FINAL
Site Inspection Report
Bangor Training Site
Bangor, Maine

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
ABB-ES	ABB Environmental Services
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film-forming foam
amsl	above mean sea level
AOI	Area of Interest
ARNG	Army National Guard
ASTM	American Society for Testing and Materials
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
DOT	Department of Transportation
DQO	data quality objective
DUA	data usability assessment
ELAP	Environmental Laboratory Accreditation Program
EM	Engineer Manual
ERB	equipment rinsate blank
FedEx	Federal Express
FMS	Field Maintenance Shop
FTA	fire training area
gpm	gallons per minutes
GPS	global positioning system
GPRS	Ground Penetrating Radar Systems
HDPE	high-density polyethylene
HFPO-DA	hexafluoropropylene oxide dimer acid
HSA	Hollow Stem Auger
IDW	investigation-derived waste
ITRC	Interstate Technology Regulatory Council
LC/MS/MS	liquid chromatography with tandem mass spectrometry
MEANG	Maine Air National Guard
MEARNG	Maine Army National Guard
MEDEP	Maine Department of Environmental Protection
MIL-SPEC	military specification
NELAP	National Environmental Laboratory Accreditation Program
ng/L	nanograms per liter
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
PQAPP	Programmatic UFP-QAPP
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
RI	Remedial Investigation
SI	Site Inspection
SL	screening level
SOP	standard operating procedure
TOC	total organic carbon
TPP	Technical Project Planning
UFP	Uniform Federal Policy
US	United States
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
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 (PFAS) with a focus on the six compounds presented in the memorandum from the Office of the Secretary of Defense (OSD) dated 6 July 2022 (Assistant Secretary of Defense, 2022). The six compounds listed in the OSD memorandum include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), hexafluoropropylene oxide dimer acid (HFPO-DA)[1], and perfluorobutanesulfonic acid (PFBS). These compounds are collectively referred to as "relevant compounds" throughout the document and the applicable screening levels (SLs) are provided in **Table ES-1**.

The PA identified two Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed, or released historically (see **Table ES-2** for AOI locations). The objective of the SI is to identify whether there has been a release to the environment from the AOIs identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on SLs for relevant compounds. This SI was completed at the Bangor Training Site in Bangor, Maine and determined further evaluation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is warranted for AOI 1 and AOI 2. The Bangor Training Site will also be referred to as the "facility" throughout this document.

The MEARNG Bangor Training Site comprises 213.7 acres and 13 buildings between two properties located immediately east and west of the Bangor International Airport, in the city of Bangor, Penobscot County, Maine. One property is located to the east of the runway and one is located to the west. Both MEARNG properties are owned by the Federal Government and licensed to MEARNG.

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

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

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

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

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

a.) Assistant Secretary of Defense, 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 6 July 2022.

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

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

AOI	Potential Release Area	Soil – Potential Source Area	Groundwater – Potential Source Area	Groundwater – Facility Boundary	Future Action
1	Building 260	◐	●	●	Proceed to RI
2	Building 254	◐	●	●	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 Bangor Training Site in Bangor, Maine.

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 the Bangor Training Site (AECOM Technical Services, Inc. [AECOM], 2020) and identified two Areas of Interest (AOIs) in the eastern property where PFAS-containing materials may have been used, stored, disposed, or released historically. The PA did not identify any AOIs in the western property, therefore the focus of this report will be on the eastern property. 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 Maine ARNG (MEARNG) Bangor Training Site comprises 213.7 acres and 13 buildings between two properties located immediately adjacent to the Bangor International Airport runway, in the City of Bangor, Penobscot County, Maine (MEARNG, 2015) (**Figure 2-1**). One property is located to the east of the runway, and one is located to the west. Both MEARNG properties are owned by the Federal Government and licensed to MEARNG. Both the east and west properties were evaluated during the PA (AECOM, 2020), but AOIs were only identified in the eastern property and are the focus of this SI.

Prior to the opening of Bangor International Airport in 1931, the area surrounding the airport was primarily agricultural property. After the development of the airport, portions of the surrounding area were developed as industrial property. In the early 1940s, the Dow Airfield Military Base was developed in the area as a military installation, which remained in operation until 1968. From 1968 to the present day, parcels of land associated with the former Dow Airfield Military Base have been developed as commercial properties (Summit Environmental Consultants, Inc., 2011).

The eastern property of the facility is made up of seven parcels and comprises approximately 51.85 acres of the 213.7 acres. The main operational buildings include Field Maintenance Shop (FMS) #3, an Aviation Readiness Center (located between Buildings 260 and 254), and an Army Aviation Support Facility (AASF) (Building 260). Ground equipment maintenance occurs at FMS #3, and maintenance of helicopters occurs at the AASF. The AASF also serves as the flight operations center for the Aviation Companies. There are also several support buildings at the facility, including an aircraft hangar (Building 254) used for cold storage, a covered fuel truck building that provides secondary containment for refueling vehicles, a Controlled Humidity Storage Building used for cold storage, and a concrete block building used as a petroleum, oil, and lubricants and hazardous materials storage (Civil Engineering Services [CES], Inc., 2017).

2.2 Facility Environmental Setting

This section presents information obtained from several sources, including the 2011 Environmental Baseline Study for the MEANRG Parcel 3 on the Bangor Training Site western property (Summit Environmental Consultants, Inc., 2011), the 2015 MEARNG Integrated Cultural Resources Management Plan Update (MEARNG, 2015), and the 2017 Integrated Contingency Plan for the facility (CES, Inc., 2017). The Bangor Training Site lies within the Coastal Province of Maine and is characterized by relatively flat terrain. Topographic relief across the region is largely influenced by structural features greatly modified by Pleistocene glaciation (Hunt, 1974). The facility of the facility is approximately 2 miles west of the confluence of the Kenduskeag Stream and Penobscot River. Development of the Dow Airfield Military Base and surrounding area modified the ground surface and reduced topographic relief. As a result, elevations at the facility range 170 to 240 feet amsl (Amec Foster Wheeler, 2018) (**Figure 2-2**).

2.2.1 Geology

This section presents information from the *2018 MEANG Final FY16 Phase 1 Regional SI for Perfluorinated Compounds at the adjacent Bangor Air National Guard Base* (Amec Foster Wheeler, 2018). The Bangor Training Site is situated within the folded and faulted, metamorphosed, Paleozoic strata of the northeast-trending Kearsarge-Central Maine Synclinorium. The oldest known rocks consist of interbedded pelite and sandstone overlain by mafic to felsic volcanic rock of Cambrian and Ordovician age. These rocks are unconformably

overlain by late Ordovician-early Silurian age beds (Vassalboro Formation) of fine- to medium-grained feldspathic graywacke with layers or lenses of phyllite (Griffin, 1976).

