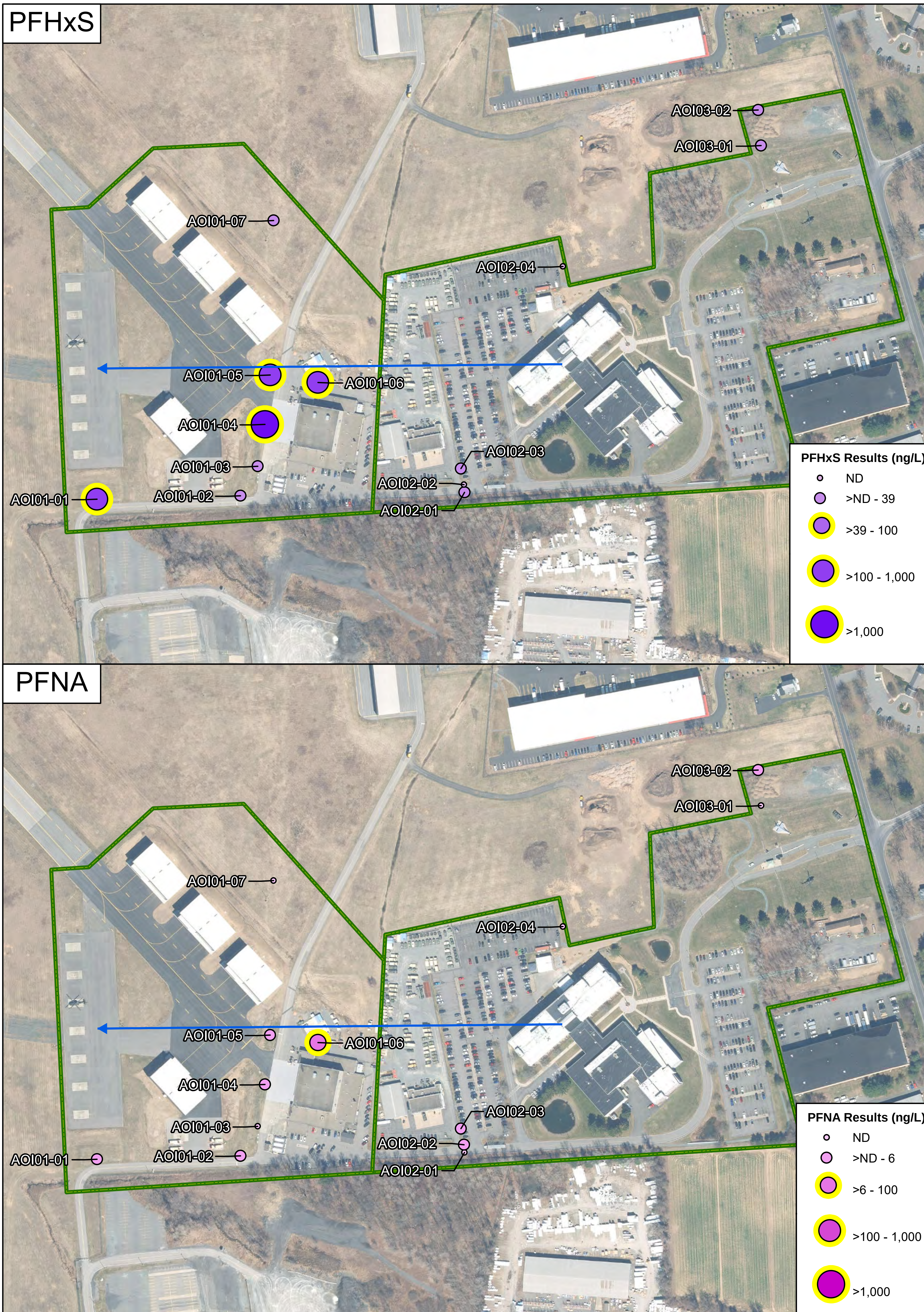
Figure 6-6



Legend

Facility Boundary

Groundwater Flow Direction

PFHxS Groundwater Screening Level: 39 ng/L

PFNA Groundwater Screening Level: 6 ng/L

N

0 140 280 560 Feet

Exceedances of the OSD SL are depicted with a yellow halo.

