FINAL
Site Inspection Report
Army Aviation Support Facility #3
Peoria, Illinois

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

July 2023

Prepared for:

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

UNCLASSIFIED

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Acronyms and Abbreviations

%	percent
°C	degrees Celsius
°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film-forming foam
ANG	Air National Guard
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
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
DO	dissolved oxygen
DPT	direct push technology
DQO	data quality objective
DUA	data usability assessment
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
ERP	Environmental Restoration Program
FedEx	Federal Express
FTA	Fire Training Area
GPS	global positioning system
GRPS	Ground Penetrating Radar Systems, LLC
HDPE	high-density polyethylene
HFPO-DA	hexafluoropropylene oxide dimer acid
IDW	investigation-derived waste
ILANG	Illinois Air National Guard
ILARNG	Illinois Army National Guard
ILEPA	Illinois Environmental Protection Agency
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
ORP	oxidation-reduction potential
OSD	Office of the Secretary of Defense
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid

PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
POL	petroleum, oil, and lubricants
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
WWTP	wastewater treatment plant

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 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 perfluorooctane sulfonate (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 four Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed, or released historically (see **Table ES-2**). 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 Peoria Army Aviation Support Facility (AASF) #3 in Peoria, Illinois and determined further evaluation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is warranted for AOI 1, AOI 2, AOI 3, and AOI 4. Peoria AASF #3 will also be referred to as the "facility" throughout this document.

The facility is in Peoria County, approximately 5 miles southwest of Peoria, Illinois, and it is adjacent to General Wayne A. Downing Peoria International Airport. The facility is constructed on a parcel of land that has been leased to the ARNG from the Metropolitan Airport Authority of Peoria for a term beginning in 1997 and ending in 2055 (AECOM, 2020). The facility is approximately 44 acres and currently includes one hangar, a building with connected offices and dry parts storage, a small expanse of tarmac south of the hangar, a mobile fuel tanker parking pad (providing containment), Petroleum, Oil, and Lubricants storage sheds, and a parking lot for employee's personal vehicles.

The PA identified four AOIs for investigation during the SI phase. SI sampling results from the four 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 for AOI 1, AOI 2, AOI 3, and AOI 4.

[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 PFAS Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	Tri-Max 30™ FTA	●	●	●	Proceed to RI
2	Bulk AFFF Storage	◐	●	●	Proceed to RI
3	Former ANG Firehouse (Building 12)	◐	●	●	Proceed to RI
4	Former Metal Plating Facility	◐	●	●	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 Peoria Army Aviation Support Facility (AASF) # 3 in Peoria, Illinois. The Peoria AASF is also referred to as the "facility" throughout this document.

The SI project elements were performed in compliance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 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 Peoria AASF # 3 (AECOM Technical Services, Inc. [AECOM], 2020) that identified four 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

The facility is in Peoria County, approximately 5 miles southwest of Peoria, Illinois (**Figure 2-1**). The facility is adjacent to General Wayne A. Downing Peoria International Airport and is accessible from the west via South Airport Road.

The facility is constructed on a parcel of land that has been leased to the ARNG from the Metropolitan Airport Authority of Peoria for a term beginning in 1997 and ending in 2055 (AECOM, 2020). From 1947 to 1994, the Illinois Air National Guard (ILANG) operated the facility. In 1994, the ILANG moved all assets to a new location across the runway, less than 1 mile west from the facility. Prior to the lease in 1997, the Illinois ARNG (ILARNG) used some buildings and tents at the facility, although it was considered ILANG property.

The facility is approximately 44 acres and currently includes one hangar, a building with connected offices and dry parts storage, a small expanse of tarmac south of the hangar, a mobile fuel tanker parking pad (providing containment), Petroleum, Oil, and Lubricants (POL) storage sheds, and a parking lot for employee's personal vehicles. In recent years, there has been some construction that has taken place at the facility. Hangar 23 was demolished sometime between 2012 and 2013 and is currently a concrete pad. Also, the concrete was replaced primarily on the west and south side of the ramp area in 2017.

2.2 Facility Environmental Setting

The facility is within the Illinois River Valley, which is characterized by glacial sediments. The facility is bordered to the north, west, and south by the Peoria International Airport and to the east by residential and commercial areas (**Figure 2-2**). The AASF is within 1 mile of the East Branch of the Lamarsh Creek and within 4 miles of the Illinois River. The elevation of the facility is approximately 509 feet above mean sea level.

2.2.1 Geology

The facility lies within central Illinois, which is underlain by Pleistocene (Cenozoic-era) glacial-fluvial sediments. The sediment type and thickness are highly variable in this area. Thick sequences of glacial and glacial-fluvial sediments are found in the valleys, and thinner sequences of mainly glacial tills and loess are found on the plateaus.

The facility is underlain by fill material consisting of primarily mixed bedrock and Quaternary-aged sediments (**Figure 2-3**). Underlying the fill is the Quaternary Peoria Silt, which is part of the Mason Group. The Peoria Silt is loess and ranges up to more than 20 feet in thickness. The Radnor Till Member of the Glasford Formation underlies the Peoria Silt and consists of a silt dominated glacial till with some lenses of sand and gravel. The Radnor Till Member is absent in certain areas to the west and east of the facility (Sieving, 1997) and may not be encountered directly at the facility.

The uppermost bedrock units in the area are Pennsylvanian-aged rocks of the McLeansboro Group (including the Shelburn-Patoka Formations), Carbondale Formation, and Tradewater Formation (Sieving, 1997; Leidos, 2015). These formations typically consist of interbedded limestones, shales, and sandstones, with coal seams commonly found. Pennsylvanian-aged rocks are underlain by a regional unconformity, which overlies Mississippian- to Ordovician-aged shale, limestone, and dolostone throughout central Illinois. The bedrock units in the Peoria area are sloped to the south-southwest (Leidos, 2015).

During the SI, non- to low-plasticity fines (silts) were observed as the dominant lithology of the unconsolidated sediments below the Peoria AASF #3. The borings were completed at depths between 10 and 30 feet below ground surface (bgs). Varying quantities of sand were noted, specifically, isolated layers of silty sand, silty sand with gravel and clayey sand were also observed in the borings with thicknesses ranging from 1 to 6 feet. The silt observed in the subsurface is consistent with the Peoria Silt. Boring logs are presented in **Appendix E**.

2.2.2 Hydrogeology

Regionally, groundwater is found in two primary aquifer systems located within the Pleistocene- and Paleozoic-aged aquifers. The Kansan Sankoty Sand aquifer is the most important aquifer for industrial and municipal use and is typically first encountered between 15 and 20 feet bgs. This aquifer comes within approximately 1.5 miles of the facility to the east of the airport and does not underlie the facility (Leidos, 2015). Groundwater in the area can also be sourced from wells as deep as 350 feet bgs in Pennsylvanian-aged sandstone, coal, and fractured shale; however, wells are generally not drilled into these rocks due to the poor water quality and high mineral content (Leidos, 2015).

Shallow groundwater under the facility is encountered within the glacial drift deposits at depths ranging from 3 to 12 feet bgs. During SI activities at the adjacent Peoria Air National Guard (ANG) Base in 2017 and 2018, groundwater was encountered between 1.28 and 17.55 feet bgs (Amec Foster Wheeler, 2018). Shallow groundwater flow generally reflects surface topography with an average hydraulic gradient of 0.013 (Leidos, 2015). Depths to water measured at the AASF in March 2022 during the SI ranged from 2.19 to 8.31 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 southeast toward the Illinois River. These data result in a calculated hydraulic gradient of 0.013 at the AASF.

There are no wells located within the boundary of the facility; however, there are several unidentified wells within a 2-mile radius surrounding the facility (**Figure 2-3**). The State of Illinois does not provide specific well type information (i.e., domestic well, industrial well, etc.). Drinking water for the facility is supplied by the City of Bartonville, which is sourced from wells in the Sankoty Aquifer, and surface water from the Illinois River (Illinois American Water, 2018).

2.2.3 Hydrology

The facility is on a plateau west of and approximately 200 feet above the Illinois River. The land surface slopes gently to the east on the flight apron and to the north and east in the northern portion of the property. There are numerous drainage ditches and storm sewers that collect and channel surface water either south toward the East Branch of Lamarsh Creek or east toward Kickapoo Creek. Both creeks discharge to the Illinois River, which is approximately 3 miles to the east and south of the facility (URS Group Inc., 2009). Surface water features are presented on **Figure 2-5**.

2.2.4 Climate

The climate at the facility consists of four clearly separated seasons, with long, warm summers and freezing, snowy, cloudy, windy winters. Temperatures can reach highs of 86 degrees Fahrenheit (°F) in the summer months, to lows of 17 °F in winter months. The average annual temperature is 51.8 °F. Average precipitation is 36.45 inches of rain (World Climate, 2022).

2.2.5 Current and Future Land Use

The facility is a controlled access facility with public roads and is adjacent to the Peoria International Airport. Reasonably anticipated future land use is not expected to change from the current land use; however, future infrastructure improvements, land acquisitions, and land use controls at the Peoria International Airport are unknown.

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 plants, insects, and mammals are federally endangered, threatened, proposed, and/ or are listed as candidate species in Peoria County, Illinois (US Fish and Wildlife Service [USFWS], 2022).

- **Flowering Plants:** Decurrent false aster, *Boltonia decurrens* (threatened); Eastern prairie fringed orchid, *Platanthera leucophaea* (threatened)
- **Insects:** Monarch butterfly, *Danaus plexippus* (candidate); Rusty patched bumble bee, *Bombus affinis* (endangered)
- **Mammals:** Indiana bat, *Myotis sodalis* (endangered); Northern Long-Eared Bat, *Myotis septentrionalis* (threatened)

2.3 History of PFAS Use

Four release areas were identified in the PA where AFFF or other PFAS-containing materials may have been used, stored, disposed, or released historically at Peoria AASF #3 (AECOM, 2020). The potential release areas were grouped into four AOIs based on preliminary data and presumed groundwater flow directions. A description of each AOI is presented in **Section 3**.

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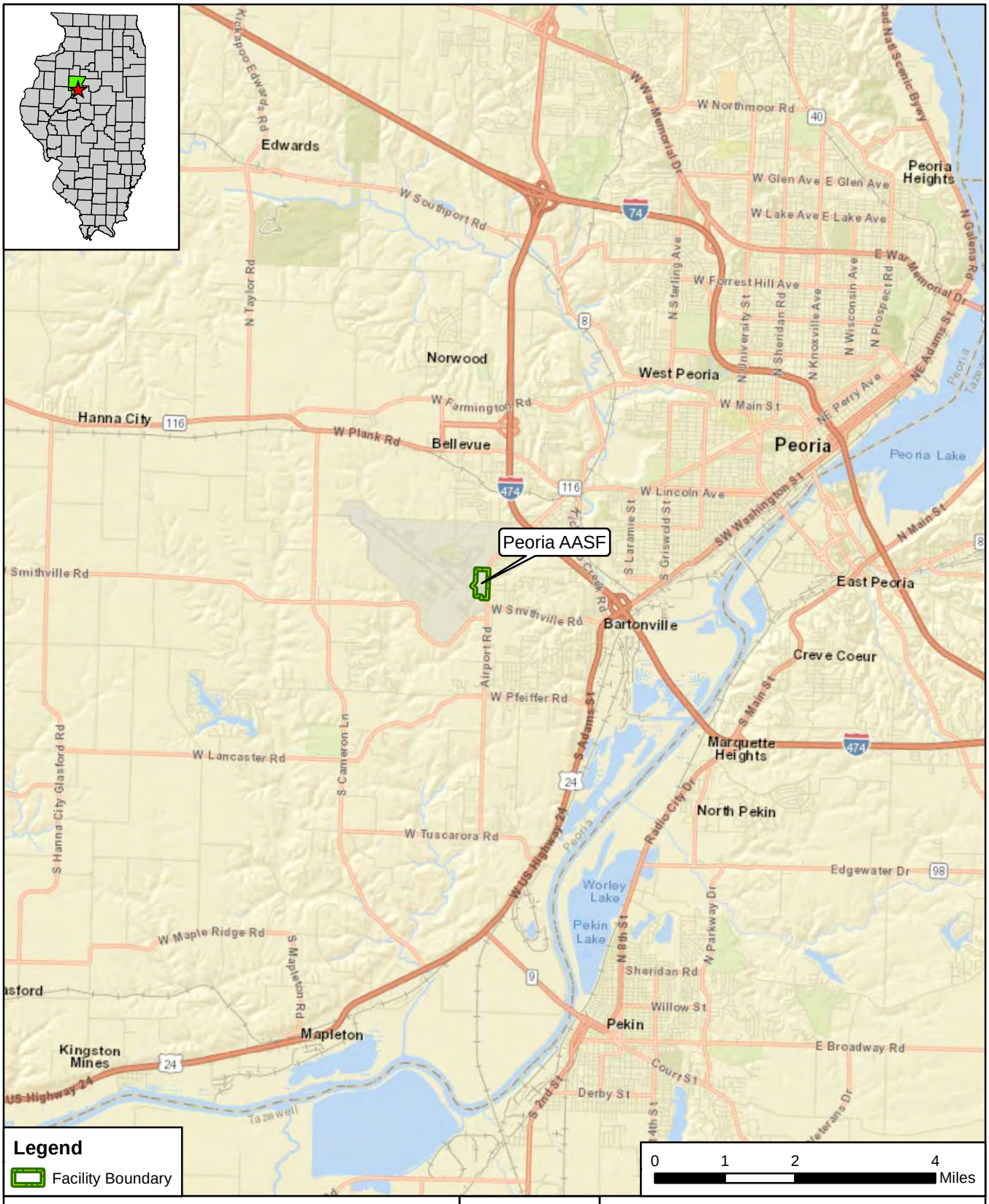