Regional overburden materials include the glacial moraine deposits of the Presumpscot Formation, glacial-stream deposits, and till. The Presumpscot Formation consists of silt, clay, and sand washed from glacial ice and deposited on the ocean floor during the Late Wisconsinan (Pleistocene) glacial stage (Thompson, 1977). The formation can reach up to 125 feet in thickness and is locally fossiliferous. Near the facility, the Presumpscot Formation is typified by poorly drained, low-permeability clayey silts. Glacial-stream deposits consist of well-sorted sands and gravels deposited in layers by meltwater streams and currents during Late Wisconsinan deglaciation. The deposits are commonly overlapped or entirely buried by the Presumpscot Formation and include glacial features such as kames and kame terraces, deltas, kettles, eskers, and outwash plains (Thompson, 1977). The glacial-stream deposits located nearest the facility are found along the Kenduskeag Stream. Glacial till is composed of a heterogeneous mixture of clay, silt, sand, gravel, cobbles, and boulders deposited directly by glacial ices. One of two varieties (basal or ablation) may be present in the area. Basal till is fine-grained, very compact, and exhibits low permeability and poor drainage. Ablation till consists of loose, sandy to stony material, characterized by moderate permeability and fair to good drainage. Glacial till generally overlies bedrock but may overlie or include sand and gravel (Thompson, 1977).

Subsurface soils encountered near the facility during a 1997 MEANG SI (ABB Environmental Services [ABB-ES], 1997) at the adjacent MEANG base generally consisted of clay to silty clay, silt, silty sand, or sand with trace to some gravel. Loose to moderately dense soils overlying dense or very dense materials were encountered and were characterized as typical of the glacial till deposits, as described by Thompson (1977), for the Bangor quadrangle. Bedrock was encountered between 4 to 16 feet below ground surface (bgs) in some borings. Bedrock in this area is likely the Vassalboro Formation, which consists of dark gray phyllite with quartz stringers (**Figure 2-3**). Wet fracture zones were also encountered. A geotechnical investigation completed by Summit Geoengineering Services in August 2005 at the adjacent western property encountered bedrock at depths ranging from 1.5 inches to 15.5 feet bgs. These depths are consistent with observations at the nearby MEANG facility.

During the SI, fine to silty sand was observed as the dominant lithology of the unconsolidated sediments below the eastern property. The borings were completed at depths between 6 and 12 feet bgs. Many of the borings, varying percentages of gravel included in the sand packages and intermittent layers of cobble stone were encountered. Samples for grain size analyses were collected from finer-grained zones in soil borings AOI01-01 and AOI02-03 and analyzed via American Society for Testing and Materials (ASTM) Method D-422. The results indicate that the soil samples are comprised primarily of silt (60.38 percent [%] to 67.50%) and clay (30.29% to 31.28%). Bedrock was encountered at AOI 2 at depths ranging from 3 to 12 feet bgs. These results and facility observations are consistent with the reported depositional environment of the region. Boring logs are presented in **Appendix E**, and grain size results are presented in **Appendix F**.

2.2.2 Hydrogeology

The facility lies within the lower Penobscot River Basin, which covers an area of approximately 825 square miles. The largest supplies of groundwater in the basin occur in the unconsolidated deposits formed by glaciofluvial processes. Under favorable conditions, as much as 1,000 gallons of water per minute (gpm) may be obtained from wells constructed in ice-contact deposits (Prescott, 1964).

The nearest sand and gravel aquifers are located over three miles southwest of the facility, at the southern end of Hermon Bog (Foster & Smith, 1992). The bedrock formations in the lower

Penobscot River Basin are sparsely fractured, and groundwater is generally only present in these secondary openings. Hydraulic continuity varies widely depending on the size of the fractures. A 1964 survey of 613 bedrock wells in the lower Penobscot River Basin found that groundwater yields ranged from less than 0.5 to 100 gpm (Prescott, 1964). Drinking water for the facility is provided by the Bangor Water District and is sourced from Floods Pond. In addition, an active potable well provides water to the Engagement Skills Trainer building. This well has tested positive for PFAS and is sampled bi-annually for PFAS, as discussed later in this section.

During a 1997 MEANG SI, depth to groundwater at the adjacent MEANG base was observed at depths ranging from 8 to 23 feet bgs (ABB-ES, 1997). The water table appeared to be present in the overburden at the southern portion of the MEANG base (closer to the Bangor Training Site) and in the bedrock at the northern end of the base. Groundwater levels in MEANG monitoring wells ranged from approximately 1 to 15 feet bgs that were 1 to 4 feet higher in the spring. Groundwater at the MEANG base flows southeast, towards the Penobscot River; however, local groundwater flow conditions in the overburden till may be locally influenced (as evidenced by the results of the SI) by large structures that extend below the surface and extend across large surface areas on the various properties across Bangor International Airport. Average hydraulic conductivity values were 4.09×10^{-3} feet per minute for bedrock wells, and 5.0074×10^{-3} feet per minute for overburden wells (ABB-ES, 1997).

Depths to water measured in April 2022 during the Bangor Training Site SI ranged from 1.52 to 6.84 feet bgs. Hydraulic gradient was measured at approximately 0.0012 feet per foot. The general topography of the surrounding area would suggest that the groundwater flow direction is southeast (similar to the observed groundwater flow at the adjacent MEANG facility); however, site-specific groundwater flow collected during this SI indicates that groundwater flows west as presented on **Figure 2-4**. Depth to water was observed to be shallow in many of the borings drilled across the facility. Additionally, several borings encountered bedrock refusal indicating a potential bedrock high underlying the facility. These depth to water measurements and observed groundwater flow direction may be influenced by the bedrock surface or other lithologic feature beneath the facility. Further sampling and evaluation are required to refine the observed groundwater flow direction.

Using data from the Maine Well Database, potable wells were identified within a 4-mile radius of the MEARNG property, including domestic, commercial, and municipal water supply wells as indicated in **Figure 2-3** (Maine Geological Survey, 2020). Five wells are identified as being within 1-mile and potentially downgradient/cross-gradient of the facility (based on observed groundwater flow during the SI). These potable wells are all open bedrock wells with total depths ranging from 65 to 425 feet bgs. In all five wells, the overburden has been cased off thus preventing hydraulic communication between the overburden and bedrock at the well head. Additionally, the MEARNG sampled water from a drinking water well supplying the Engagement Skills Trainer building on 16 May 2017 for 18 PFAS. The well was installed on 3 May 2013 to a total depth of 600 feet bgs. The well casing was installed to 30 feet bgs, with bedrock encountered at 18 feet bgs. PFOA and PFBS were detected at concentrations of 4.47 nanograms per liter (ng/L) and 2.54 ng/L, respectively, and PFOS was not detected. Tabulated results from this sampling event are included in the PA report (AECOM, 2020). Due to the 2017 PFAS detections in drinking water, sampling for PFAS was mandated by the ARNG. Water from the Engagement Skills Trainer building is sampled bi-annually for PFAS. In August 2018, PFOA and PFBS were detected at concentrations of 24.7 ng/L and 8.9 ng/L, respectively; PFOS was not detected. Laboratory results from the August 2018 sampling event are included in the PA report (AECOM, 2020). In response to these results, the MEARNG voluntarily cut-off and capped the drinking water fountains in the building supplied by the well on the western property. During the PA, no AOIs were identified in this portion of the facility related to ARNG activities, as a result, this area was not evaluated as part of the SI (see Section 1).