PFHxS and PFNA Detections in Groundwater

CLIENT	ARNG			
PROJECT	Site Inspection at Albany AASF #3, NY			
REVISED	5/12/2023	GIS BY	MS	5/12/2023
SCALE	1 inch = 280 feet	CHK BY	AM	5/12/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	5/12/2023

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Figure 6-7

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7. Exposure Pathways

The CSMs for each AOI, revised based on the SI findings, are presented on **Figure 7-1** through **Figure 7-3**. Please note that while the CSM discussion assists in determining if a receptor may be impacted, the decision to move from SI to Remedial Investigation (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; and
5. Potentially exposed populations.

If any of these elements are missing, the pathway is incomplete. The CSM figures use an empty circle symbol to represent an incomplete exposure pathway. Areas with 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 an 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 routes of exposure to the relevant compounds 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 toxicological study. The receptors evaluated are consistent with those listed in USEPA guidance for risk screening (USEPA, 2001). Receptors at the facility include site workers (e.g., facility staff and visiting soldiers), construction workers, trespassers (though unlikely due to restricted access), residents outside the facility boundary, and recreational users outside of the facility boundary.

7.1 Soil Exposure Pathway

The SI results in soil were used to determine whether a potentially complete pathway exists between the source and potential receptors at AOI 1, AOI 2, and AOI 3 based on the aforementioned criteria.

7.1.1 AOI 1

AOI 1 encompasses the release of HEF and potentially AFFF from the AASF #3 Hangar and the former Fire Response Unit room.

The relevant compounds were detected in surface and subsurface soil at AOI 1. PFOS exceeded the residential SL. No active construction was ongoing during site activities, but site workers and future construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. Construction workers could contact constituents in subsurface soil via incidental ingestion; therefore, the subsurface soil exposure pathway for future construction workers is potentially complete. The CSM for AOI 1 is presented on **Figure 7-1**.

7.1.2 AOI 2

AOI 2 encompasses the area southeast of the AASF #3 Hangar, where a fire occurred in the back of a garbage truck. While the use of AFFF during the emergency response was not documented, photographs of the incident appear to show foam being used and discharged directly to the paved surface.

Several relevant compounds were detected in surface and subsurface soil at AOI 2. No active construction was ongoing during site activities, but site workers and future construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. Construction workers could contact constituents in subsurface soil via incidental ingestion; therefore, the subsurface soil exposure pathway for future construction workers is potentially complete. It should be noted that the results from AOI02-01 were categorized as surface soil (residential exposure) rather than shallow subsurface (industrial/commercial). This sample was collected beneath an asphalt road which does act as a barrier to site worker, construction worker, or trespasser exposure scenario. However, the sample was left as surface soil sample as a conservative measure. The CSM for AOI 2 is presented on **Figure 7-2**.

7.1.3 AOI 3

AOI 3 encompasses the stockpiled soil, where excavated soil from AOI 1 was moved to facilitate the construction of hangars and associated subsurface infrastructure.

The relevant compounds were detected in surface and subsurface soil at AOI 3. No active construction was ongoing during site activities, but site workers and future construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. Construction workers could contact constituents in subsurface soil via incidental ingestion; therefore, the subsurface soil exposure pathway for future construction workers is potentially complete. The CSM for AOI 3 is presented on **Figure 7-3**.

7.2 Groundwater Exposure Pathway

The SI results in 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

PFOA, PFOS, PFHxS, and PFNA were detected above their SLs in groundwater samples collected at AOI 1. Private drinking water wells are located downgradient to cross-gradient of the facility, approximately 1.5 miles to the northwest, on the opposite side of Shakers Creek. The ingestion exposure pathway for groundwater is potentially complete for residents that are located downgradient of AOI 1. Depths to water measured at AOI 1 during the SI ranged from 0.56 to 5.46 feet bgs. Therefore, the exposure pathway for site workers and future construction workers via ingestion of shallow groundwater is considered potentially complete. Because groundwater is so shallow, the pathway to the site worker is also potentially complete. The CSM for AOI 1 is presented on **Figure 7-1**.