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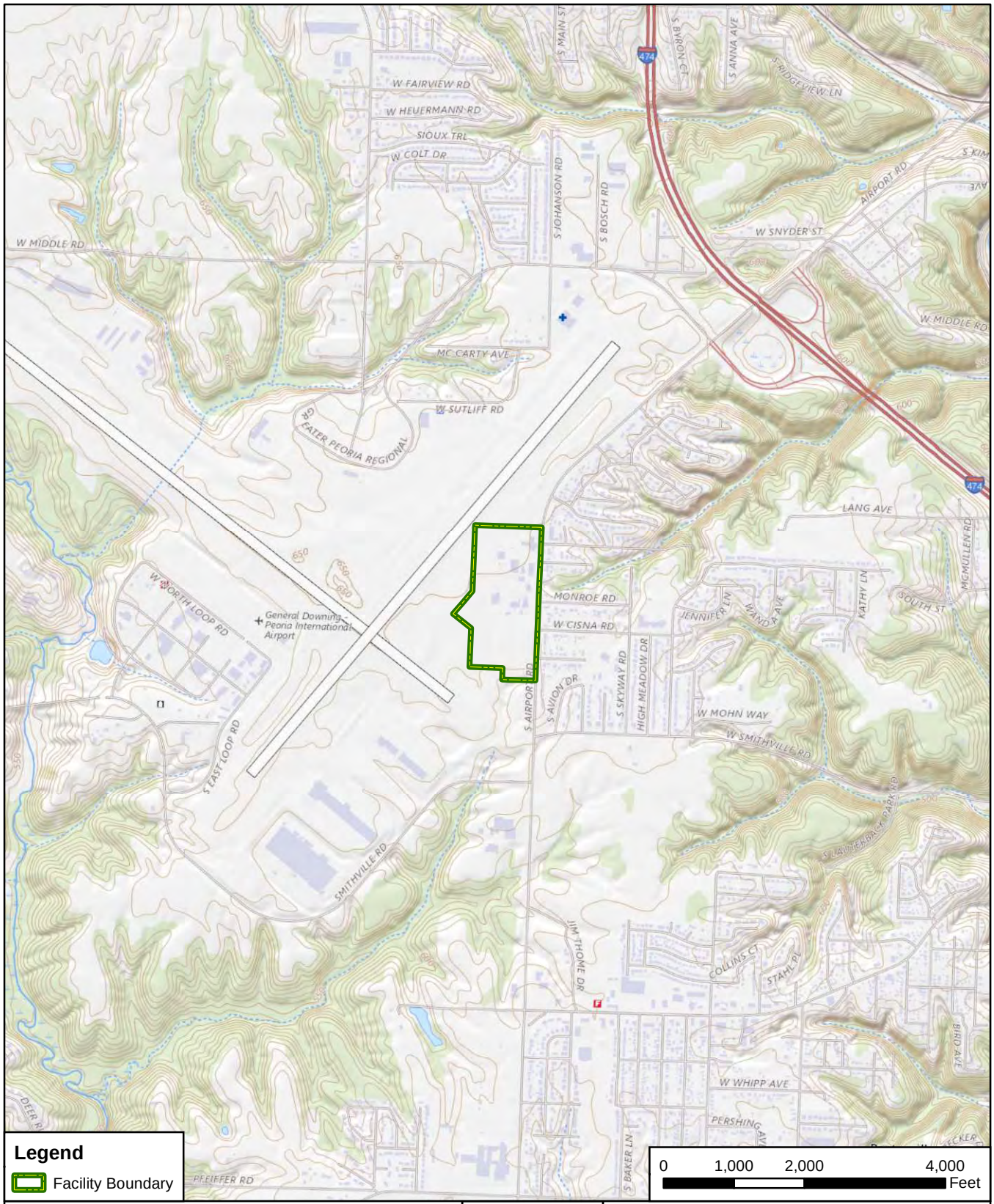
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	CM	8/1/2022

Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-1



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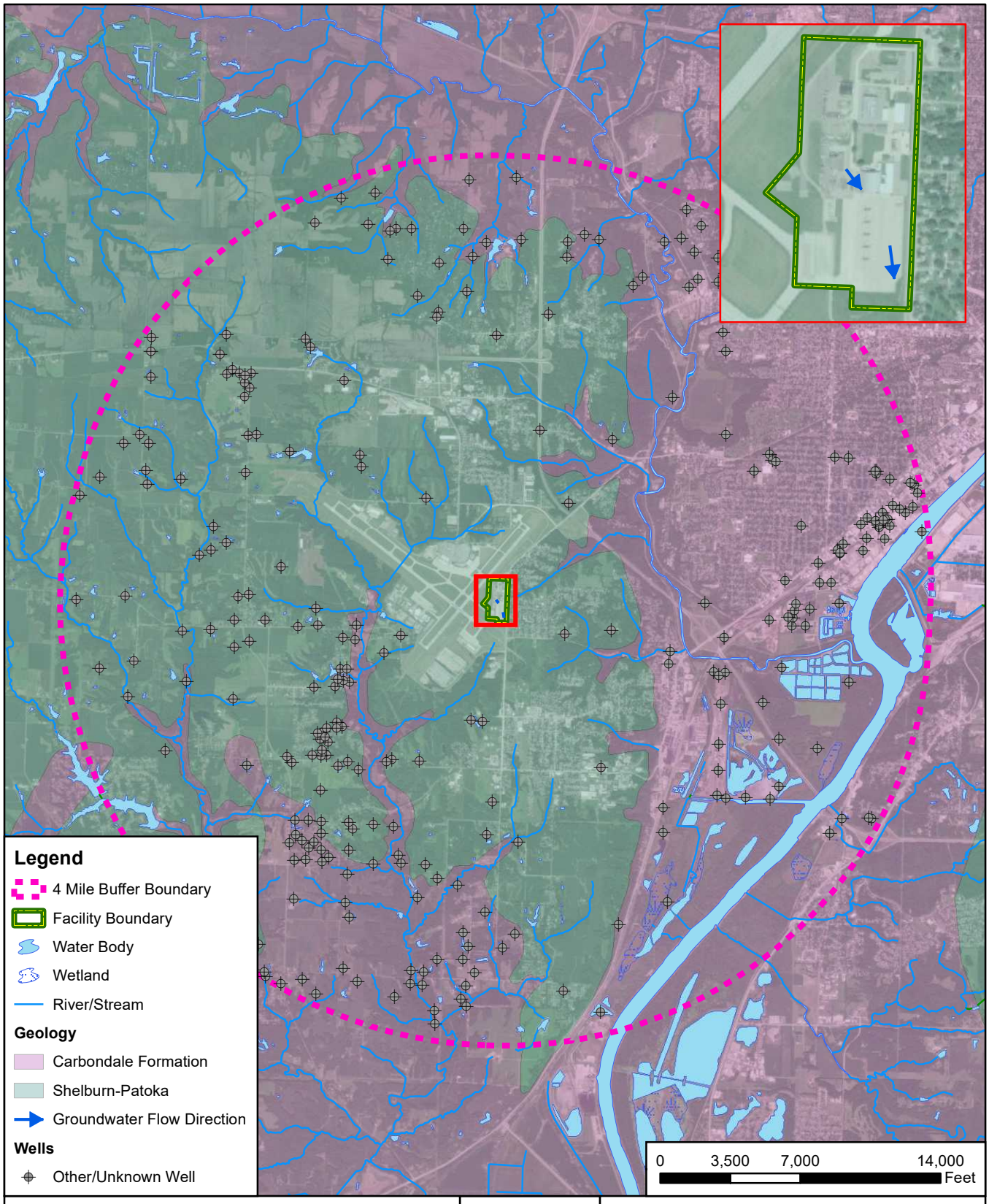
Base Map: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program,		PM	CM	8/1/2022

Facility Topography

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-2



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Groundwater Features

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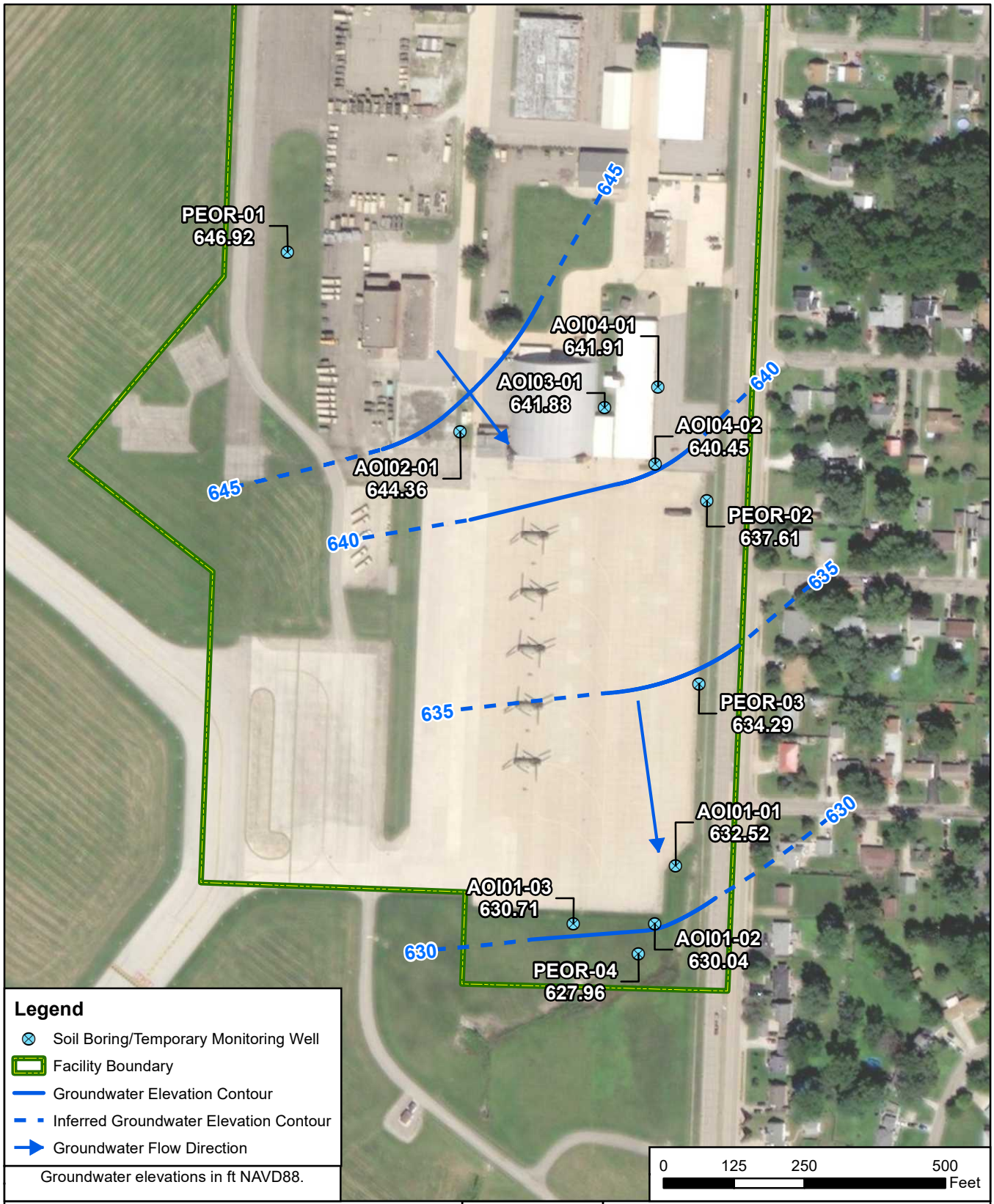
Germantown, MD 20876

Figure 2-3



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Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	10/20/2022

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Groundwater Elevations, March 2022

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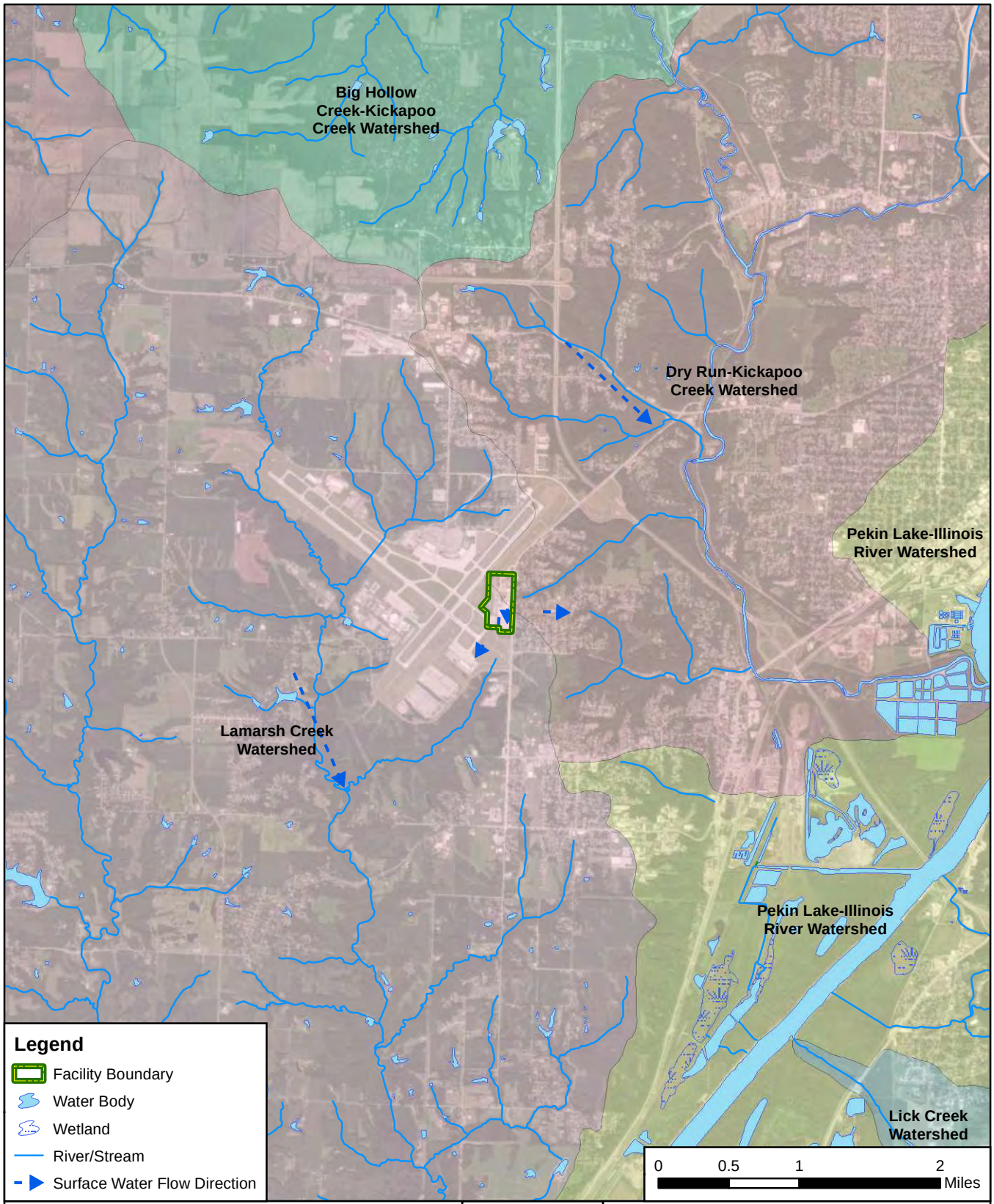
Figure 2-4



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Surface Water Features

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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, four potential release areas were identified at Peoria AASF #3 and grouped into four AOIs (AECOM, 2020). The potential release areas are shown on **Figure 3-1**. **Figure 3-1** also shows the several adjacent potential sources noted in **Section 2.3**.