2.2.3 Hydrology

No surface water features are present on the MEARNG Bangor Training Site eastern property. The “Domestic Channel”, which is a channelized portion of Birch Stream, abuts the property to the west-northwest and is the nearest surface waterbody. According to Maine Department of Environmental Protection (MEDEP), Birch Stream and Shaw Brook are considered "urban impaired streams" for which the City of Bangor has a Watershed Management Plan. Storm water runoff from the facility flows into storm drains located on the property and in the vicinity and drain to the Domestic Channel. The Domestic Channel/Birch Stream drains into the Kenduskeag Stream (CES, Inc., 2017), which is located approximately 1 mile northeast of the facility. Surface water features are presented on **Figure 2-5**.

2.2.4 Climate

Bangor is located less than 50 miles from the Atlantic Ocean and within 30 miles of Penobscot Bay. The climate of Bangor is categorized as humid continental, with cold, snowy winters and warm summers. The weather in Bangor is influenced by air masses that originate from several general regions. Continental air masses originating in the North America polar region consist of dry, cool air. Warm maritime air masses can originate either from the subtropical Atlantic Ocean or Gulf of Mexico, and cold maritime air masses can originate from the sub-polar regions of the North Atlantic. Air masses that flow into Maine often originate in the prevailing westerlies (Amec Foster Wheeler, 2018).

The average temperature ranges from 21.8 degrees Fahrenheit (°F) in the winter to 67.1°F in the summer, with an annual average temperature of 45°F. Bangor receives an average annual precipitation in rainfall of 41.71 inches and an average annual precipitation in snowfall of 74.6 inches (National Oceanic and Atmospheric Administration, 2022). Rainfall is distributed evenly throughout the year, with the wettest month being November and the driest month being January. Snowfall generally occurs in November to April, with most snowfall occurring between December and March.

2.2.5 Current and Future Land Use

The MEARNG Bangor Training Site is used for the maintenance of rotary wing aircrafts and ground vehicles. Activities carried out at the facility include administrative and financial services, training of personnel, warehousing of supplies and equipment, building maintenance and repair, and vehicle maintenance and repair.

Land use around the Bangor Training Site is consistent with the City of Bangor Zoning for Airport Development District. The facility is located within the Bangor International Airport complex, which is surrounded by mixed land use that includes commercial/industrial and business enterprise parks, a mobile home park and cemetery to the southwest, University College to the northeast, and Bangor Municipal Golf Course to the southeast. The MEANG Air Base and Bangor International Airport terminal and parking areas bound the eastern property to the northwest.

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 birds, fish, plants, insect, and mammals are federally endangered, threatened, proposed, and/ or are listed as candidate species in Penobscot County, Maine (United States Fish and Wildlife Service [USFWS], 2022).

- **Birds:** Rufa Red Knot, *Calidris canutus rufa* (threatened)
- **Fishes:** Atlantic Salmon, *Salmo salar* (endangered)
- **Flowering Plants:** Eastern Prairie Fringed Orchid, *Platanthera leucophaea* (threatened)
- **Insects:** Monarch butterfly, *Danaus plexippus* (special concern)
- **Mammals**: Northern Long-eared Bat, *Myotis septentrionalis* (threatened), Little Brown Bat, *Myotis Lucifugus (threatened)*, Tricolored Bat, *Perimyotis subflavus* (threatened), Canada Lynx, *Lynx canadensis* (threatened)

2.3 History of PFAS Use

AOI 1 is the Building 260 (AASF) complex. This complex includes the hangars and flight operations office space within the complex. AFFF releases at the AOI include a 2003 fire suppression system AFFF release contained to building drainage lines that have since been replaced, a 2011 fire suppression system AFFF release to the fire suppression pump room and city sanitary sewer lines, a 2016 fire suppression system AFFF release to the fire suppression pump room, ramp area outside the pump room, and runoff sump, and most recently, a 2023 fire suppression system AFFF release from the fire suppression pump room to the tarmac immediately outside the pump room.

AOI 2 is Building 254 (Cold Storage Hangar). The potential PFAS release at AOI 2 involved the fire suppression system release of 300 gallons of Ansul Jet-X 2% High Expansion Foam concentrate; it is unknown whether Ansul Jet-X 2% High Expansion Foam concentrate contained PFAS. The test was confined by the hangar walls, and the dried foam was eventually containerized and disposed of as municipal trash. If foam escaped during the release via floor drains, it would have entered into the municipal sanitary system.

The potential release areas were grouped into two AOIs based on preliminary data and presumed groundwater flow directions. A description of each AOI is presented in **Section 3**.

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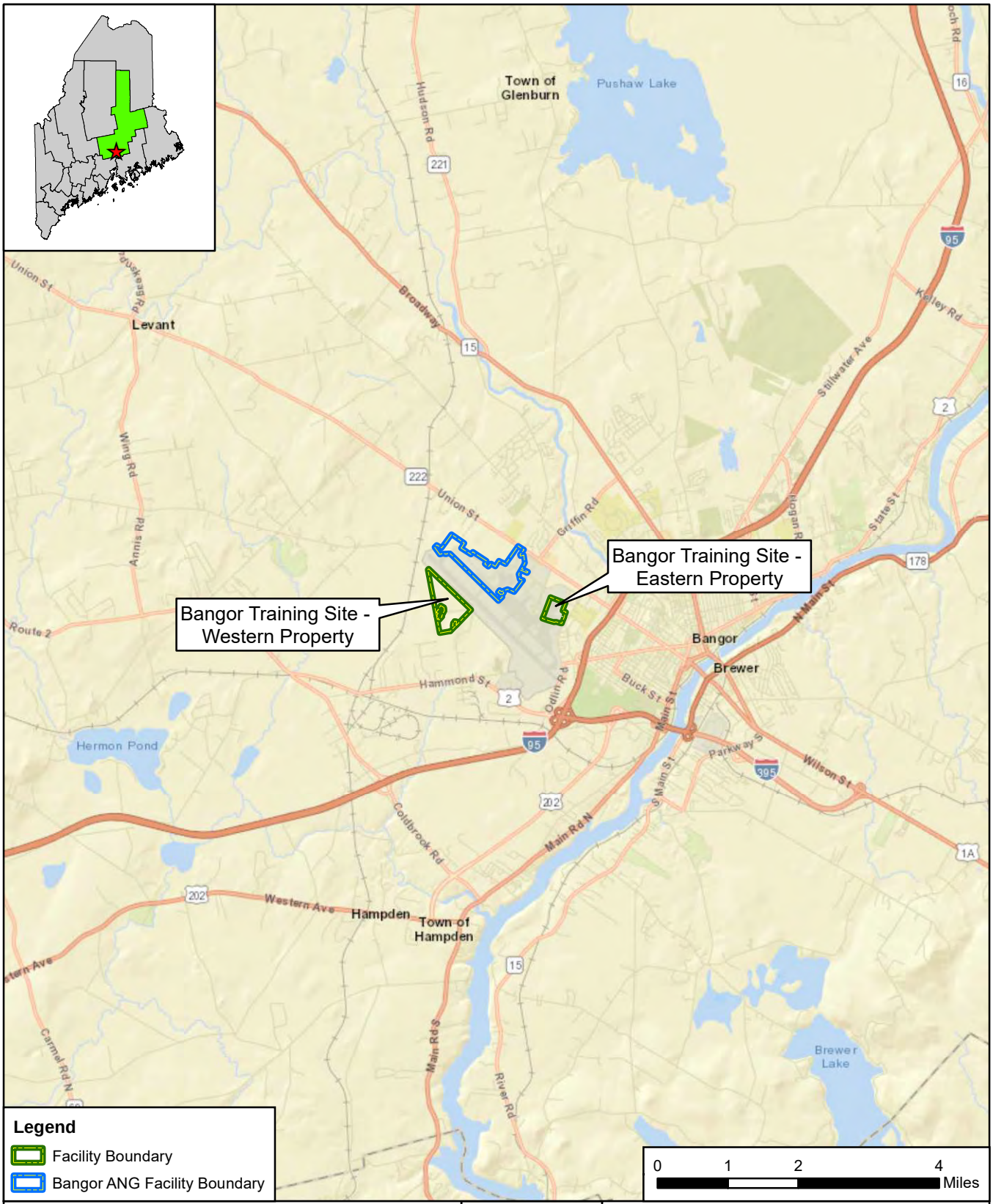