7.2.2 AOI 2

PFOA and PFOS were detected above their SLs in groundwater samples collected at AOI 2. Private drinking water wells are located downgradient to cross-gradient of the facility, approximately 1.5 miles to the northwest, on the opposite side of Shakers Creek. The ingestion exposure pathway for groundwater is potentially complete for residents that are located downgradient of AOI 2. Depths to water measured at AOI 2 during the SI ranged from 1.46 to 5.72 feet bgs. Therefore, the exposure pathway for site workers and future construction workers via ingestion of shallow groundwater is considered potentially complete. Because groundwater is so shallow, the pathway to the site worker is also potentially complete. The CSM for AOI 2 is presented on **Figure 7-2**.

7.2.3 AOI 3

PFOA and PFOS were detected above their SLs in groundwater samples collected at AOI 3. Private drinking water wells are located downgradient to cross-gradient of the facility, approximately 1.6 miles to the northwest, on the opposite side of Shakers Creek. The ingestion exposure pathway for groundwater is potentially complete for residents that are located downgradient of AOI 3. Depths to water measured at AOI 3 during the SI ranged from 0.75 to 0.88 feet bgs. Therefore, the exposure pathway for site workers and future construction workers via ingestion of shallow groundwater is considered potentially complete. Because groundwater is so shallow, the pathway to the site worker is also potentially complete. The CSM for AOI 3 is presented on **Figure 7-3**.

7.3 Surface Water and Sediment Exposure Pathway

No surface water or sediment samples were collected during the SI. However, the SI results in soil and groundwater, in combination with knowledge of the fate and transport properties of PFAS, were used to determine whether a potentially complete pathway exists between the source and potential receptors.

7.3.1 AOI 1

The floor drains within the AASF #3 flow to an oil-water separator (OWS) located approximately 40 feet west of AASF #3 Hangar. The OWS is also connected to the catch basin at the aircraft washdown station west of the hangar and south of the apron. The OWS discharges to the Town of Colonie sanitary sewer system during washing events, and when not washing, it discharges to the drainage ditch along the southwest boundary of the facility. The drainage ditch flows to the west within the facility property. Even if the foam were diverted during the initial testing of the 2012 fire suppression system in AASF #3 Hangar, it is possible that residual foam within the drain piping may impact subsequent water that is discharged to the drainage ditch. The drainage ditch flows to the west within the facility property and subsequently to an offsite stream, which flows to Shakers Creek and to the Mohawk River.

The facility receives water from the Town of Colonie municipal water utility, with the distribution plant and surface water intakes from the Mohawk River less than 3.5 miles northeast of the facility. This potable water source was sampled at the facility and had low-level detections of PFOA, PFOS, and PFBS (results provided in **Appendix F**). Therefore, the surface water ingestion exposure pathway for site workers is considered potentially complete.

PFAS are water soluble and can migrate readily from soil to surface water via leaching and run-off. Because the relevant compounds were detected in soil and groundwater at AOI 1, it is possible that those compounds may have migrated from soil and groundwater to the Mohawk River via groundwater discharge or the stormwater drainage system. Therefore, the surface water and sediment ingestion exposure pathway for future construction workers, trespassers, and recreational users of the Mohawk River are also considered potentially complete.