3.1 AOI 1 Tri-Max 30™ Former FTA

Training use of Tri-Max 30™ fire extinguishers (stored at the facility since the late 1990s) occurred sometime between 2000 and 2002. During one event, one Tri-Max 30™ fire extinguisher was discharged on the ramp area between Pad 5 and 6. Runoff from the ramp flows south, into the grassy area immediately adjacent to the ramp, and ultimately into a ditch that drains into the stormwater system and to the Illinois River.

The grassy area south of the ramp is Environmental Restoration Program (ERP) Site 5, which was formerly used as a POL storage facility with underground storage tanks, associated piping, and drum storage. The final remedial action in 2012 resulted in the removal of soil contaminated with petroleum hydrocarbons and chlorinated volatile organic compounds. The excavation boundary was approximately 150 feet in diameter and 23 feet deep. The area was backfilled with gravel and clean soil (AECOM, 2013). Groundwater remediation was not required and the Illinois Environmental Protection Agency (ILEPA) concurred with closing the site in 2013.

3.2 AOI 2 Bulk AFFF Storage

During the late 1990s, three 6-gallon drums of bulk AFFF concentrate were stored in the POL Building. No information was available on the type or concentration of the AFFF stored in the drums. During the visual site inspection, the 6-gallon drums of AFFF were not observed at the facility. It is unknown if the drums of AFFF were removed from the facility when the Tri-Max 30™ fire extinguishers were taken to Camp Lincoln in Springfield, Illinois in approximately 2004 or 2005. There are no drains in the POL Building; however, there is grass/dirt in the surrounding area.

3.3 AOI 3 Former ANG Firehouse (Building 12)

Before the ILANG vacated the facility in 1997, Building 12 was utilized as a firehouse by the ILANG. ILANG operations at the Firehouse are unknown. The ILANG has been located on the Peoria International Airport property since 1947. Because AFFF was introduced to the ANG in the 1970s and based on findings of the ILANG SI (Amec Foster Wheeler, 2018) conducted at the current ILANG location, it is presumed that AFFF was maintained on firetrucks at the firehouse, and annual nozzle testing was conducted prior to ILANG moving in 1997. A grassy area exists on the north side of the building, with pavement or other buildings on the west, south, and east sides of the building.

3.4 AOI 4 Former Metal Plating Facility

From the 1940s to 1990s, Building 2 was utilized as a metal plating facility. The geographical coordinates are 40°39'38.53"N; 89°40'51.64"W. Multiple metals were used in the plating and electroplating process such as chromium, cadmium, and zinc. Plating operations commonly involve PFAS-containing mist suppressants to reduce the risk of metal fires and prevent worker inhalation of metals. There is no knowledge of any AFFF-related activities at this building, and it

is possible that PFAS-containing materials were used or stored at some point in Building 2. The waste created from the metal plating process was disposed of in the sinks and building drains. It is reported that all drains lead to an oil/water separator, located at the wash rack south of AOI 3 and AOI 4 (Anderson Environmental, 2019), and ultimately to the Greater Peoria sanitary wastewater treatment plant (WWTP).

3.5 Adjacent Sources

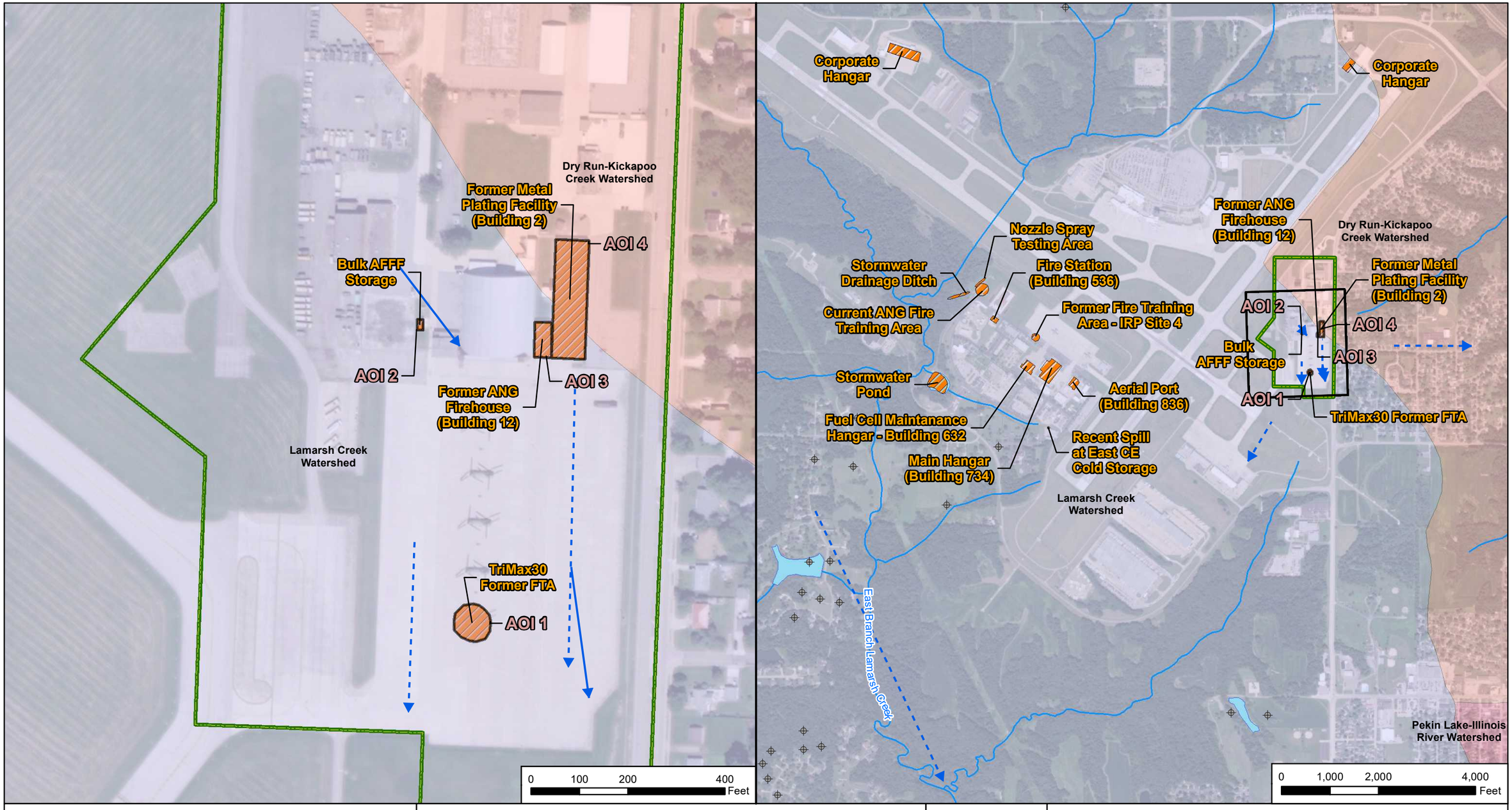
Twelve off-facility, potential sources were identified adjacent to AASF #3 during the PA and are not associated with ARNG activities (AECOM, 2020). The adjacent potential sources are shown on **Figure 3-1** and described in the following sections for informational purposes only and will not be investigated as part of this SI.

3.5.1 ILANG

The ILANG has been located on the Peoria International Airport property since June 1947 when the unit was originally organized as the 169th Fighter Squadron. The ILANG leases approximately 91 acres in the southwest portion of the Peoria International Airport (Amec Foster Wheeler, 2018). It is known that many of the buildings have stored AFFF or emergency vehicles that held AFFF, and that there has been use and discharge of AFFF on the premises. An SI was completed at the 182nd Wing of the ILANG at Peoria International Airport (Amec Foster Wheeler, 2018). There are ten areas within the existing ILANG property (west of Peoria AASF #3) where PFOA and/or PFOS were measured in groundwater at concentrations exceeding the 2016 USEPA Health Advisory screening criteria.

3.5.2 Corporate Hangars

Two private corporate hangars are located near the AASF. One is located approximately 0.85 miles northeast of the AASF and one is located approximately 1.5 miles northwest of the facility. Both corporate hangars are located upgradient of the facility. The corporate hangars have fire suppression systems; however, the type of fire suppressants used in the fire suppression systems are unknown. The corporate hangars have been identified as a potential adjacent source due to the possibility that the fire suppression system contains AFFF.



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Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	10/31/2022

- Area of Interest
- Potential Release Area
- Facility Boundary
- Water Body
- River/Stream
- Surface Water Flow Direction
- Groundwater Flow Direction

Wells

- Other/Unknown Well

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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, 2021a), 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 Peoria 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, 2021a); 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). The scope was bounded vertically by the first encountered shallow groundwater at each borehole. Temporal boundaries were limited to the spring season, which was the earliest available time field resources were available to complete the study.

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, 2021a).

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, 2021a).

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, Peoria Army Aviation Support Facility #3, Peoria, Illinois* dated August 2020 (AECOM, 2020);
- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Peoria Army Aviation Support Facility #3, Peoria, Illinois* dated October 2021 (AECOM, 2021a); and
- *Final Site Safety and Health Plan, Peoria Army Aviation Support Facility #3, Peoria, Illinois* dated October 2021 (AECOM, 2021b).

The SI field activities were conducted from 21 to 23 March 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, 2021a).

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-four (34) soil samples from 13 boring locations;
- Eleven (11) grab groundwater samples from 11 temporary well locations;
- Twenty (20) quality assurance (QA)/quality control (QC) samples.

Figure 5-1 provides the sample locations for all media across the facility. **Table 5-1** presents the list of samples collected for each media. Field documentation is provided in **Appendix B**. A Log of Daily Notice of Field Activity was completed throughout the SI field activities, which is provided in **Appendix B1**. Sampling forms are provided in **Appendix B2**, land survey data are provided in **Appendix B3,** and investigation-derived waste (IDW) polygons are provided in **Appendix B4**. 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 15 September 2021, prior to SI field activities. The combined TPP Meeting 1 and 2 was conducted in general accordance with EM 200-1-2. The stakeholders for this SI include the ARNG, ILARNG, USACE and ILEPA. Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the SI QAPP Addendum (AECOM, 2021a).

A TPP Meeting 3 will be held on a future date (To Be Determined) after the field event to discuss the results of the SI. Meeting minutes for TPP 3 will be 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 personnel placed a ticket with the USA north 811 “JULIE” Illinois utility clearance provider to notify them of intrusive work on 14 March 2022. Additionally, AECOM contracted Ground Penetrating Radar Systems, LLC (GPRS), a private utility location service, to perform utility clearance. GPRS performed utility clearance of the proposed boring locations on 21 March 2022 with input from the AECOM field team and Peoria AASF #3 facility staff. General locating services and ground-penetrating radar were used to complete the clearance. The first 5 feet of each boring were also 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

Two potable water sources at Peoria AASF #3 were sampled from spigots (PEOR-DECON-01 and PEOR-DECON-02) on 12 August 2021 to assess usability for decontamination of drilling equipment. PEOR-DECON-01 was collected from the eastern exterior wall of the office building north of the entrance gate, whereas PEOR-DECON-02 was collected on the northern exterior wall of the hangar. Results of the samples collected from both locations confirmed these sources to be acceptable for use in this investigation; therefore, they were 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 samples associated with both sources 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, 2021a). 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

Borings were installed in grass areas where possible, to avoid disturbing concrete or asphalt surfaces. Soil samples were collected via direct push technology (DPT), in accordance with the SI QAPP Addendum (AECOM, 2021a). A GeoProbe® 7822DT dual-tube sampling system was used to collect continuous soil cores to the target depth. A hand auger was used to collect soil from the top 5 feet of the boring, in accordance with AECOM utility clearance procedures. The soil boring locations are shown on **Figure 5-1**, and depths are provided **Table 5-1**. 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. One boring, PEOR-04, was drilled within the approximate excavation boundary of the ERP Site 5. All other borings located south of the ramp area were drilled outside of the approximate excavation boundary.

In general, three discrete soil samples were collected from the vadose zone for chemical analysis from each soil boring: one surface soil sample (0 to 2 feet bgs), one subsurface soil sample approximately 2 feet above the groundwater table, and one subsurface soil sample at the mid-point between the surface and the groundwater table. Due to shallow groundwater at AOI02-01, only two discrete soil samples were collected, 0 to 2 feet bgs and 3 to 5 feet bgs.

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 non to low plasticity fines (silts) with varying levels of sand as the dominant lithology of the unconsolidated sediments below the Peoria AASF #3. The borings were completed at depths between 10 and 30 feet bgs. Varying quantities of sand were noted, specifically, isolated layers of silty sand, silty sand with gravel and clayey sand were also observed in the borings with thicknesses ranging from 1 foot to 6 feet. These observations are consistent with the understood depositional environment of the region.

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, 2021a). Grain size samples were not collected during the SI in accordance with the SI QAPP because horizontally and/or vertically extensive clay units were not encountered.

Field duplicate samples were collected at a rate of 10 percent (%) and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. In instances when non-dedicated sampling equipment was used, 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, 2021a) using bentonite chips at completion of sampling activities. Borings were installed in grass areas to avoid disturbing concrete or asphalt surfaces.