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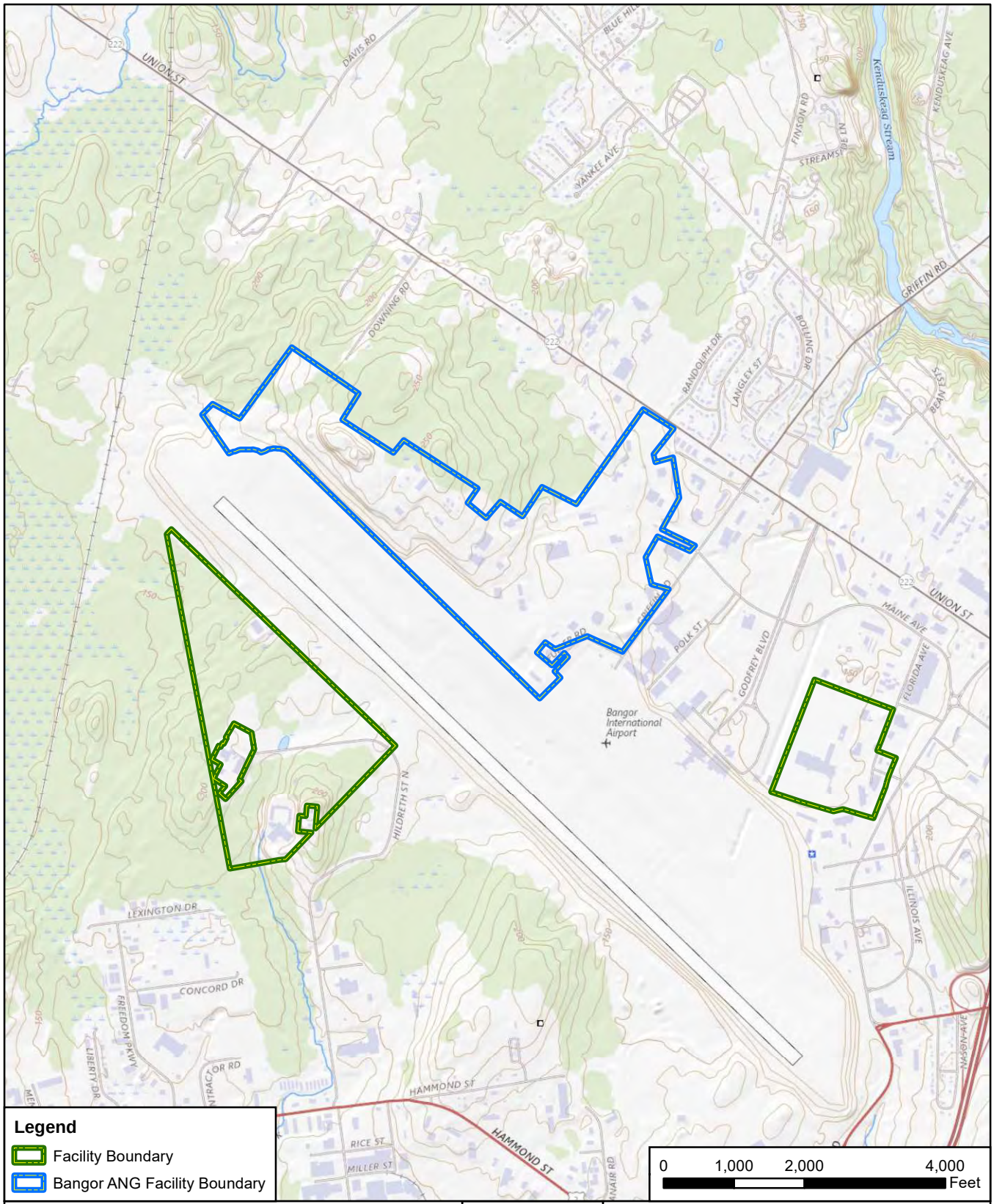
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	CM	10/17/2022

Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-1



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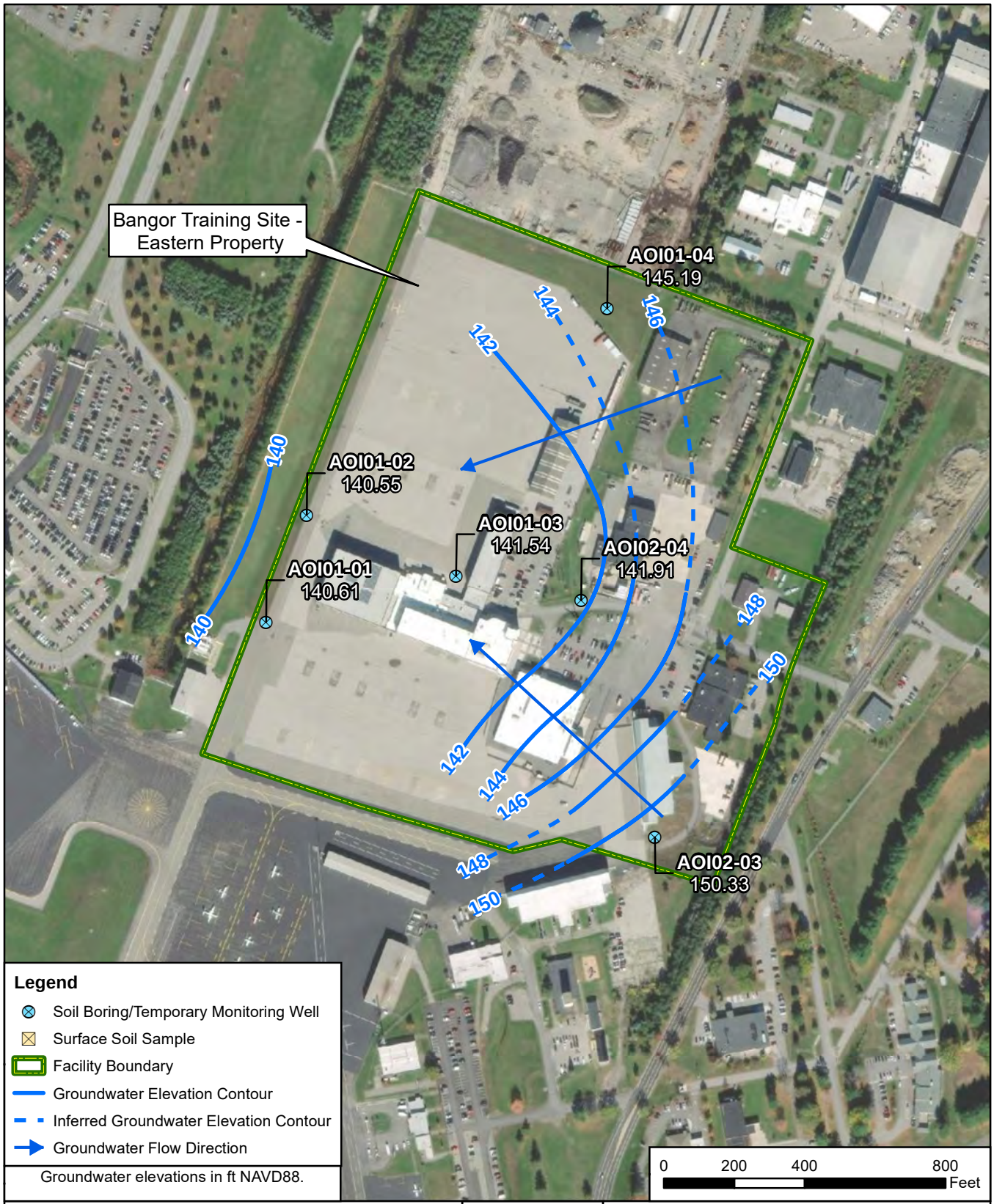
Base Map: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program,		PM	CM	10/17/2022