7.3.2 AOI 2

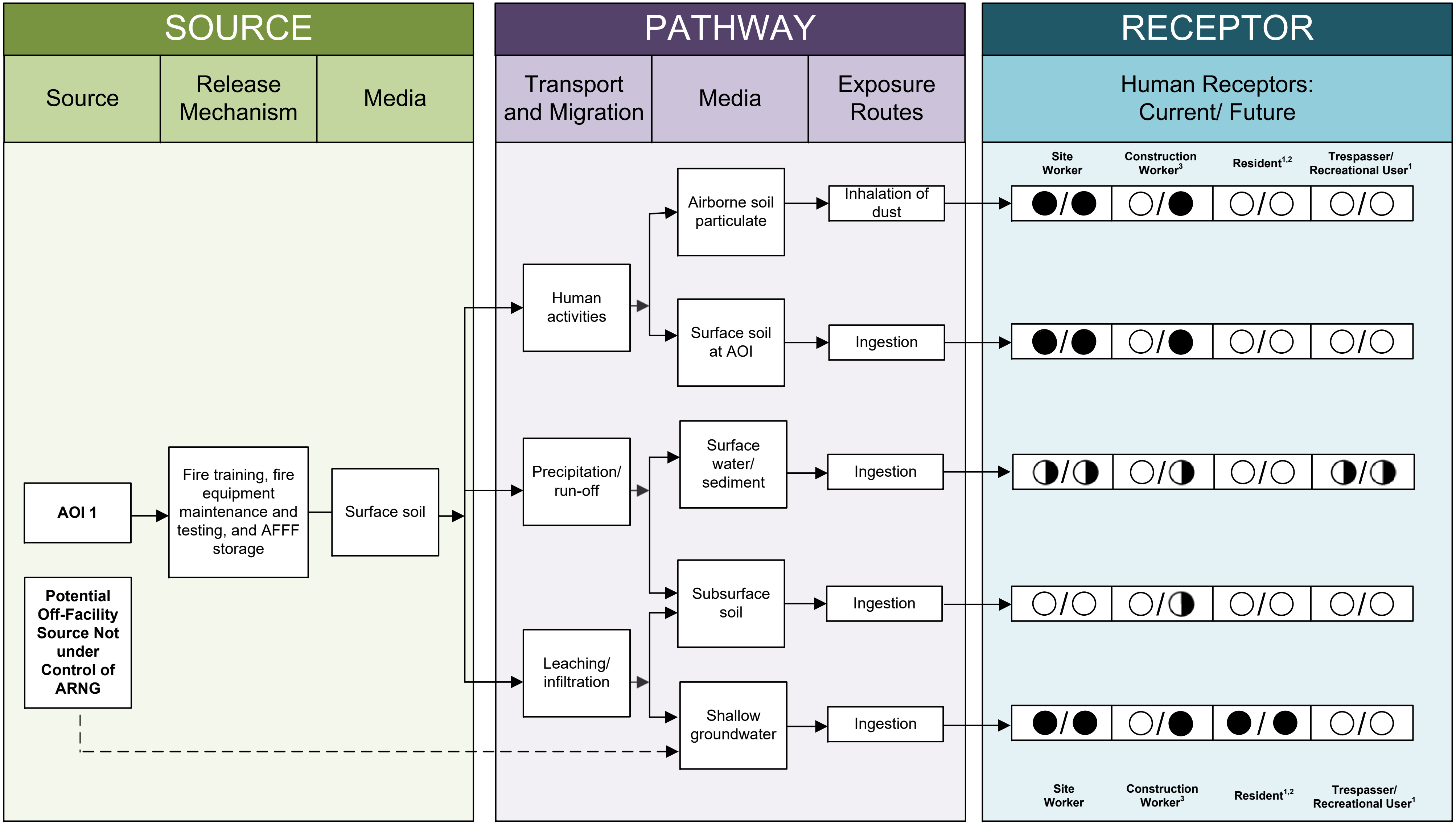
Although no surface water features flow through this AOI, a stormwater drop inlet is located immediately north of the AOI 2 release area, in the grass on the north side of the road. Although historical photographs show that booms and socks were used to protect contents from the garbage truck fire from flowing into the stormwater drain, it is possible that some runoff from the incident entered the drains. The stormwater network carries surface runoff from AOI 2 to the drainage ditch along the southwest boundary of the facility. The drainage ditch flows to the west within the facility property and subsequently to an offsite stream, which flows to Shakers Creek and to the Mohawk River.

Relevant compounds were detected in soil and groundwater at AOI 2, and it is possible that those compounds may have migrated from soil and groundwater to the Mohawk River via groundwater discharge or the stormwater drainage system. The surface water and sediment exposure pathways and receptors for AOI 2 are the same as described in **Section 7.3.1**.

7.3.3 AOI 3

Although no surface water features flow through this AOI, a drainage ditch is located south of AOI 3. The stormwater network carries surface runoff from AOI 3 to the drainage ditch flowing west within the facility property and subsequently to an offsite stream, which flows to Shakers Creek and on to the Mohawk River.

Relevant compounds were detected in soil and groundwater at AOI 3, and it is possible that those compounds may have migrated from soil and groundwater to the Mohawk River via groundwater discharge or the stormwater drainage system. The surface water and sediment exposure pathways and receptors for AOI 3 are the same as described in **Section 7.3.1**.