5.3 Temporary Well Installation and Groundwater Grab Sampling

Temporary wells were installed using a GeoProbe® 7822DT dual-tube sampling system. Once the borehole was advanced to the desired depth, a temporary well was constructed of a 5-foot section of 1-inch Schedule 40 poly-vinyl chloride (PVC) screen with sufficient casing to reach ground surface. Temporary well AOI03-01 was constructed using two 5-foot screen sections due to the absence of an obvious water-bearing zone, as only a small wet zone at 20 feet bgs was identified in the 30-foot boring. The absence of high conductivity zones at AOI03-01 is evidenced

by the large drawdown experienced during groundwater sampling. 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. Each sample was collected into laboratory-supplied PFAS-free HDPE bottles and labeled using a PFAS-free marker or pen. The temporary wells were purged at a rate determined in the field to reduce turbidity and draw down prior to sampling. Water quality parameters (e.g., temperature, specific conductance, pH, dissolved oxygen [DO], and oxidation-reduction potential [ORP]) were measured using a water quality meter and recorded on the field sampling form (**Appendix B2**) 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. No foaming was noted in any of the groundwater samples. 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, 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. One field reagent blank was collected 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, 2021a) 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

A synoptic groundwater gauging event was performed on 23 March 2022. Groundwater elevation measurements were collected from the 11 new temporary monitoring wells. Water level measurements were taken from the northern side of the well casing. A groundwater flow contour map is provided in **Figure 2-4**. Groundwater elevation data are provided in **Table 5-2**.

5.5 Surveying

The northern side of each well casing was surveyed by Illinois-licensed land surveyors following the SOP guidelines provided in the SI QAPP Addendum (AECOM, 2021a). Survey data from the newly installed wells on the facility were collected on 23 March 2022 in the applicable Universal Transverse Mercator zone projection with Illinois Coordinate System, West Zone, based on the North American Datum of 1983 (NAD83) (horizontal) and North American Vertical Datum 1988 (vertical). The surveyed well data are provided in **Appendix B3**.

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, 2021a) and with the Army Guidance for Addressing Releases of PFAS, Q18 (DA, 2018).

Non-hazardous solid IDW (i.e., soil cuttings) generated during SI activities was left in place at the point of the source. The soil cuttings were distributed on the downgradient side of the borehole. Liquid IDW generated during SI activities (i.e., purge water and decontamination fluids) were containerized in a properly labeled 55-gallon drum and stored on the facility near AOI 2. This IDW assumes the PFAS characteristics of the associated groundwater samples collected from at the facility. Liquid IDW will be further managed under separate ARNG contract in accordance with 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. Soil samples were also analyzed for TOC using USEPA Method 9060A and pH by USEPA Method 9045D.

5.8 Deviations from the SI QAPP Addendum

No deviations from the SI QAPP Addendum were identified during the review of field documentation.

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Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Peoria AASF #3, Illinois

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-0-2	3/22/2022 15:00	0 - 2	x			
AOI01-01-SB-4-6	3/22/2022 15:05	4 - 6	x			
AOI01-01-SB-8-10	3/22/2022 15:10	8 - 10	x			
AOI01-02-SB-0-2	3/22/2022 10:50	0 - 2	x			
AOI01-02-SB-0-2-MS	3/22/2022 10:50	0 - 2	x			MS
AOI01-02-SB-0-2-MSD	3/22/2022 10:50	0 - 2	x			MSD
AOI01-02-SB-4-6	3/22/2022 10:52	4 - 6	x			
AOI01-02-SB-8-10	3/22/2022 10:55	8 - 10	x	x	x	
AOI01-03-SB-0-2	3/22/2022 12:00	0 - 2	x			
AOI01-03-SB-4-6	3/22/2022 12:05	4 - 6	x			
AOI01-03-SB-8-10	3/22/2022 12:10	8 - 10	x			
AOI01-04-SB-0-2	3/21/2022 11:00	0 - 2	x			
AOI01-05-SB-0-2	3/21/2022 16:40	0 - 2	x			
AOI02-01-SB-0-2	3/23/2022 12:00	0 - 2	x			
AOI02-01-SB-3-5	3/23/2022 12:10	3 - 5	x	x	x	
AOI03-01-SB-0-2	3/21/2022 17:00	0 - 2	x			
AOI03-01-SB-0-2-D	3/21/2022 17:00	0 - 2	x			FD
AOI03-01-SB-8-10	3/21/2022 17:05	8 - 10	x	x	x	
AOI03-01-SB-8-10-D	3/21/2022 17:05	8 - 10		x	x	FD
AOI03-01-SB-8-10-MS	3/21/2022 17:05	8 - 10		x	x	MS
AOI03-01-SB-8-10-MSD	3/21/2022 17:05	8 - 10		x	x	MSD
AOI03-01-SB-18-20	3/21/2022 17:10	18 - 20	x			
AOI04-01-SB-0-2	3/23/2022 11:20	0 - 2	x			
AOI04-01-SB-4-6	3/23/2022 11:30	4 - 6	x			
AOI04-01-SB-9-10	3/23/2022 11:35	9 - 10	x			
AOI04-02-SB-0-2	3/23/2022 9:30	0 - 2	x			
AOI04-02-SB-10-12	3/23/2022 10:10	10 - 12	x	x	x	
AOI04-02-SB-18-20	3/23/2022 10:15	18 - 20	x			
PEOR-01-SB-0-2	3/22/2022 13:20	0 - 2	x			
PEOR-01-SB-5-7	3/22/2022 13:25	5 - 7	x			
PEOR-01-SB-11-13	3/22/2022 13:30	11 - 13	x			
PEOR-02-SB-0-2	3/22/2022 17:10	0 - 2	x			
PEOR-02-SB-5-7	3/22/2022 17:15	5 - 7	x			
PEOR-02-SB-10-12	3/22/2022 17:20	10 - 12	x			
PEOR-03-SB-0-2	3/22/2022 16:10	0 - 2	x			
PEOR-03-SB-6-8	3/22/2022 16:15	6 - 8	x			
PEOR-03-SB-13-15	3/22/2022 16:20	13 - 15	x			
PEOR-04-SB-0-2	3/22/2022 9:42	0 - 2	x			
PEOR-04-SB-0-2-D	3/22/2022 9:42	0 - 2	x			FD
PEOR-04-SB-0-2-MS	3/22/2022 9:42	0 - 2	x			MS
PEOR-04-SB-0-2-MSD	3/22/2022 9:42	0 - 2	x			MSD
PEOR-04-SB-6-8	3/22/2022 9:48	6 - 8	x			
PEOR-04-SB-6-8-D	3/22/2022 9:48	6 - 8	x			FD
PEOR-04-SB-13-15	3/22/2022 9:55	13 - 15	x			
PEOR-04-SB-13-15-D	3/22/2022 9:55	13 - 15	x			FD

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Peoria AASF #3, Illinois

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	3/22/2022 16:30	NA	x			
AOI01-02-GW	3/22/2022 12:18	NA	x			
AOI01-03-GW	3/22/2022 15:20	NA	x			
AOI02-01-GW	3/23/2022 13:30	NA	x			
AOI03-01-GW	3/22/2022 10:05	NA	x			
AOI03-01-GW-D	3/22/2022 10:05	NA	x			FD
AOI03-01-GW-MS	3/22/2022 10:15	NA	x			MS
AOI03-01-GW-MSD	3/22/2022 10:15	NA	x			MSD
AOI04-01-GW	3/23/2022 11:58	NA	x			
AOI04-02-GW	3/23/2022 11:30	NA	x			
PEOR-01-GW	3/22/2022 14:45	NA	x			
PEOR-01-GW-D	3/22/2022 14:45	NA	x			FD
PEOR-02-GW	3/23/2022 8:45	NA	x			
PEOR-03-GW	3/23/2022 9:20	NA	x			
PEOR-04-GW	3/22/2022 13:00	NA	x			
Quality Control Samples						
PEOR-FRB-01	3/22/2022 10:00	NA	x			
PEOR-DECON-01	8/12/2021 10:50	NA	x			from outside spigot
PEOR-DECON-02	8/12/2021 11:00	NA	x			from outside spigot
PEOR-DECON-03	3/23/2022 10:10	NA	x			from CTS holding tank
PEOR-ERB-01	3/23/2022 10:25	NA	x			from hand auger
PEOR-ERB-02	3/23/2022 10:42	NA	x			from hand auger
PEOR-ERB-03	3/23/2022 12:30	NA	x			from DPT shoe
PEOR-ERB-04	3/23/2022 12:40	NA	x			from DPT shoe

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

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

Area of Interest	Boring Location	Soil Boring Depth (feet bgs)	Temporary Well Screen Interval (feet bgs)	Top of Casing Elevation (feet NAVD88)	Ground Surface Elevation (feet NAVD88)	Depth to Water (feet btoc)	Depth to Water (feet bgs)	Groundwater Elevation (feet NAVD88)
1	AOI01-01	25	20 - 25	639.97	639.30	7.45	6.78	632.52
	AOI01-02	25	20 - 25	638.73	638.20	8.69	8.16	630.04
	AOI01-03	25	20 - 25	639.56	639.02	8.85	8.31	630.71
2	AOI02-01	10	5 - 10	647.11	646.70	2.75	2.33	644.36
3	AOI03-01	30	20 - 30	647.53	646.92	5.65	5.03	641.88
4	AOI04-01	20	15 - 20	646.90	646.42	4.99	4.50	641.91
	AOI04-02	25	20 - 25	645.95	645.47	5.50	5.02	640.45
Facility-wide	PEOR-01	15	10 - 15	649.35	649.10	2.43	2.19	646.92
	PEOR-02	20	15 - 20	643.99	643.38	6.38	5.77	637.61
	PEOR-03	20	15 - 20	642.84	642.37	8.55	8.08	634.29
	PEOR-04	25	20 - 25	633.44	632.72	5.48	4.76	627.96

Notes:
AASF = Army Aviation Support Facility
AOI = area of interest
bgs = below ground surface
btoc = below top of casing
NAVD88 = North American Vertical Datum 1988

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CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	8/1/2022	GIS BY	MS	8/1/2022
SCALE	1:3,960	CHK BY	JH	8/1/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	8/1/2022

N

Site Inspection Sample Locations

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

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6. Site Inspection Results

This section presents the analytical results of the SI. The SLs used in this evaluation are presented in **Section 6.1**. A discussion of the results for each AOI is provided in **Section 6.3** through **Section 6.6**. **Table 6-2** through **Table 6-5** 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 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 Tri-Max 30™ Former FTA

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1: Tri-Max 30™ Former FTA. The soil and groundwater results are summarized on **Table 6-2** through **Table 6-5**. 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** through **Table 6-4** summarize the soil results.

AOI 1 is located in the middle of the ramp. In order to avoid intrusive activities on the concrete, borings were drilled downgradient of the AOI. Soil was sampled from surface soil (0 to 2 feet bgs), from AOI01-01 to AOI01-05 and PEOR-04. Soil was also sampled from shallow subsurface soil at depths between 4 to 15 feet bgs from AOI01-01 to AOI01-03 and PEOR-04. Deep subsurface soil was not collected at AOI 1.

In surface soil, PFOS was detected at all six borings, with concentrations above the SL of 13 micrograms per kilogram (µg/kg) at five of the locations. PFOS concentrations ranged from 2.54 µg/kg at AOI01-05 to 342 J µg/kg at PEOR-04. PFOA, PFHxS, PFNA, and PFBS were detected at concentrations below their respective SLs:

- PFOA and PFNA were detected at all six locations, with concentrations ranging from 0.153 J µg/kg to 3.53 µg/kg.
- PFHxS was detected at all six boring locations, with concentrations ranging from 0.432 J µg/kg to 41.2 µg/kg.
- PFBS was detected at four of six boring locations, with concentrations ranging from 0.027 J µg/kg to 0.507 J µg/kg.

PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in shallow subsurface soil at concentrations below their respective SLs:

- PFOA was detected in seven of eight samples, with concentrations ranging from 0.109 J µg/kg to 1.54 µg/kg.
- PFOS was detected in seven of eight samples, with concentrations ranging from 1.10 J µg/kg to 76.4 J µg/kg.

- PFHxS was detected at in all eight samples, with concentrations ranging from 0.083 J µg/kg to 19.4 µg/kg.
- PFNA was detected in five of eight samples, with concentrations ranging from 0.025 J µg/kg to 1.92 µg/kg.
- PFBS was detected in four of eight samples, with concentrations ranging from 0.048 J µg/kg to 0.612 J 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 6-5** summarizes the groundwater results.

Groundwater was sampled from temporary monitoring wells AOI01-01 through AOI01-03 and downgradient well PEOR-04. PFOA, PFOS, PFHxS, and PFNA were detected in concentrations above their respective SLs:

- PFOA was detected above the SL of 6 nanograms per liter (ng/L) in all four wells, with concentrations ranging from 116 ng/L at AOI01-02 to 4,770 ng/L at AOI01-03.
- PFOS was detected above the SL of 4 ng/L in all four wells, with concentrations ranging from 17.8 ng/L at AOI01-01 to 7,560 ng/L at AOI01-03.
- PFHxS was detected above the SL of 39 ng/L in all four wells, with concentrations ranging from 341 ng/L at AOI01-01 to 7,250 ng/L at AOI01-03.
- PFNA was detected above the SL of 6 ng/L in three of four wells, with detected concentrations ranging from 15.6 ng/L at AOI01-03 to 44.0 ng/L at AOI01-02. PFNA was not detected in well AOI01-01.

PFBS was detected below the SL of 601 ng/L in all four wells, with concentrations ranging from 28.9 ng/L to 210 ng/L.

6.3.3 AOI 1 Conclusions

Based on the results of the SI, PFOS was detected in surface soil above the SL. PFOA, PFHxS, PFNA, and PFOS were 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 Bulk AFFF Storage

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 2: Bulk AFFF Storage. The results for soil and groundwater are summarized on **Table 6-2** through **Table 6-5**. 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 PFAS detections in soil. **Table 6-2** through **Table 6-4** summarize the soil results.

Soil at AOI 2 was sampled from surface soil (0 to 2 feet bgs) and shallow subsurface soil (3 to 5 feet bgs) at AOI02-01. Deep subsurface soil was not collected at AOI 2 due to the shallow depth to groundwater.