Facility Topography

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-2



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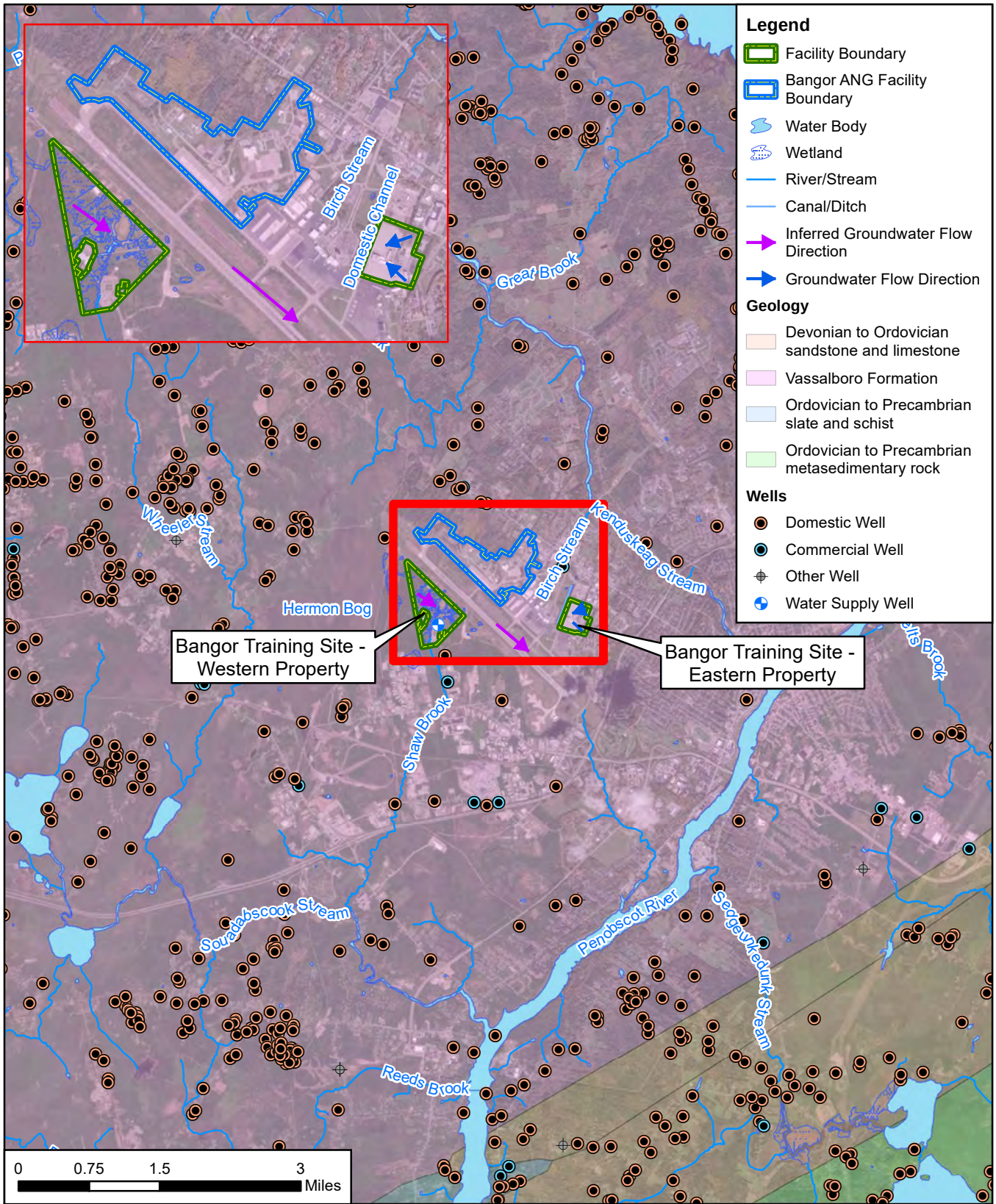
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	2/17/2023