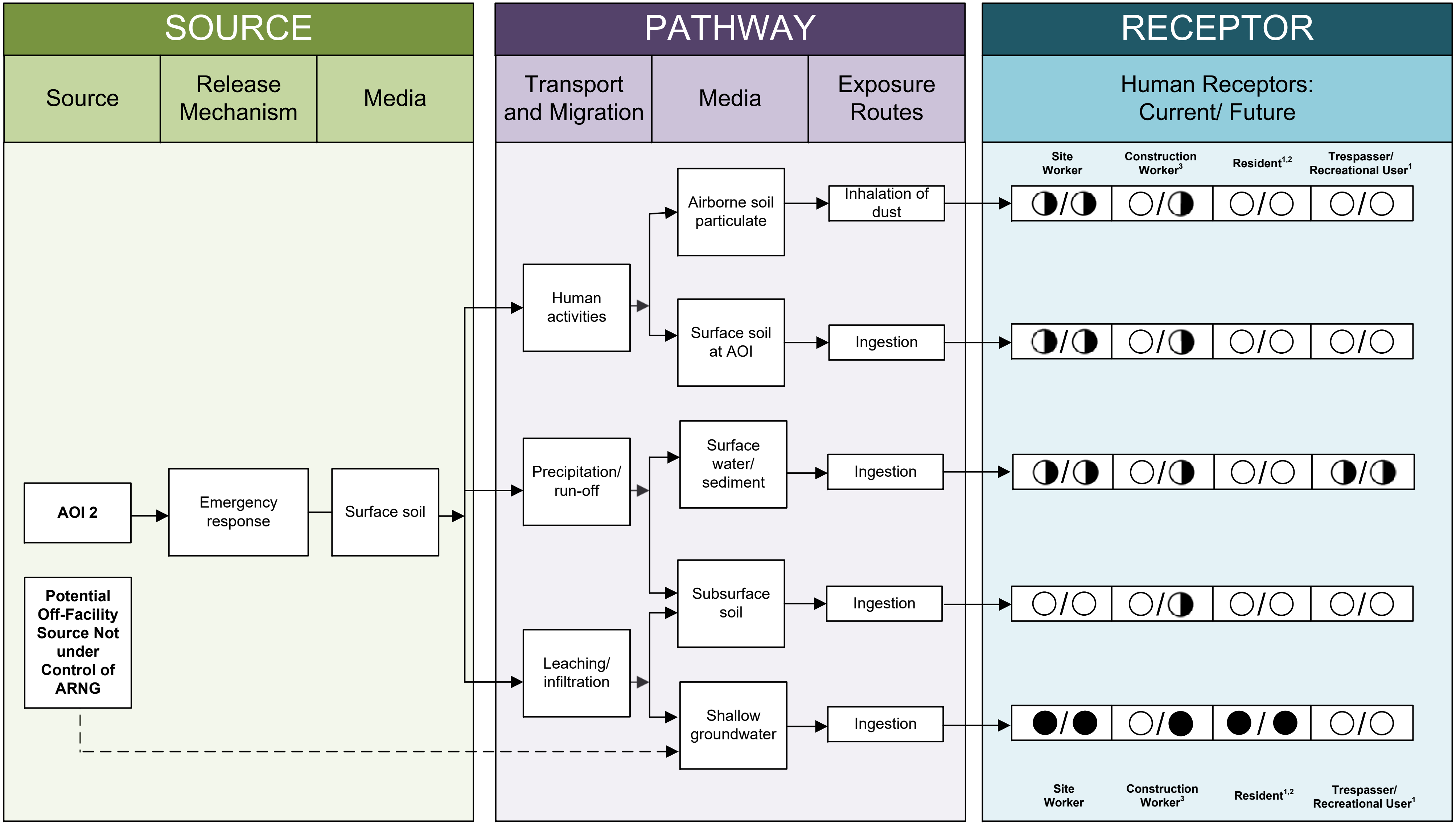
LEGEND

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

Notes:

1. The resident and recreational users refer to off-site receptors.
2. Inhalation of dust for off-site receptors is likely insignificant.
3. No current active construction at the facility.