In surface soil, PFOS, PFHxS, and PFNA were detected below their respective SLs, with concentrations ranging from 0.060 J µg/kg to 1.28 µg/kg; PFOA and PFBS were not detected. PFOS was detected in shallow subsurface soil below the SL, with a concentration of 0.417 J µg/kg. PFOA, PFHxS, PFNA, and PFBS were not detected in the shallow subsurface soil samples.

Soil was also sampled from the upgradient boundary location PEOR-01 from the surface (0 to 2 feet bgs) and shallow subsurface (5 to 7 feet bgs and 11 to 13 feet bgs) intervals. PFOA, PFOS, PFHxS, and PFNA were all detected below their respective SLs in surface soil, with concentrations ranging from 0.089 J µg/kg to 0.819 J µg/kg; PFBS was not detected. In shallow subsurface soil, PFOS and PFHxS were detected below their respective SLs, with concentrations ranging from 0.113 J µg/kg to 0.496 J µg/kg. The highest concentrations of PFOS and PFHxS were detected at the 11- to 13-foot interval. PFOA, PFNA, and PFBS 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 PFAS detections in groundwater. **Table 6-5** summarizes the groundwater results.

Groundwater was sampled from temporary monitoring well AOI02-01. PFOS was detected above the SL of 4 ng/L at a concentration of 28.4 ng/L. PFOA, PFHxS, and PFBS were detected below their respective SLs: PFOA at 4.23 ng/L, PFHxS at 38.2 ng/L, and PFBS at 2.70 J ng/L. PFNA was not detected in groundwater at AOI 2.

Groundwater was also sampled from the upgradient temporary well PEOR-01. PFOS and PFHxS were detected at concentrations above their respective SLs, with concentrations of 8.56 ng/L and 55.1 ng/L, respectively. PFOA and PFBS were detected below their SLs in groundwater, with concentrations of 2.89 J ng/L and 10.5 ng/L, respectively. PFNA was not detected in groundwater at PEOR-01.

6.4.3 AOI 2 Conclusions

Based on the results of the SI, PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in soil at concentrations below their respective SLs. PFOS and PFHxS were detected in groundwater at concentrations above their respective SLs. Based on the exceedances of the SLs in groundwater, further evaluation at AOI 2 is warranted. Exceedances in the upgradient PEOR-01 may indicate adjacent release areas may be contributing to the concentrations observed at the facility.

6.5 AOI 3 Former ANG Firehouse (Building 12)

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 3: Former ANG Firehouse. The results in soil and groundwater are presented in **Table 6-2** through **Table 6-5**. 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 PFAS detections in soil. **Table 6-2** through **Table 6-4** summarize the soil results.

Soil was sampled at the surface (0 to 2 feet bgs), shallow subsurface (8 to 10 feet bgs), and deep subsurface (18 to 20 feet bgs) at boring AOI03-01. In surface soil, PFOA, PFHxS, PFNA, PFBS, and PFOS were detected at concentrations below their respective SLs: PFOA at 0.348 J µg/kg, PFOS at 1.97 µg/kg, PFHxS at 0.340 J µg/kg, PFNA at 0.113 J µg/kg, and. PFBS at 0.042 J µg/kg.

In shallow subsurface soil, PFOS, PFHxS, and PFBS were detected at concentrations below their respective SLs, with concentrations ranging from 0.032 J µg/kg to 1.07 J µg/kg. PFOA and PFNA were not detected in shallow subsurface soil at AOI 3. PFOS was detected in deep subsurface soil at a concentration of 0.232 J µg/kg. PFOA, PFHxS, PFNA, and PFBS were not detected in deep subsurface soil.

Soil was also sampled at the surface (0 to 2 feet bgs) and shallow subsurface (5 to 15 feet bgs) at downgradient boundary boring locations PEOR-02 and PEOR-03. PFOS in surface soil exceeded the SL of 13 µg/kg at PEOR-03, with a concentration of 16.1 µg/kg. PFOS was also detected below the SL at PEOR-02, with a concentration of 9.89 µg/kg. PFOA, PFHxS, PFNA, and PFBS were detected in surface soil below their respective SLs, with concentrations ranging from 0.024 J µg/kg to 1.96 µg/kg.

PFOA, PFOS, PFHxS, PFNA, and PFBS were all detected below their respective SLs in shallow subsurface soil at PEOR-02 and PEOR-03:

- PFOA was detected in two of four samples, with concentrations ranging from 0.109 J µg/kg to 0.548 J µg/kg.
- PFOS and PFHxS were detected in all four samples, with concentrations ranging from 0.099 J µg/kg to 3.13 µg/kg.
- PFNA was only detected at PEOR-02, with a concentration of 0.058 J µg/kg.
- PFBS was detected in three of four samples, with concentrations ranging from 0.025 J µg/kg to 0.042 J µg/kg.

The maximum concentrations for all five analytes detected in the shallow subsurface soil at the downgradient boundary locations were observed in the 5 to 7 feet bgs samples collected at PEOR-02.

6.5.2 AOI 3 Groundwater Analytical Results

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

Groundwater was sampled from temporary monitoring well AOI03-01. PFOA was detected above the SL of 6 ng/L at a concentration of 76.8 ng/L. PFOS was detected above the SL of 4 ng/L at a concentration of 15.7 ng/L. PFHxS was detected above the SL of 39 ng/L at a concentration of 321 J- ng/L. PFBS was detected below the SL of 601 ng/L at a concentration of 49.9 ng/L. PFNA was not detected.

Groundwater was also sampled at the downgradient boundary temporary wells PEOR-02 and PEOR-03. SLs exceedances were as follows:

- PFOA exceeded the SL of 6 ng/L with concentrations of 69.7 ng/L at PEOR-02 and 951 ng/L at PEOR-03.
- PFOS exceeded the SL of 4 ng/L with concentrations of 138 ng/L at PEOR-02 and 44.3 ng/L at PEOR-03.
- PFHxS exceeded the SL of 39 ng/L with concentrations of 419 ng/L at PEOR-02 and 1,020 ng/L at PEOR-03.

PFNA was detected below the SL of 6 ng/L in one well (PEOR-02) at 4.86 ng/L. PFBS was detected below the SL of 601 ng/L in both wells at concentrations of 15.0 ng/L at PEOR-02 and 200 ng/L at PEOR-03.

6.5.3 AOI 3 Conclusions

Based on the results of the SI, PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in soil at concentrations below their respective SLs. PFOA, PFHxS, 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.

6.6 AOI 4 Former Metal Plating Facility

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 4: Former Metal Plating Facility. The results in soil and groundwater are presented in **Table 6-2** through **Table 6-5**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.6.1 AOI 4 Soil Analytical Results

Figure 6-1 through **Figure 6-5** present the ranges of detections in soil. **Table 6-2** through **Table 6-4** summarize the soil results.

Soil was sampled from surface soil (0 to 2 feet bgs) from boring locations AOI04-01 and AOI04-02. Soil was also sampled from the shallow subsurface (4 to 6 feet bgs and 9 to 10 feet bgs) interval at AOI04-01. Soil was also sampled from AOI04-02 at the shallow subsurface (10 to 12 feet bgs) and deep subsurface (18 to 20 feet bgs) intervals.

PFOS, PFHxS, and PFBS were detected in surface soil at concentrations below their respective SLs. PFOS was detected at both locations, AOI04-01 and AOI04-02, with concentrations of 0.324 J µg/kg and 0.906 µg/kg, respectively. PFHxS was only detected at AOI04-02 with a concentration of 0.166 J µg/kg. PFBS was only detected at AOI04-02, with a concentration of 0.032 J µg/kg. PFOA and PFNA were not detected in surface soil at AOI 4.

PFOA, PFOS, PFHxS, and PFBS were detected in shallow subsurface soil at concentrations below their respective SLs:

- PFOA was only detected at AOI04-02 with a concentration 0.387 J µg/kg.
- PFOS and PFHxS were detected in all three subsurface soil samples, with concentrations ranging from 0.183 J µg/kg to 3.28 µg/kg.
- PFBS was detected in two of three samples (both at AOI04-01), with concentrations of 0.028 J µg/kg (4 to 6 feet bgs) and 0.049 J µg/kg (9 to 10 feet bgs).
- PFNA was not detected in shallow subsurface soil at AOI 4.

PFHxS was detected in deep subsurface soil at AOI04-02, with a concentration of 0.054 J µg/kg. PFOA, PFOS, PFNA, and PFBS were not detected in deep subsurface soil.

Soil was also sampled from the downgradient facility boundary boring locations PEOR-02 and PEOR-03. Data from these borings are described in **Section 6.5.1**.

6.6.2 AOI 4 Groundwater Analytical Results

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

Groundwater was sampled from temporary monitoring well locations AOI04-01 and AOI04-02. PFOA, PFOS, and PFHxS were detected above their respective SLs. PFOA was detected above the SL of 6 ng/L in both temporary well locations, with concentrations of 22.5 ng/L at AOI04-01

and 50.7 ng/L at AOI04-02. PFOS was detected above the SL of 4 ng/L at both temporary wells, with concentrations of 25.6 ng/L at AOI04-01 and 123 ng/L at AOI04-02. PFHxS was detected above the SL of 39 ng/L both temporary wells, with concentrations of 264 ng/L at AOI04-01 and 175 ng/L at AOI04-02. PFBS was detected below the SL of 601 ng/L at both locations, with concentrations of 61.5 ng/L at AOI04-01 and 16.6 ng/L at AOI04-02. PFNA was not detected in groundwater at AOI 4.

Groundwater was also sampled from the downgradient facility boundary temporary monitoring wells PEOR-02 and PEOR-03. Data from these wells are described in **Section 6.5.2**.

6.6.3 AOI 4 Conclusions

Based on the results of the SI, PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in soil at concentrations below their respective SLs. PFOA, PFOS, and PFHxS were detected in groundwater at concentrations above their respective SLs. Based on the exceedances of the SLs in groundwater, further evaluation at AOI 4 is warranted.

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Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Peoria Army Aviation Support Facility #3

Area of Interest		AOI01										AOI02		AOI03				AOI04			
Sample ID		AOI01-01-SB-0-2		AOI01-02-SB-0-2		AOI01-03-SB-0-2		AOI01-04-SB-0-2		AOI01-05-SB-0-2		AOI02-01-SB-0-2		AOI03-01-SB-0-2		AOI03-01-SB-0-2-D		AOI04-01-SB-0-2		AOI04-02-SB-0-2	
Sample Date		03/22/2022		03/22/2022		03/22/2022		03/21/2022		03/21/2022		03/23/2022		03/21/2022		03/21/2022		03/23/2022		03/23/2022	
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		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**	**Result**	**Qual**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																					
PFBS	1900	ND	U	ND	U	0.507	J	0.041	J	0.027	J	ND	U	ND	UJ	0.042	J	ND	U	0.032	J
PFHxS	130	0.697	J	0.722	J	41.2		1.52		0.432	J	0.122	J	0.192	J	0.340	J	ND	U	0.166	J
PFNA	19	0.672	J	0.574	J	0.265	J	0.456	J	0.153	J	0.060	J	ND	UJ	0.113	J	ND	U	ND	U
PFOA	19	0.335	J	0.290	J	0.529	J	0.265	J	0.249	J	ND	U	ND	UJ	0.348	J	ND	U	ND	U
PFOS	13	23.6		44.3	J	155		24.0		2.54		1.28		0.118	J	1.97		0.324	J	0.906	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.

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	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, Peoria Army Aviation Support Facility #3

	Area of Interest	Sitewide									
	Sample ID	PEOR-01-SB-0-2		PEOR-02-SB-0-2		PEOR-03-SB-0-2		PEOR-04-SB-0-2		PEOR-04-SB-0-2-D	
	Sample Date	03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022	
	Depth	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
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)											
PFBS	1900	ND	U	0.024	J	ND	U	0.050	J	0.062	J
PFHxS	130	0.181	J	1.96		0.778	J	3.30		4.70	
PFNA	19	0.089	J	0.160	J	0.262	J	2.55		3.53	
PFOA	19	0.621	J	0.290	J	0.129	J	1.15	J	1.10	J
PFOS	13	0.819	J	9.89		16.1		180	J	342	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.

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	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, Peoria Army Aviation Support Facility #3

Area of Interest		AOI01												AOI02		AOI03		AOI04			
Sample ID		AOI01-01-SB-4-6		AOI01-01-SB-8-10		AOI01-02-SB-4-6		AOI01-02-SB-8-10		AOI01-03-SB-4-6		AOI01-03-SB-8-10		AOI02-01-SB-3-5		AOI03-01-SB-8-10		AOI04-01-SB-4-6		AOI04-01-SB-9-10	
Sample Date		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/23/2022		03/21/2022		03/23/2022		03/23/2022	
Depth		4-6 ft		8-10 ft		4-6 ft		8-10 ft		4-6 ft		8-10 ft		3-5 ft		8-10 ft		4-6 ft		9-10 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	ND	U	ND	U	ND	U	ND	U	0.612	J	0.080	J	ND	U	0.032	J	0.028	J	0.049	J
PFHxS	1600	1.76		0.083	J	1.05	J	0.477	J	19.4		1.69		ND	U	1.07	J	0.183	J	0.658	J
PFNA	250	ND	U	ND	U	1.92		0.242	J	0.120	J	ND	U	ND	U	ND	U	ND	U	ND	U
PFOA	250	0.133	J	ND	U	1.54		0.109	J	0.241	J	0.123	J	ND	U	ND	U	ND	U	ND	U
PFOS	160	ND	U	1.10	J	57.6		14.9		60.2		4.76		0.417	J	0.307	J	0.498	J	3.28	

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	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, Peoria Army Aviation Support Facility #3