Groundwater Elevations, April 2022

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-3



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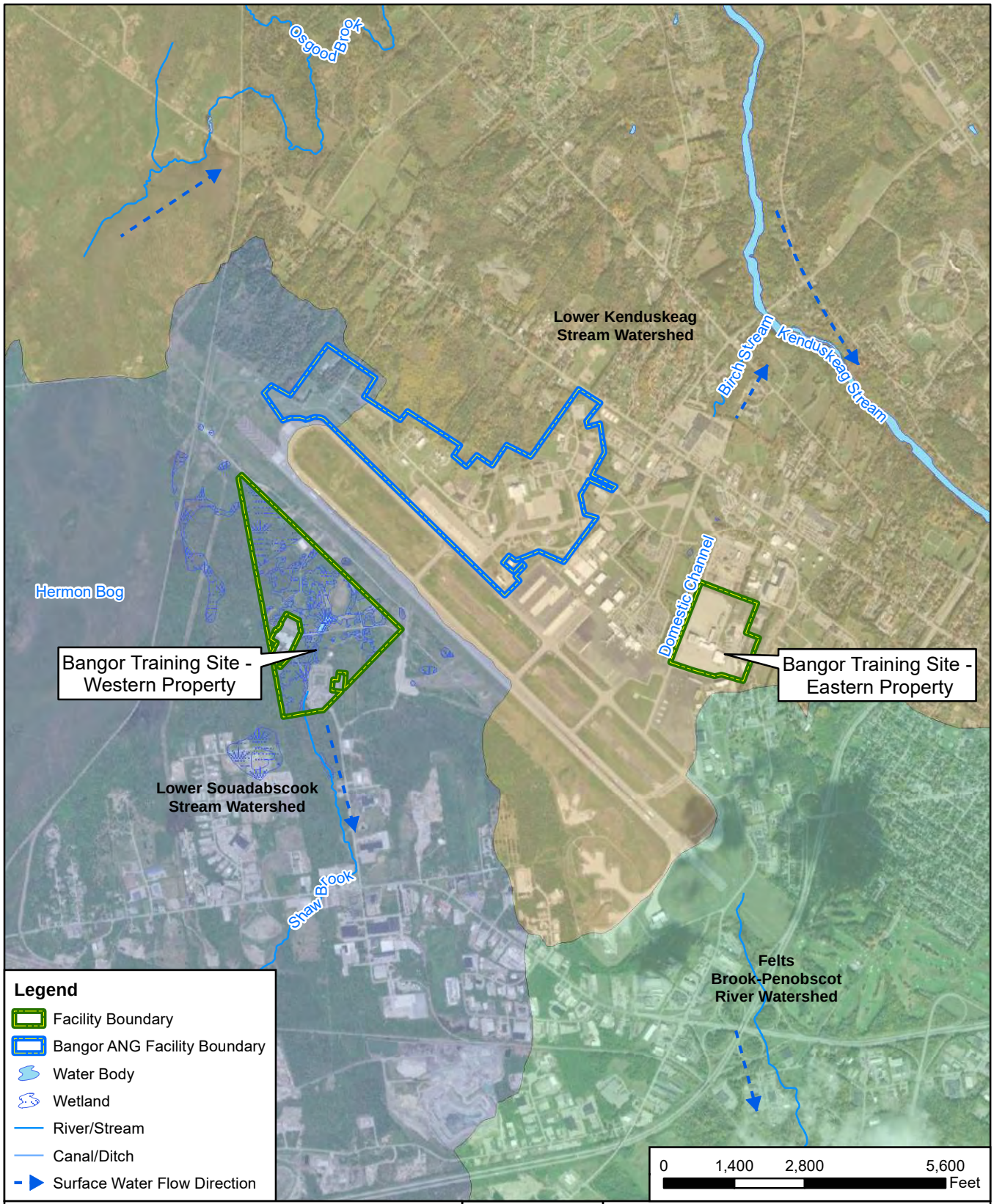
Groundwater Features

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-4



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N

Surface Water Features

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-5

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3. Summary of Areas of Interest

The PA evaluated areas where PFAS-containing materials may have been used, stored, disposed, or released historically. Based on the PA findings, two potential release areas were identified at the eastern property of the Bangor Training Site and grouped into two AOIs (AECOM, 2020). The PA did not identify any AOIs at the western property. The potential release areas are shown on **Figure 3-1**.

3.1 AOI 1 Building 260 (AASF)

AOI 1 is the Building 260 (AASF) complex. This complex includes the hangars and flight operations office space within the complex. The AASF has a fire suppression system comprised of two 1,200-gallon AFFF tanks: one tank contains National Foam Centurion 3% AFFF concentrate, the other contains Buckeye BFC-3.1 Platinum 3% AFFF concentrate. The deluge fire suppression system was installed in 2003 during the construction of new hangar space and is the only AFFF fire suppression system on the MEARNG property. During the installation of the fire suppression system, a small quantity of AFFF concentrate was released from the tanks to pipes within the building. The exact quantity of AFFF released is unknown, but it did not migrate further than the building confines.

A second release occurred in 2011 when a gasket malfunction resulted in approximately 1,200 gallons of Buckeye BFC-3.1 Platinum 3% AFFF concentrate being released. The AFFF released drained into the fire suppression room floor drains and into the sanitary sewer system. All the AFFF not recovered in the fire suppression room eventually travelled to the City of Bangor treatment plant.

Another accidental release occurred in 2016 when the AFFF tanks triggered an incorrectly identified solenoid. Approximately 30 gallons of AFFF spilled across the ramp outside the fire suppression room and into a sump designed for capturing runoff. The AFFF was captured and contained within the ramp and sump area; it was subsequently vacuumed out of the sump in a control manner.

More recently, a release occurred on 10 January 2023. An air compressor on the fire suppression system failed and caused the dry valve to trip, activating the fire pumps and charging the line. The pressure drop allowed National Foam Centurion C6 AFFF 3% foam mix to be released to the tarmac outside the fire suppression room. In total, approximately 100 gallons (30 gallons of 3% foam and impacted snow, 70 gallons of foam-water mixture) was recovered.

In addition to the releases from the fire suppression systems, MEARNG confirmed that AFFF Tri-Max™ fire extinguishers were previously stored on the parking areas at the AASF. Testing and maintenance of these fire extinguishers was performed off-facility.

Building 260 (AASF) is surrounded by pavement. According to MEARNG staff, AFFF releases at AOI 1 have been contained to the AASF interior, interior drains leading to sanitary system pipes, and the ramp area and sump outside the fire suppression room. No significant pavement cracks were observed during the visual SI; therefore, the presence of pavement at the AOI likely inhibited subsurface migration. However, it is possible that any released AFFF may have infiltrated the subsurface via joints between areas that are paved with different materials.

3.2 AOI 2 Building 254 (Cold Storage Hangar)

AOI 2 is an aircraft hangar currently used for the cold storage of rotary wing aircraft. The building was historically used for aviation maintenance, but was transitioned to cold storage in the 1980s.It

contains a fire suppression system, including a 300-gallon tank containing Ansul Jet-X 2% High Expansion Foam (HEF). The fire suppression system was tested once between 2013-2018 and involved a full release of the 300-gallon HEF tank. The HEF was complete enclosed inside the building, allowed to dry, collected, and containerized.

3.3 Adjacent Sources

Several adjacent sources were identified during the PA. These include the Bangor ANG Base, Bangor International Airport fuel strike, Former Dow AFB Fire Training Area, City of Bangor Wastewater Treatment Plant, and Pine Tree Landfill. The potential release areas are shown on **Figure 3-1**.

3.3.1 Bangor ANG Base

The Bangor ANG Base is located at the Bangor International Airport, approximately 0.5 miles northwest of the facility. The ANG Base encompasses approximately 314 acres of land leased from the city of Bangor and the Dow Air Force Base. The MEANG has conducted a PA (BB&E, Inc., 2015) and an SI (Amec Foster Wheeler, 2018) for PFAS at the Bangor ANG Base. Twelve (12) potential release areas at the MEANG facility were identified in the PA, but three (Buildings 515, 415, and 493) were recommended for no further action. The remaining nine were subject of a Site Inspection. A list of the nine potential release areas is listed below with pertinent findings summarized as reported in the 2018 SI (updated screening values have not been applied in this report). The results presented below are available in the Phase 1 SI Report (Amec Foster Wheeler, 2018).