Figure 7-1
Conceptual Site Model, AOI 1
Albany AASF #3



LEGEND

Flow-Chart Stops

Flow-Chart Continues

Partial/ Possible Flow

Incomplete Pathway

Potentially Complete Pathway

Potentially Complete Pathway with Exceedance of SL

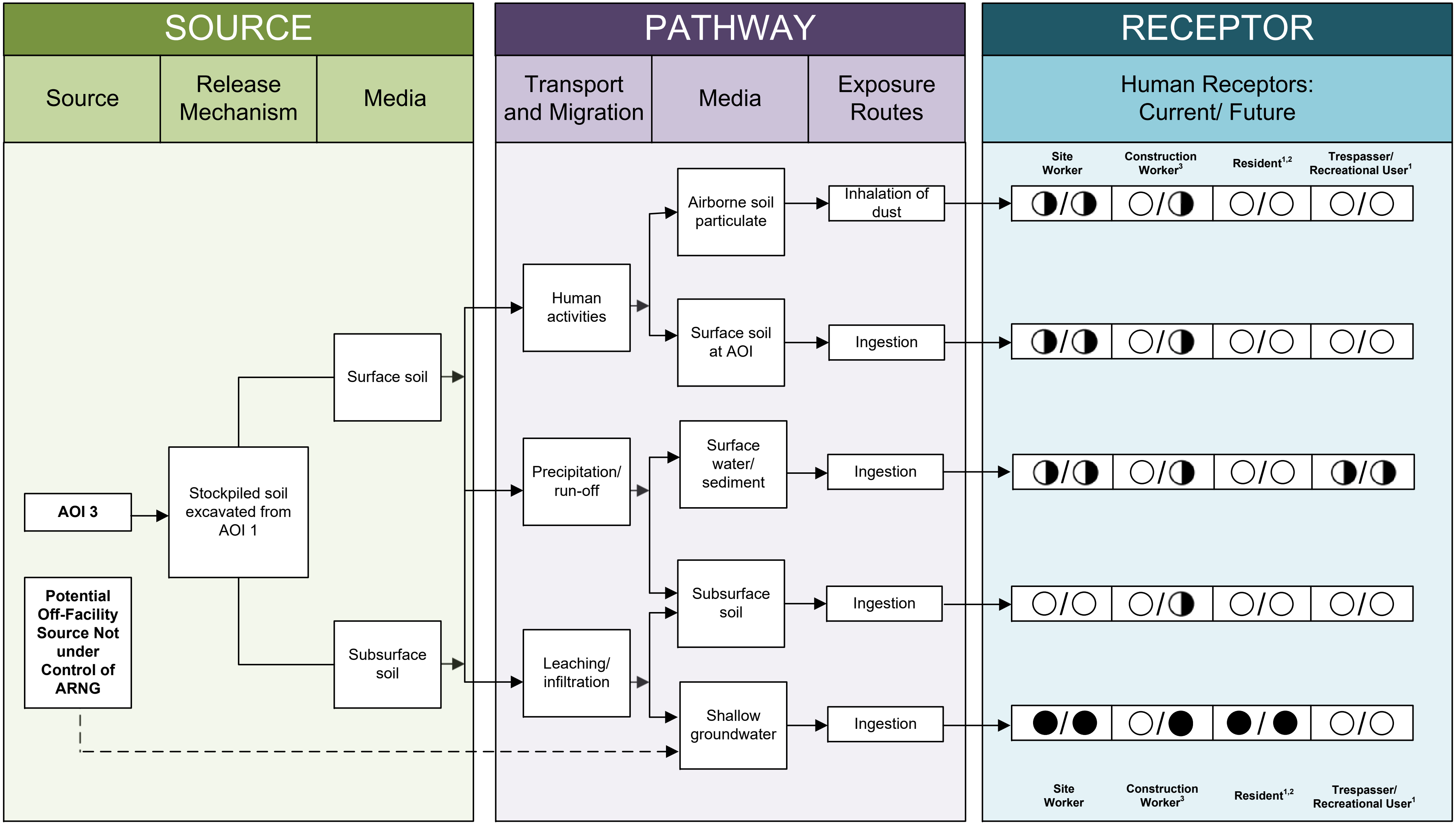
Notes:

1. The resident and recreational users refer to off-site receptors.

2. Inhalation of dust for off-site receptors is likely insignificant.

3. No current active construction at the facility.

Figure 7-2
Conceptual Site Model, AOI 2
Albany AASF #3



LEGEND

Flow-Chart Stops

Flow-Chart Continues

Partial/ Possible Flow

Incomplete Pathway

Potentially Complete Pathway

Potentially Complete Pathway with Exceedance of SL

Notes:

1. The resident and recreational users refer to off-site receptors.

2. Inhalation of dust for off-site receptors is likely insignificant.

3. No current active construction at the facility.

Figure 7-3
Conceptual Site Model, AOI 3
Albany AASF #3

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8. Summary and Outcome

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

8.1 SI Activities

The SI field activities were conducted on 4 January 2022 and from 8 to 14 April 2022 and consisted of utility clearance, direct push boring, soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021), except as noted in **Section 5.8**.

To fulfill the project DQOs set forth in the approved SI QAPP Addendum (AECOM, 2021), samples were collected and analyzed for a subset of 18 compounds by LC/MS/MS compliant with QSM 5.3 Table B-15 as follows.

- Thirty-six (36) soil samples from 13 boring locations and 8 hand auger locations;
- Thirteen (13) grab groundwater samples from 13 temporary wells;
- Twenty (20) QA/QC 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 AOIs 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 CSMs were refined to assess whether a potentially complete pathway exists between the source and potential receptors for potential exposure at the AOIs, which are 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, AOI 2, and AOI 3 (see **Table 8-1**). 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, AOI 2, and AOI 3 from sources on the facility resulting from historical DoD activities. Sample analytical concentrations collected during the SI were compared to the project SLs in soil and groundwater, as described in **Table 6-1**. A summary of the results of the SI data relative to the SLs is as follows:

- At AOI 1:
    - PFOS in surface soil exceeded the SL of 13 µg/kg at AOI01-04 and AOI01-08, with concentrations of 60.1 and 14.1 µg/kg, respectively.
    - PFOA, PFOS, PFHxS, and PFNA were detected above their SLs in groundwater. The exceedances of the SLs were detected at maximum concentrations of 61.9 ng/L (PFOA), 15,000 ng/L (PFOS), 1,180 ng/L (PFHxS), and 13.3 ng/L (PFNA).
    - Based on the exceedances of the SLs in soil and groundwater, further evaluation of AOI 1 is warranted in an RI.

- At AOI 2:
  - The detected concentrations of PFOS, PFHxS, PFNA, and PFBS in soil at AOI 2 were below their SLs.
  - PFOA and PFOS were detected above their SLs in groundwater. PFOA exceeded the SL of 6 ng/L with a maximum concentration of 10.5 ng/L, and PFOS exceeded the SL of 4 ng/L with a maximum concentration of 21.8 ng/L.
  - Based on the exceedances of the SLs in groundwater, further evaluation at AOI 2 is warranted.
- At AOI 3:
  - The detected concentrations of PFOA, PFOS, PFHxS, and PFNA in soil were below their SLs.
  - PFOA and PFOS were detected above their SLs in groundwater. PFOA exceeded the SL of 6 ng/L with a maximum concentration of 17.9 ng/L, and PFOS exceeded the SL of 4 ng/L with a maximum concentration of 24.6 ng/L.
  - Based on the exceedances of the SLs in groundwater, further evaluation at AOI 3 is warranted.

There is still uncertainty regarding the history and use of AFFF in the fire suppression system at the AASF #3 Hangar. As noted in **Section 3**, it was determined after the PA that HEF was currently primed in the system. Regardless, this uncertainty does not impact the results of the SI or recommendations. Additionally, because AOI01-01 and AOI01-02 were shifted from their proposed locations due to health and safety concerns, the potential impact to the drainage ditch remains uncertain. This should be a consideration in the development of the RI scope to determine fate and transport.

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.

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

AOI	Potential Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	AASF #3 Hangar Release/ Fire Response Unit	●	●	●	Proceed to RI
2	Garbage Truck Fire	◐	●	◐	Proceed to RI
3	Stockpiled Soil	◐	●	N/A	Proceed to RI

Legend:
● = detected; exceedance of the screening levels
◐ = detected; no exceedance of the screening levels
○ = not detected

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