	Area of Interest	AOI04		Sitewide																	
	Sample ID	AOI04-02-SB-10-12		PEOR-01-SB-5-7		PEOR-01-SB-11-13		PEOR-02-SB-5-7		PEOR-02-SB-10-12		PEOR-03-SB-6-8		PEOR-03-SB-13-15		PEOR-04-SB-6-8		PEOR-04-SB-6-8-D		PEOR-04-SB-13-15	
	Sample Date	03/23/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022		03/22/2022	
	Depth	10-12 ft		5-7 ft		11-13 ft		5-7 ft		10-12 ft		6-8 ft		13-15 ft		6-8 ft		6-8 ft		13-15 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	ND	U	ND	U	ND	U	0.042	J	ND	U	0.039	J	0.025	J	0.073	J	0.098	J	0.048	J
PFHxS	1600	1.10	J	0.330	J	0.496	J	2.31		0.127	J	0.866	J	0.099	J	2.47		3.26		0.674	J
PFNA	250	ND	U	ND	U	ND	U	0.058	J	ND	U	ND	U	ND	U	0.447	J	0.890	J	0.025	J
PFOA	250	0.387	J	ND	U	ND	U	0.548	J	ND	U	0.109	J	ND	U	0.587	J	0.786	J	0.197	J
PFOS	160	0.967	J	0.113	J	0.193	J	3.13		0.766	J	0.134	J	0.166	J	37.4	J	76.4	J	15.3	

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	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, Peoria Army Aviation Support Facility #3

	Area of Interest	Sitewide	
	Sample ID	PEOR-04-SB-13-15-D	
	Sample Date	03/22/2022	
	Depth	13-15 ft	
Analyte	**OSD Screening Level [a]**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)			
PFBS	25000	0.139	J
PFHxS	1600	5.09	J
PFNA	250	0.100	J
PFOA	250	1.35	J
PFOS	160	19.7	

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	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 Deep Subsurface Soil
Site Inspection Report, Peoria Army Aviation Support Facility #3

Area of Interest	AOI03		AOI04	
Sample ID	AOI03-01-SB-18-20		AOI04-02-SB-18-20	
Sample Date	03/21/2022		03/23/2022	
Depth	18-20 ft		18-20 ft	
Analyte	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)				
PFBS	ND	U	ND	U
PFHxS	ND	U	0.054	J
PFNA	ND	U	ND	U
PFOA	ND	U	ND	U
PFOS	0.232	J	ND	U

Interpreted Qualifiers

J = Estimated concentration

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
DL	detection limit
ft	feet
ID	identification
LCMSMS	liquid chromatography with tandem mass spectrometry
LOD	limit of detection
ND	analyte not detected above the LOD
QSM	Quality Systems Manual
Qual	interpreted qualifier
SB	soil boring
µg/kg	micrograms per kilogram

Table 6-5
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Peoria Army Aviation Support Facility #3

Area of Interest		AOI01						AOI02		AOI03				AOI04				Sitewide	
Sample ID		AOI01-01-GW		AOI01-02-GW		AOI01-03-GW		AOI02-01-GW		AOI03-01-GW		AOI03-01-GW-D		AOI04-01-GW		AOI04-02-GW		PEOR-01-GW	
Sample Date		03/22/2022		03/22/2022		03/22/2022		03/23/2022		03/22/2022		03/22/2022		03/23/2022		03/23/2022		03/22/2022	
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	72.2		28.9		210		2.70	J	40.8		49.9		61.5		16.6		10.5	
PFHxS	39	341		745		7250		38.2		259	J-	321	J-	264		175		55.1	
PFNA	6	ND	U	44.0		15.6		ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFOA	6	306		116		4770		4.23		62.2		76.8		22.5		50.7		2.89	J
PFOS	4	17.8		2180		7560		28.4		12.3		15.7		25.6		123		8.56	

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

J- = Estimated concentration, biased low

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
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 6-5
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Groundwater
Site Inspection Report, Peoria Army Aviation Support Facility #3

Area of Interest		Sitewide							
Sample ID		PEOR-01-GW-D		PEOR-02-GW		PEOR-03-GW		PEOR-04-GW	
Sample Date		03/22/2022		03/23/2022		03/23/2022		03/22/2022	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Water, LCMSMS compliant with QSM 5.3 Table B-15 (ng/l)									
PFBS	601	9.97		15.0		200		65.3	
PFHxS	39	51.6		419		1020		769	
PFNA	6	ND	U	4.86		ND	U	39.4	
PFOA	6	2.69	J	69.7		951		205	
PFOS	4	7.48		138		44.3		3120	

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

J- = Estimated concentration, biased low

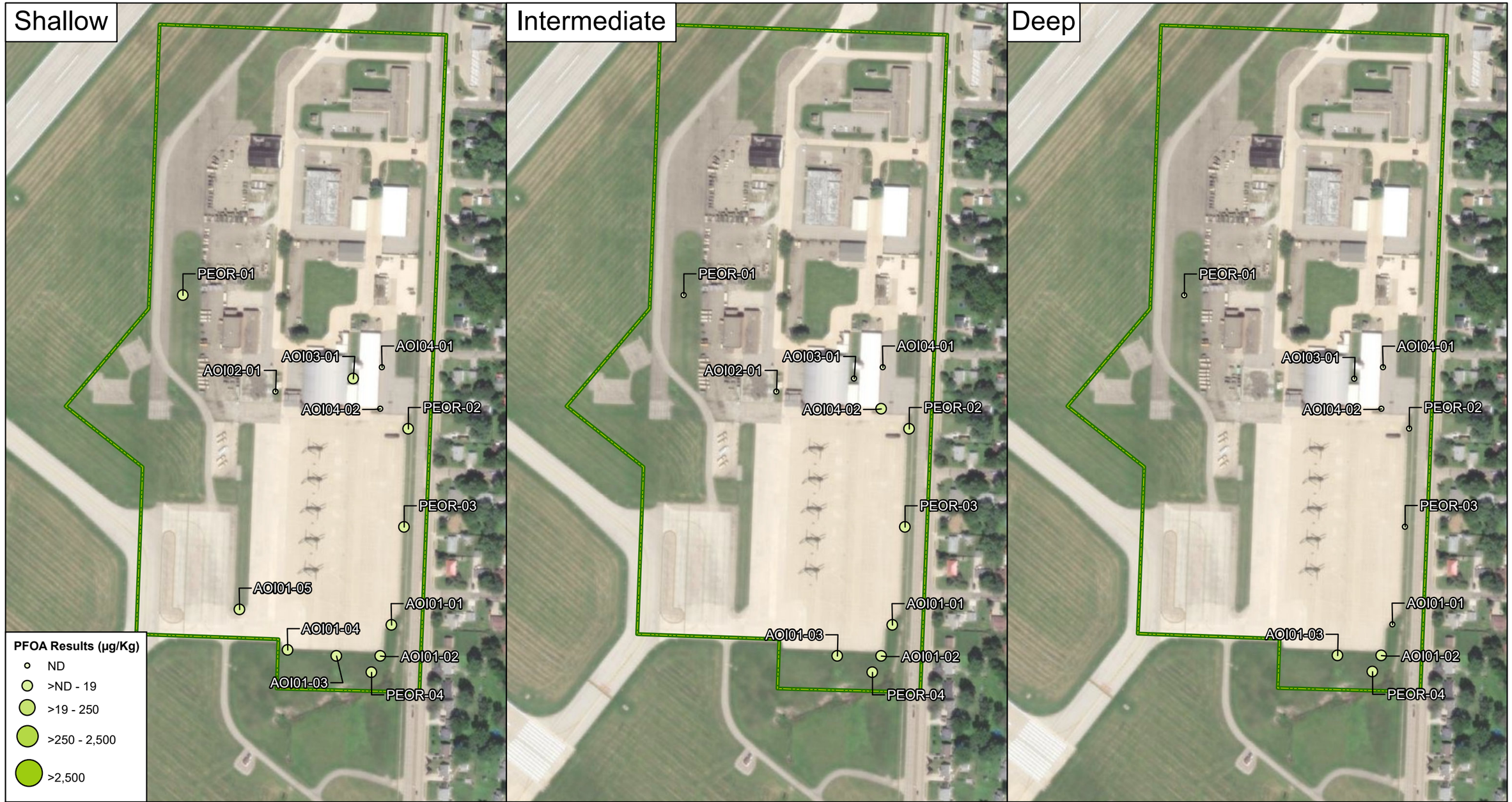
U = The analyte was not detected at a level greater than or equal to the adjusted DL

Chemical Abbreviations

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

Acronyms and Abbreviations

AOI	Area of Interest
D	duplicate
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



CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	4/7/2023	GIS BY	MS	4/7/2023
SCALE	1:3,840	CHK BY	JH	4/7/2023
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	4/7/2023

Legend

Facility Boundary

0 160 320 640 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.

N

PFOA Detections in Soil

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-1

Shallow

Intermediate

Deep

PEOR-01
AOI03-01
AOI04-01
AOI02-01
AOI04-02
PEOR-02
PEOR-03
AOI01-05
AOI01-01
AOI01-02
AOI01-04
AOI01-03
PEOR-04

PFOS Results (µg/Kg)

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

CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	9/7/2022	GIS BY	MS	9/7/2022
SCALE	1:3,840	CHK BY	JH	9/7/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	9/7/2022

Legend

Facility Boundary

0 160 320 640 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.

N

PFOS Detections in Soil

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-2

Shallow

Intermediate

Deep

PEOR-01
AOI03-01
AOI04-01
AOI02-01
AOI04-02
PEOR-02
PEOR-03
AOI01-05
AOI01-01
AOI01-04
AOI01-02
AOI01-03
PEOR-04

PFBS Results (µg/Kg)

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

CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	9/7/2022	GIS BY	MS	9/7/2022
SCALE	1:3,840	CHK BY	JH	9/7/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	9/7/2022

Legend

Facility Boundary

0 160 320 640 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.

N

PFBS Detections in Soil

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-3

Shallow

Intermediate

Deep

PEOR-01
AOI03-01
AOI04-01
AOI02-01
AOI04-02
PEOR-02
PEOR-03
AOI01-05
AOI01-01
AOI01-04
AOI01-02
AOI01-03
PEOR-04

PFHxS Results (µg/Kg)

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

CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	9/7/2022	GIS BY	MS	9/7/2022
SCALE	1:3,840	CHK BY	JH	9/7/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	9/7/2022

Legend

Facility Boundary

0 160 320 640 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.

N

PFHxS Detections in Soil

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-4

Shallow

Intermediate

Deep

PEOR-01
AOI03-01
AOI04-01
AOI02-01
AOI04-02
PEOR-02
PEOR-03
AOI01-05
AOI01-01
AOI01-04
AOI01-02
AOI01-03
PEOR-04

PFNA Results (µg/Kg)

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

CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	9/7/2022	GIS BY	MS	9/7/2022
SCALE	1:3,840	CHK BY	JH	9/7/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	9/7/2022

Legend

Facility Boundary

0 160 320 640 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.

N

PFNA Detections in Soil

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-5

PFOA

PFOS

PFBS

PEOR-01
AOI03-01
AOI04-01
AOI02-01
PEOR-02
AOI04-02
PEOR-03
AOI01-01
AOI01-03
AOI01-02
PEOR-04

PFOA Results (ng/L)
- ND
- >ND - 6
- >6 - 40
- >40 - 70
- >70

PFOS Results (ng/L)
- ND
- >ND - 4
- >4 - 40
- >40 - 70
- >70

PFBS Results (ng/L)
- ND
- >ND - 100
- >100 - 601
- >601 - 2,000
- >2,000

CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	10/13/2022	GIS BY	MS	10/13/2022
SCALE	1:3,840	CHK BY	JH	10/13/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	10/13/2022

Legend
- Facility Boundary
- Groundwater Flow Direction

0 160 320 640 Feet

N

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

PFOA, PFOS, and PFBS Detections in Groundwater

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-6

PFHxS

PEOR-01
AOI03-01
AOI04-01
AOI02-01
PEOR-02
AOI04-02
PEOR-03
AOI01-01
AOI01-03
AOI01-02
PEOR-04

PFHxS Results (ng/L)

- ND
- >ND - 39
- >39 - 100
- >100 - 1,000
- >1,000

PFNA

PEOR-01
AOI03-01
AOI04-01
AOI02-01
PEOR-02
AOI04-02
PEOR-03
AOI01-01
AOI01-03
AOI01-02
PEOR-04

PFNA Results (ng/L)

- ND
- >ND - 6
- >6 - 100
- >100 - 1,000
- >1,000

CLIENT	ARNG			
PROJECT	Site Inspection at Peoria AASF, IL			
REVISED	9/7/2022	GIS BY	MS	9/7/2022
SCALE	1:3,840	CHK BY	JH	9/7/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	9/7/2022

Legend

- Facility Boundary
- Groundwater Flow Direction

0 160 320 640 Feet

N

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

PFHxS and PFNA Detections in Groundwater

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

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 7-4**. Please note that while the CSM discussion assists in determining if a receptor may be impacted, the decision to move from SI to RI or interim action is determined based upon exceedances of the SLs for the relevant compounds and whether the release is more than likely attributable to the DoD. A CSM presents the current understanding of the site conditions with respect to known and suspected sources, potential transport mechanisms and migration pathways, and potentially exposed human receptors. A human exposure pathway is considered potentially complete when the following conditions are present:

1. Contaminant source;
2. Environmental fate and transport;
3. Exposure point;
4. Exposure route; 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 (although 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, AOI 3, and AOI 4 based on the aforementioned criteria.

7.1.1 AOI 1

AOI 1 is where training use of Tri-Max 30™ fire extinguishers occurred sometime between 2000 and 2002. During one event, one Tri-Max 30™ fire extinguisher was discharged on the ramp area between Pad 5 and 6. Runoff from the ramp flows south, into the grassy area immediately adjacent to the ramp, and ultimately into a ditch that drains into the stormwater system and to the Illinois River.

PFOS was detected in surface soil above the SL at AOI 1 and the downgradient facility boundary location PEOR-04. PFOA, PFHxS, PFNA, and PFBS were also detected in surface soil below their respective SLs at AOI 1. Site workers, construction workers, and trespassers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathways for site workers, future construction workers, and trespassers are potentially complete. Additionally, off-facility residents could contact constituents in dust via inhalation during construction activities. Consequently, the dust inhalation pathway for future off-facility residents is potentially complete. PFOA, PFOS, PFHxS, PFNA, and PFBS, were detected in shallow subsurface soil at concentrations below their respective SLs. Construction workers could contact constituents in shallow subsurface soil during future construction activities; therefore the shallow subsurface soil 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 is where three 6-gallon drums of bulk AFFF concentrate were stored in the POL Building during the late 1990s. No information was available on the type or concentration of the AFFF stored in the drums. During the VSI, the 6-gallon drums of AFFF were not observed at the facility. It is unknown if the drums of AFFF were removed from the facility when the Tri-Max 30™ fire extinguishers were taken to Camp Lincoln in approximately 2004 or 2005. There are no drains in the POL Building; however, there is grass/dirt in the surrounding area.