- Building 542 – Soil samples indicated that five of the six relevant PFAS compounds were detected in two of the four soil samples collected, but no samples exceeded applicable screening criteria.
- Building 496 – Soil samples indicated that five of six relevant PFAS compounds were detected in one of six soil samples collected. The one detection did not exceed applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.
- Fire Department Current Nozzle Testing Location (East of Building 542) – Soil samples indicated that all six relevant PFAS compounds were detected in two of the six soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.
- Fire Department Current Nozzle Testing Location (East End of Taxiway C) – Soil samples indicated that all six relevant PFAS compounds were detected in four of the six soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.
- Fire Department Historic Nozzle Testing Location – Soil samples indicated that five of the six relevant PFAS compounds were detected in one of the six soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. Five of the six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.

- Dry Detention Basin – Soil samples indicated that all six relevant PFAS compounds were detected in one or more of the six soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.
- Building 512 – Soil samples indicated that all six relevant PFAS compounds were detected in two of the six soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.
- Former Fire Department – Soil samples indicated that five of the six relevant PFAS compounds were detected in one of the six soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.
- Dry Detention Pond – Soil samples indicated that all six relevant PFAS compounds were detected in one of the four soil samples collected, but no samples exceeded applicable screening criteria. Groundwater was collected from one temporary monitoring well. All six relevant PFAS compounds were detected and PFOA and PFOS exceeded the applicable screening criteria.

3.3.2 Bangor International Airport Fuel Strike Incident

A release of AFFF occurred in recent years within the Bangor International Airport property, on the tarmac area near the southwestern corner of the facility. During construction activities, a fuel line was struck, causing a fuel release to the paved surface. The MEANG fire department responded to the incident by spraying AFFF across the fuel spill area to prevent a fire. The exact date of the incident as well as the volume and type of AFFF released are unknown. The area MEANG staff described where the incident occurred as a paved surface between the MEARNG property and the Bangor International Airport, south of the Domestic Channel. It is possible AFFF released to this area may have infiltrated the subsurface soil via cracks in the pavement, the grassy areas north and south of the incident, and the Domestic Channel.

3.3.3 Former Dow Air Force Base Fire Training Area

The former Dow AFB Fire Training Area (FTA) exists off-facility, west of the Bangor International Airport runway. According to the 2011 Environmental Baseline Survey for the MEARNG Bangor Training Site, the former Dow AFB FTA was used by the Air Force, the National Guard, and the city of Bangor for fire training from 1947 to 1984. During training, flammable liquids (including JP-4 fuel, cleaning solvents, hydraulic fluids, paint thinners and motor oil) and solid wastes (including fuel filters and tires) were burned or deposited at various pits within the FTA (Summit Environmental Consultants, Inc., 2011). MEANG fire department staff stated during interviews that the former FTA was used by the Air Force and city of Bangor for fire training. According to the MEANG 2015 PA, the FTA was located on property transferred from the Dow AFB to the MEANG, but it is unclear whether the MEANG ever used the FTA for training (BB&E, Inc., 2015). The property has since been relinquished by the MEANG. A Notice of Potential Liability from the MEDEP dated 17 October 2017 identifies the US Air Force, the MEANG, and city of Bangor as responsible parties under Maine's Uncontrolled Hazardous Substance Sites law and CERCLA.

An SI was performed by MEDEP in 2019 to determine the extent of fuel, solvents, and PFAS contamination as a result of historic activities at the FTA. Six shallow subsurface soil samples were collected from borings; no surface soil samples were collected. Only two PFAS compounds

were detected in soil and did not exceed applicable screening criteria. Five groundwater samples were collected from two existing wells and three new monitoring wells. PFAS was detected in all five monitoring wells and exceeded applicable screening criteria (PFOA and/or PFOS) in three locations.

3.3.4 Wastewater Treatment Plant

There is no wastewater treatment plant (WWTP) at the facility; however, the city of Bangor WWTP is located approximately 2.3 miles southeast of the facility. The Bangor Training Site sanitary sewer system feeds into the city of Bangor sanitary sewer system which conveys wastewater to the city of Bangor WWTP. The treated water is then released into the Penobscot River. Solids removed from the waste stream are dewatered and composted for reuse at a private composting facility. Because onsite releases of AFFF at the MEARNG facility have resulted in AFFF entering the city sanitary sewer system, the city of Bangor WWTP is considered an adjacent source of potential PFAS release to the environment.

3.3.5 Landfills

There are no landfills on the facility. The nearest landfill that receives municipal waste from the city of Bangor is the Pine Tree Landfill, located in Hampden, ME, approximately 2.8 miles southwest of the facility.

Landfills are not usually a primary potential release area of PFAS, but materials disposed of in landfills may create a secondary source of contamination. Such materials, to name a few, may include sludge from a WWTP that processes PFAS-laden water, used AFFF storage containers, or products associated with waterproofing uniforms or boots. At the Bangor Training Site, high expansion foam released as part of a Building 254 fire suppression system test was collected and disposed of as municipal waste.

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	10/17/2022	GIS BY	MS	10/17/2022
SCALE	1:142,779	CHK BY	JD	10/17/2022
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	CM	10/17/2022

- Area of Interest
- Potential Release Area
- Facility Boundary
- Bangor ANG Facility Boundary
- Water Body
- Wetland
- River/Stream
- Canal/Ditch
- Surface Water Flow Direction
- Inferred Groundwater Flow Direction
- Groundwater Flow Direction
- Commercial Well
- Domestic Well
- Water Supply Well

N

Areas of Interest

AECOM 12420 Milestone Center Drive Germantown, MD 20876

Figure 3-1

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4. Project Data Quality Objectives

As identified during the Data Quality Objective (DQO) process and outlined in the SI Quality Assurance Project Plan (QAPP) Addendum (AECOM, 2021), the objective of the SI is to identify whether there has been a release to the environment at the AOIs identified in the PA. For each AOI, ARNG determines if further investigation is warranted, a removal action is required to address immediate threats, or whether no further action is warranted. This SI evaluated groundwater and soil for presence or absence of relevant compounds at each of the sampled AOIs.

4.1 Problem Statement

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

4.2 Information Inputs

Primary information inputs included:

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

4.3 Study Boundaries

The scope of the SI is horizontally bounded by the property limits of the Bangor Training Site (**Figure 2-2**). Off-facility sampling is not included in the scope of this SI; however, if future off-facility sampling is required, the proper stakeholders will be notified, and necessary rights of entry will be obtained by ARNG with the property owner(s). The scope of the SI is vertically bounded as follows: groundwater (12 feet bgs), subsurface soil from hollow stem auger (HSA) borings (up to 12 feet bgs), and surface soil (0 to 2 feet bgs). The temporal boundaries of the study are limited by seasonal conditions (late-fall and winter can be hampered by cold temperatures and snow).

4.4 Analytical Approach

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

4.5 Data Usability Assessment

The Data Usability Assessment (DUA), which is provided in **Appendix A**, is an evaluation at the conclusion of data collection activities that uses the results of both data verification and validation in the context of the overall project decisions or objectives. Using both quantitative and qualitative methods, the assessment determines whether project execution and the resulting data have met

installation specific DQOs. Both sampling and analytical activities are considered to assess whether the collected data are of the right type, quality, and quantity to support the decision-making (DoD, 2019a; DoD, 2019b; USEPA, 2017).