PFOS, PFHxS, and PFNA were detected in surface soil below their respective SLs at AOI 2. Site workers, construction workers, and trespassers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathways for site workers, future construction workers, and trespassers are potentially complete. Additionally, off-facility residents could contact constituents in dust via inhalation during construction activities. Consequently, the dust inhalation pathway for future off-facility residents is potentially complete. PFOS was detected in shallow subsurface soil below the SL. Construction workers could contact constituents in shallow subsurface soil during future construction activities; therefore the shallow subsurface soil pathway for future construction workers is potentially complete. Additionally, PFOA, PFOS, PFHxS, and PFNA were detected in surface soil and PFOS and PFHxS were detected shallow subsurface soil below their respective SLs at the upgradient facility boundary location PEOR-01. The CSM for AOI 2 is presented on **Figure 7-2**.

7.1.3 AOI 3

AOI 3 is where Building 12 was utilized as a firehouse by the ILANG before the ILANG vacated the facility in 1997. ILANG operations at the firehouse are unknown. The ILANG has been located on the Peoria International Airport property since 1947. Because AFFF was introduced to the ANG in the 1970s, and based on findings of the ILANG SI (Amec Foster Wheeler, 2018) conducted at the current ILANG location, it is presumed that AFFF was maintained on firetrucks at the Firehouse, and annual nozzle testing was conducted prior to ILANG moving in 1997. A grassy area exists on the north side of the building, with pavement or other buildings on the west, south, and east sides of the building.

PFOA, PFHxS, PFNA, PFBS, and PFOS were detected in surface soil at concentrations below their respective SLs at AOI 3. PFOS exceeded the SL in surface soil at the downgradient boundary location PEOR-03. Site workers, construction workers, and trespassers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathways for site workers, future construction workers, and trespassers are potentially complete. Additionally, off-facility residents could contact constituents in dust via inhalation during construction activities. Consequently, the dust inhalation pathway for future off-facility residents is potentially complete. PFOS, PFHxS, and PFBS were detected in shallow

subsurface soil at concentrations below their respective SLs. Construction workers could contact constituents in shallow subsurface soil during future construction activities; therefore the shallow subsurface soil pathway for future construction workers is potentially complete. The CSM for AOI 3 is presented on **Figure 7-3**.

7.1.4 AOI 4

AOI 4 is where Building 2 was used as a metal plating facility from the 1940s to 1990s. Multiple metals, such as chromium, cadmium, and zinc, were used in the plating and electroplating process. Plating operations commonly involve PFAS-containing mist suppressants to reduce the risk of metal fires. There is no knowledge of any AFFF-related activities at this building, and it is possible that PFAS-containing materials were used or stored at some point in Building 2. The waste created from the metal plating process was disposed of in the sinks and building drains. It is reported that all drains lead to an oil/water separator and ultimately to the Greater Peoria sanitary WWTP.

PFOS, PFHxS, and PFBS were detected in surface soil at concentrations below their respective SLs. PFOS exceeded the SL in surface soil at the downgradient boundary location PEOR-03. Site workers, construction workers, and trespassers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathways for site workers, future construction workers, and trespassers are potentially complete. Additionally, off-facility residents could contact constituents in dust via inhalation during construction activities. Consequently, the dust inhalation pathway for future off-facility residents is potentially complete. PFOA, PFOS, PFHxS, and PFBS were detected in shallow subsurface soil at concentrations below their respective SLs. Construction workers could contact constituents in shallow subsurface soil during future construction activities; therefore the shallow subsurface soil pathway for future construction workers is potentially complete. The CSM for AOI 4 is presented on **Figure 7-4**.

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. The groundwater sampled in the SI was collected from the surficial water table aquifer.

Common to each of the AOIs is the presence of private and public wells within a 4-mile radius of the facility. With SL exceedances occurring at all four AOIs, the pathway for exposure to off-facility residents via ingestion of groundwater is considered potentially complete. The facility itself obtains their water from the City of Bartonville. The Sankoty Sand aquifer that supplies municipal water to the City of Bartonville is 1.5 miles to the east of the facility. Because the aquifer is side-gradient of the facility, the pathway for exposure to site workers via ingestion of groundwater is considered incomplete. Unique features of each AOI are presented below.

7.2.1 AOI 1

PFOA, PFOS, PFHxS, and PFNA were detected above their respective SLs in groundwater samples collected at AOI 1 and at the downgradient facility boundary location PEOR-04. Depths to water measured at AOI 1 in March 2022 during the SI ranged from 6.78 to 8.31 feet bgs. Therefore, in addition to the off-facility residents, the ingestion exposure pathway for future construction workers is considered potentially complete. The CSM for AOI 1 is presented on **Figure 7-1**.

7.2.2 AOI 2

PFOS was detected in groundwater above the SL at AOI 2. PFOS and PFHxS was detected in groundwater above their respective SLs at the upgradient facility boundary location PEOR-01. Depth to water measured at AOI 2 in March 2022 during the SI was 2.33 feet bgs. Therefore, in addition to the off-facility residents, the ingestion exposure pathway for future construction workers is considered potentially complete. The CSM for AOI 2 is presented on **Figure 7-2**.

7.2.3 AOI 3

PFOA, PFHxS, and PFOS were detected in groundwater at concentrations above their respective SLs at AOI 3 and at the two downgradient facility boundary locations, PEOR-02 and PEOR-03. Depths to water measured at AOI 3 in March 2022 during the SI was 5.03 feet bgs. Therefore, in addition to the off-facility residents, the ingestion exposure pathway for future construction workers is considered potentially complete. The CSM for AOI 3 is presented on **Figure 7-3**.

7.2.4 AOI 4

PFOA, PFHxS, and PFOS were detected in groundwater at concentrations above their respective SLs at AOI 4 and at the two downgradient facility boundary locations, PEOR-02 and PEOR-03. Depths to water measured at AOI 4 in March 2022 during the SI was 4.50 to 5.02 feet bgs. Therefore, in addition to the off-facility residents, the ingestion exposure pathway for future construction workers is considered potentially complete. The CSM for AOI 4 is presented on **Figure 7-4**.

7.3 Surface Water and Sediment Exposure Pathway

Surface water and sediment samples were not collected during the SI. 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.

Common to each of the AOIs is the lack of surface water features within the facility boundary. Therefore, the surface water and sediment ingestion exposure pathway for site workers, construction workers, or trespassers is considered incomplete. Unique features of each AOI are presented below.

7.3.1 AOI 1

PFAS are water soluble and can migrate readily from soil to surface water via leaching and run-off. Because PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in soil and groundwater at AOI 1, it is possible that those compounds may have migrated from soil and shallow groundwater to the nearby streams that feed into the Lamarsh Creek Watershed and the Pekin Lake-Illinois River Watershed to the east and southwest of the facility. Due to potential recreational use of the nearby streams and rivers, the surface water and sediment ingestion exposure pathway for off-facility residents and recreational users is considered potentially complete.

7.3.2 AOI 2

Because PFOS, PFHxS, and PFNA were detected in soil and PFOA, PFOS, PFHxS, and PFBS were detected in groundwater at AOI 2, it is possible that those compounds may have migrated from soil and groundwater to the nearby streams. Due to potential recreational use of the nearby streams and rivers, the surface water and sediment ingestion exposure pathway for off-facility residents and recreational users is considered potentially complete.

7.3.3 AOI 3

Because PFOA, PFHxS, PFNA, PFBS, and PFOS were detected in soil and PFOA, PFOS, PFHxS, and PFBS were detected in groundwater at AOI 3, it is possible that those compounds may have migrated from soil and groundwater to the nearby streams. Due to potential recreational use of the nearby streams and rivers, the surface water and sediment ingestion exposure pathway for off-facility residents and recreational users is considered potentially complete.

7.3.4 AOI 4

Because PFOA, PFOS, PFHxS, and PFBS were detected in soil and PFOA, PFOS, PFHxS, and PFBS were detected in groundwater at AOI 4, it is possible that those compounds may have migrated from soil and groundwater to the nearby streams. Due to potential recreational use of the nearby streams and rivers, the surface water and sediment ingestion exposure pathway for off-facility residents and recreational users is considered potentially complete.

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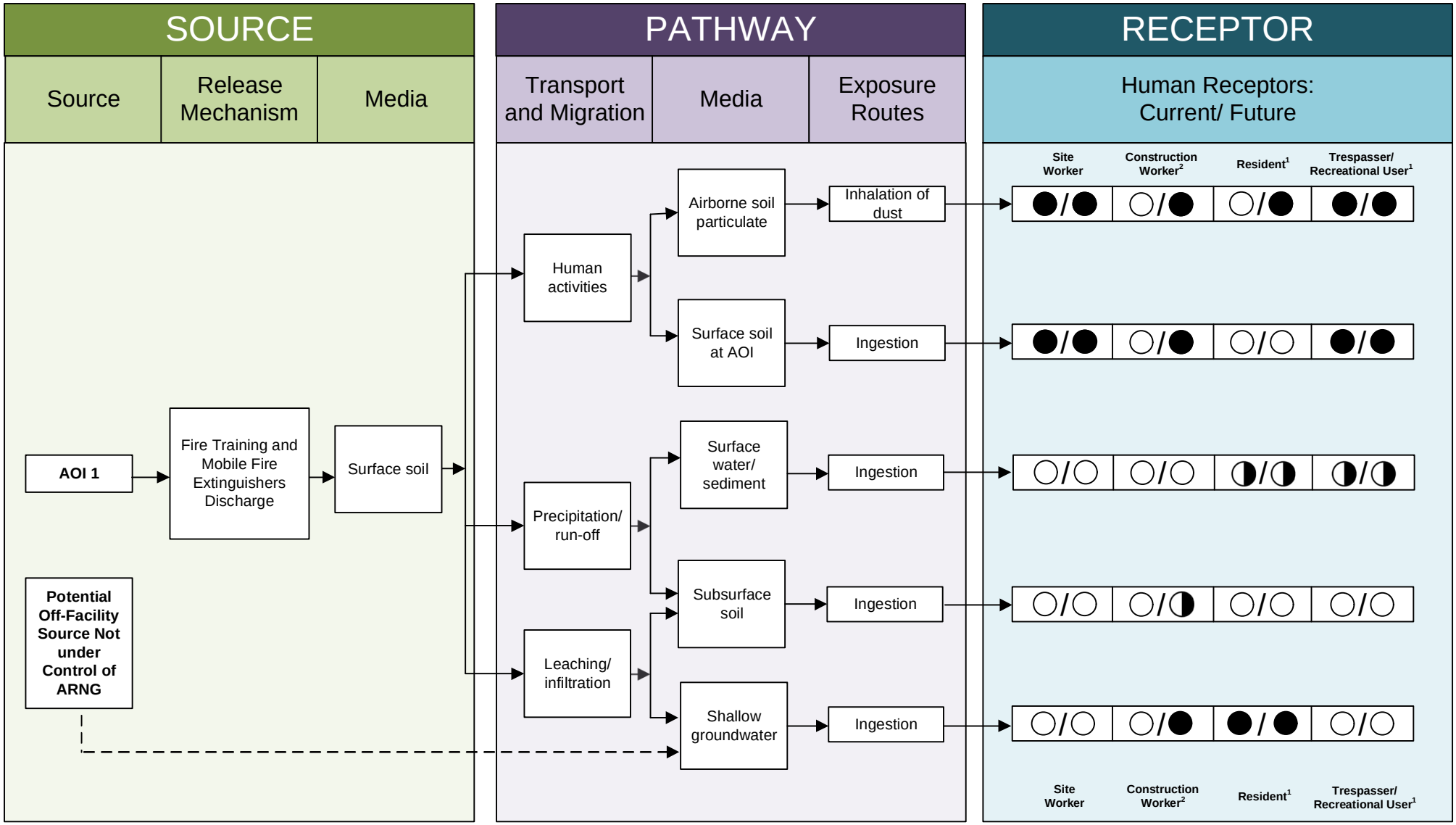


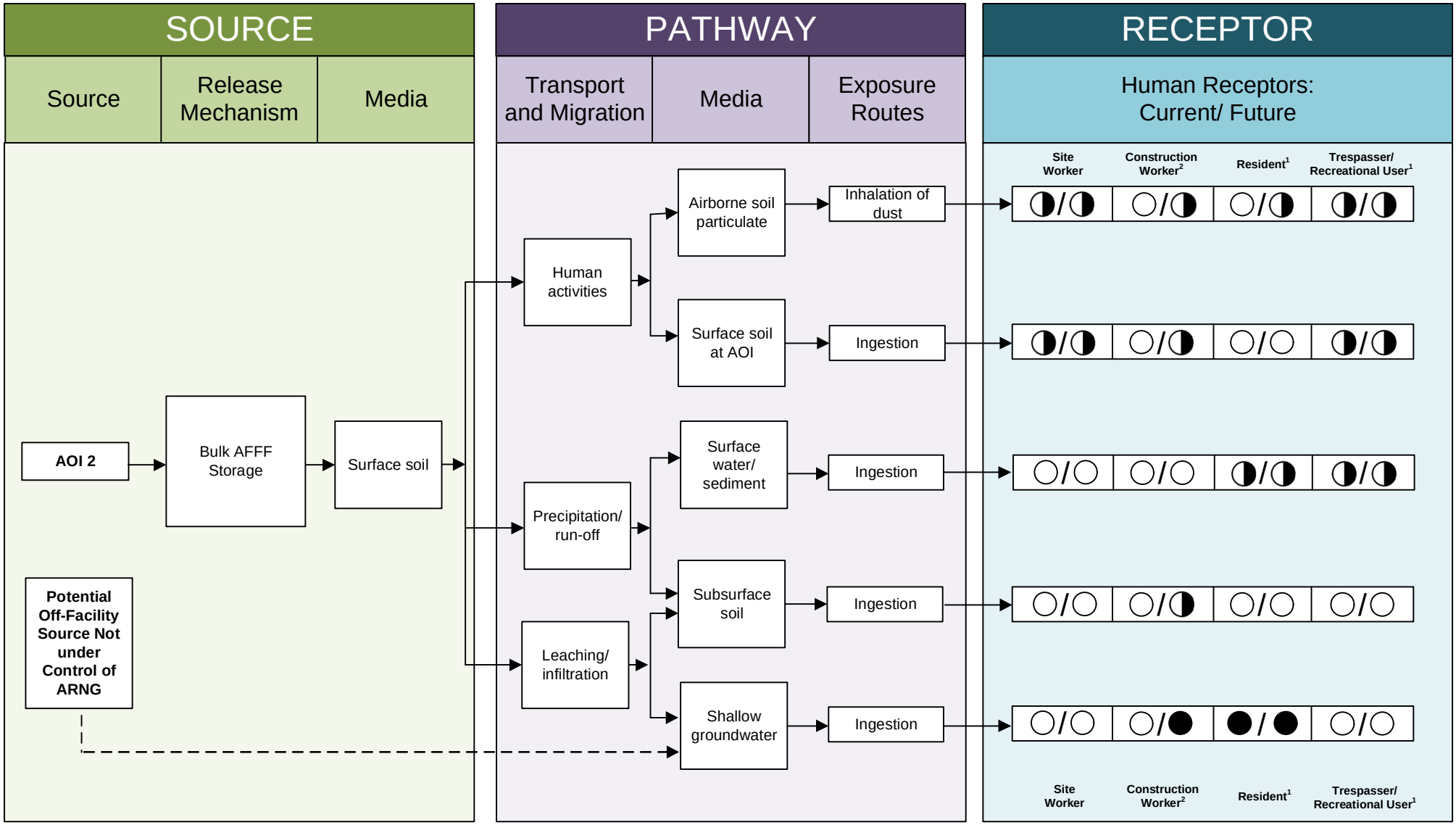
LEGEND

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

Notes:

1. The resident and recreational users refer to off-site receptors.
2. No current active construction at the facility.

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



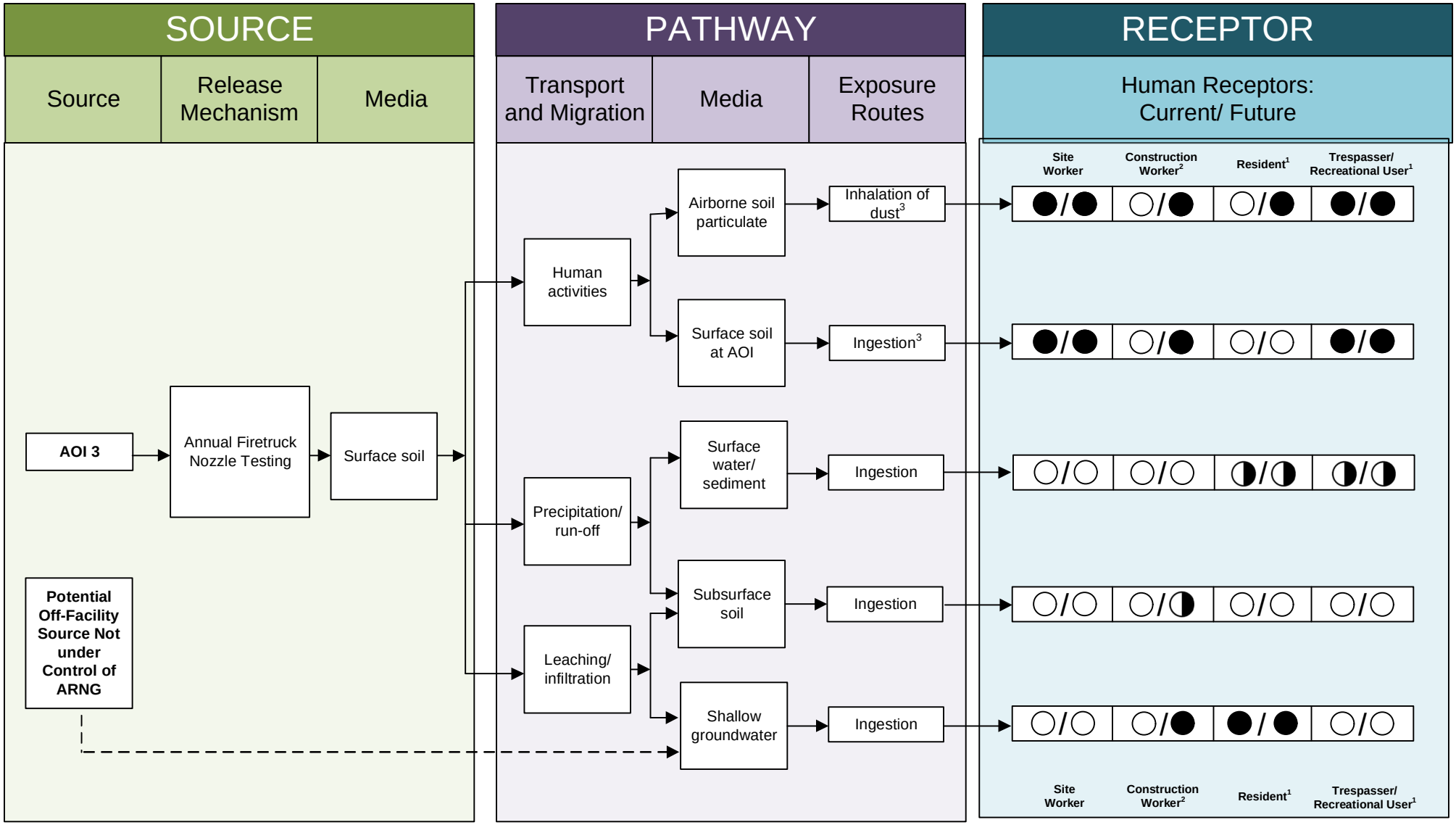
LEGEND

- 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. No current active construction at the facility.

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



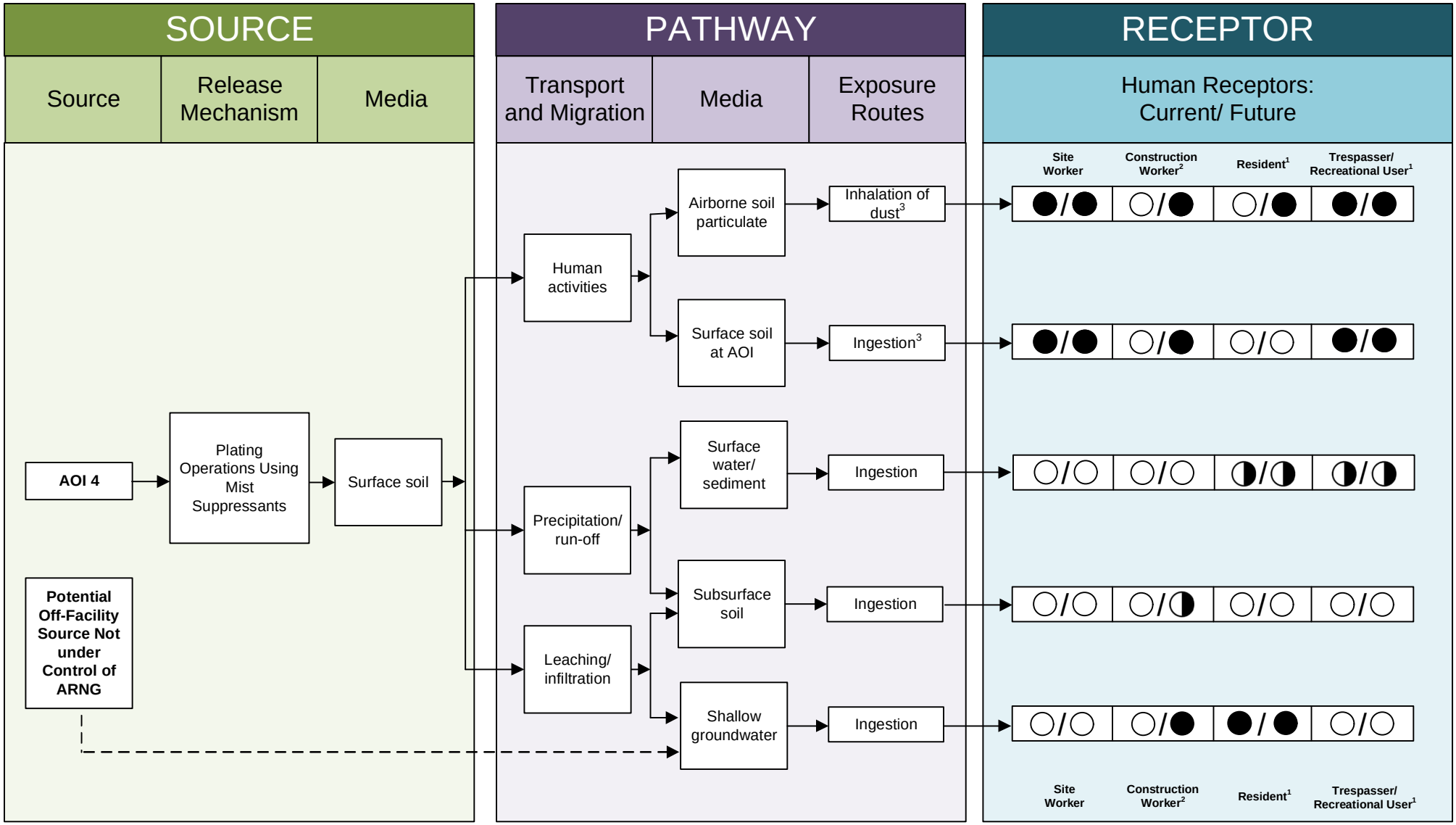
LEGEND

- 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. No current active construction at the facility.
3. Pathway result conservatively based off downgradient SL exceedance at PEOR-03.

Figure 7-3
Conceptual Site Model, AOI 3
Peoria 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. No current active construction at the facility.
3. Pathway result conservatively based off downgradient SL exceedance at PEOR-03.

Figure 7-4
Conceptual Site Model, AOI 4
Peoria AASF #3

8. Summary and Outcome

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

8.1 SI Activities

The SI field activities were conducted from 21 to 23 March 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, 2021a).

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

- Thirty-four (34) soil samples from 13 boring locations;
- Eleven (11) grab groundwater samples from 11 temporary well locations;
- 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, AOI 3, and AOI 4 (see **Table 8-1**). Based on the CSMs developed and revised in light of the SI findings, there is potential for exposure to receptors from AOI 1, AOI 2, AOI 3, and AOI 4 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 Tri-Max 30™ Former FTA:
    - PFOS was detected in surface soil at concentrations above the respective SLs. PFOS exceed the SL of 13 µg/kg, with a maximum concentration of 342 J µg/kg at the downgradient location PEOR-04. The detected concentrations of PFOA, PFHxS, PFNA and PFBS in soil at AOI 1 were below their respective SLs.
    - PFOA, PFOS, PFHxS, and PFNA were detected in groundwater at concentrations above their respective SLs. PFOA exceeded the SL of 6 ng/L, with a maximum concentration of 4,770 ng/L at location AOI01-03. PFHxS exceeded the SL of 39 ng/L, with a maximum concentration of 7,250 ng/L at location AOI01-03. PFNA exceeded the SL of 6 ng/L, with a maximum concentration of 44 ng/L at AOI01-02. PFOS exceeded the SL of 4 ng/L, with a maximum concentration of 7,560 ng/L at AOI01-03. Based on the results of the SI, further evaluation of AOI 1 is warranted in the RI.

- At AOI 2 Bulk AFFF Storage:
    - The detected concentrations of PFOS, PFHxS, and PFNA in soil at AOI 2 were below their respective SLs. PFOA and PFBS were not detected in soil at AOI 2.
    - PFOS was detected in groundwater above the SL of 4 ng/L, with a concentration of 28.4 ng/L. In the upgradient facility boundary location PEOR-01, PFOS and PFHxS exceeded the SLs, with concentrations of 8.56 ng/L and 55.1 ng/L, respectively. Based on the results of the SI, further evaluation of AOI 2 is warranted in the RI.
- At AOI 3 Former ANG Firehouse (Building 12):
    - The detected concentrations of PFOA, PFOS, PFHxS, PFNA and PFBS in soil at AOI 3 were below their respective SLs. PFOS at downgradient boundary location PEOR-03 exceeded the surface soil SL of 13 µg/kg, with a concentration of 16.1 µg/kg.
    - PFOA, PFOS, and PFHxS were detected in groundwater at concentrations above their respective SLs. PFOA exceeded the SL of 6 ng/L, with a maximum concentration of 76.8 ng/L at location AOI03-01. PFOS exceeded the SL of 4 ng/L, with a maximum concentration of 15.7 ng/L at AOI03-01. PFHxS exceeded the SL of 39 ng/L, with a maximum concentration of 321 J- ng/L at location AOI03-01. Downgradient boundary well locations also exceeded the SLs for PFOA, PFOS, and PFHxS. Based on the results of the SI, further evaluation of AOI 3 is warranted in the RI.
- At AOI 4 Former Metal Plating Facility:
    - The detected concentrations of PFOA, PFOS, PFHxS, and PFBS in soil at AOI 4 were below their respective SLs. PFOS at downgradient boundary location PEOR-03 exceeded the surface soil SL of 13 µg/kg, with a concentration of 16.1 µg/kg.
    - PFOA, PFOS, and PFHxS, were detected in groundwater at concentrations above their respective SLs. PFOA exceeded the SL of 6 ng/L, with a maximum concentration of 50.7 ng/L at AOI04-02. PFOS exceeded the SL of 4 ng/L, with a maximum concentration of 123 ng/L at AOI04-02. PFHxS exceeded the SL of 39 ng/L, with a maximum concentration of 264 ng/L at AOI04-01. Downgradient boundary well locations also exceeded the SLs for PFOA, PFOS, and PFHxS. Based on the results of the SI, further evaluation of AOI 4 is warranted in the RI.

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	Tri-Max 30™ FTA	●	●	●	Proceed to RI
2	Bulk AFFF Storage	◐	●	●	Proceed to RI
3	Former ANG Firehouse (Building 12)	◐	●	●	Proceed to RI
4	Former Metal Plating Facility	◐	●	●	Proceed to RI

Legend:

● = detected; exceedance of the screening levels

◐ = detected; no exceedance of the screening levels

○ = not detected

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