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

5. Site Inspection Activities

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

- *Final Site Inspection Programmatic Uniform Federal Policy-Quality Assurance Project Plan (PQAPP)* dated March 2018 (AECOM, 2018a);
- *Final Programmatic Accident Prevention Plan* dated July 2018 (AECOM, 2018b);
- *Final Preliminary Assessment Report, Bangor Training Site* dated January 2020 (AECOM, 2020);
- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Bangor Training Site, Bangor, Maine* dated December 2021 (AECOM, 2021); and
- *Final Site Safety and Health Plan, Bangor Training Site, Bangor, Maine dated* April 2022 (AECOM, 2022).

The SI field activities were conducted from 19 to 29 April 2022 and consisted of utility clearance, HSA boring, soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021), except as noted in **Section 5.8**.

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

- Seventeen (17) soil samples from six boring locations;
- Six grab groundwater samples from six temporary wells;
- Twelve (12) 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**, Field Change Request Forms are provided in **Appendix B3**, land survey data 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 10 February 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, MEARNG, USACE, MEDEP and representatives familiar with the facility, the regulations, and the community. Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the SI QAPP Addendum (AECOM, 2021).

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

5.1.2 Utility Clearance

AECOM's drilling subcontractor, Cascade Technical Services, LLC. placed a ticket with the USA north 811 "Call Before You Dig" Maine utility clearance provider to notify them of intrusive work on 19 April 2022. Additionally, AECOM contracted Ground Penetrating Radar Systems (GPRS), a private utility location service, to perform utility clearance. GPRS performed utility clearance of the proposed boring locations on 19 April 2022 with input from the AECOM field team and facility staff. General locating services and ground-penetrating radar were used to complete the clearance. Additionally, the first 5 feet of each boring were pre-cleared using a hand auger to verify utility clearance in shallow subsurface where utilities would typically be encountered.

5.1.3 Source Water and Sampling Equipment Acceptability

A potable water source collected from an outdoor spigot on Building 250 was sampled on 14 May 2021 and again on 21 April 2022 to assess usability for decontamination of drilling equipment. Results of the samples (BTS-DECON-01 and BTS-DECON-02) confirmed this source to be acceptable for use in this investigation; therefore, it was used throughout the field activities. Specifically, the samples were analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15. The results of the decontamination water sample associated with the Building 250 are provided in **Appendix F**. A discussion of the results is presented in the DUA (**Appendix A**).

Materials that were used within the sampling zone were confirmed as acceptable for use in the sampling environment. The checklist of acceptable materials for use in the sampling environment was provided in the Standard Operating Procedures (SOPs) appendix to the SI QAPP Addendum (AECOM, 2021). Prior to the start of field work each day, a Sampling Checklist was completed as an additional layer of control. The checklist served as a daily reminder to each field team member regarding the allowable materials within the sampling environment.

5.2 Soil Borings and Soil Sampling

Soil samples were collected using a GeoProbe® 7822 drill rig via HSA/split-spoon tooling to collect soil cores to the target depth in accordance with the SI QAPP Addendum (AECOM, 2021). 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**.

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. Given the conditions at the facility, this was not accomplished at every boring. See **Section 5.8** for further details on deviations from the SI QAPP and **Table 5-1** for a list of the soil samples collected.

Split-spoons were collected every 5 feet and logged for lithological descriptions by a field geologist using the Unified Soil Classification System (USCS). A photoionization detector (PID) was used to screen the breathing zone during boring activities as part of personal safety requirements. Observations and measurements were recorded on field 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**. Photographs of the boring cores were also taken and are shown in **Appendix C**.

Soil borings completed during the SI indicate that the dominant lithology underlying the Bangor Training Site consists of fine silty sand and lean clay. Intermittent layers of gravelly sand and cobble stone were also found throughout the eastern property. The borings were completed at depths between 6 and 12 feet bgs. These observations are consistent with the understood depositional environment of the region. It should be noted that oily soils and petroleum odors were observed in boring AOI02-04. PID readings from the boring ranged from 2 to 2,889 parts per million with the highest readings measured in the 9-11 feet bgs interval. Several oil-in-soil test kits were used to determine the presence or absence of petroleum impacts. The test kits were positive for oil at the 4-5 feet bgs interval, but negative for the 5-7, 7-9, and 9-11 feet bgs intervals. A thin film of oil (0.07 inches) was measured sitting on top of the water table.

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), pH (USEPA Method 9045D), and grain size (ASTM Method D-422) in accordance with the SI QAPP Addendum (AECOM, 2021).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. 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.

Borings advanced in asphalt were abandoned by backfilling with bentonite chips to approximately 6 inches bgs, and the remainder of the borehole were patched with an asphalt cold patch. Similarly, borings advanced into concrete were abandoned by backfilling with bentonite chips to approximately 6 inches bgs, and the remainder of the borehole was filled with concrete to provide as flush a surface as possible. HSA borings were converted to temporary wells, which were subsequently abandoned in accordance with the SI QAPP Addendum (AECOM, 2021) using bentonite chips at completion of sampling activities.

5.3 Temporary Well Installation and Groundwater Grab Sampling

Temporary wells were installed using a GeoProbe® 7822 drill rig. 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. New PVC pipe and screen were used to avoid cross contamination between locations (no filter pack, bentonite seal, cement, or pad was installed. The screen intervals for the temporary wells are

provided in **Table 5-2**. As noted in **Section 5.8** below, six of seven planned temporary wells were installed.

Groundwater samples were collected after a period following well installation to allow groundwater to infiltrate and recharge the temporary well screen intervals. After the recharge period, groundwater samples were collected using a peristaltic pump with PFAS-free HDPE tubing. The temporary wells were purged at a rate determined in the field to reduce turbidity and draw down prior to sampling. Water quality parameters (e.g., temperature, specific conductance, pH, dissolved oxygen, and oxidation-reduction potential) were measured using a water quality meter and recorded on the field sampling form (**Appendix B2**) before each grab sample was collected. Additionally, a subsample of each groundwater sample was collected in a separate container, and a shaker test was completed to identify if there were any foaming. No foaming was noted in any of the groundwater samples.

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

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. MS/MSDs were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. 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 °C during shipment.

Following well surveying (described below in **Section 5.5**), the temporary wells were abandoned in accordance with the SI QAPP Addendum (AECOM, 2021) by removing the stickup component and PVC and backfilling the hole with bentonite chips to approximately 6 inches bgs. 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 29 April 2022. Groundwater elevation measurements were collected from the six 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 is provided in **Table 5-2**.

5.5 Surveying

The northern side of each well casing was surveyed by Nadeau Surveying a licensed land surveyor in the state of Maine, following guidelines provided in the SOPs provided in the SI QAPP Addendum (AECOM, 2021). Survey data from the newly installed wells on the facility were collected on 29 April 2022 the applicable Universal Transverse Mercator zone projection with North American Datum 1983 State Plane (horizontal) and North American Vertical Datum 1988 (vertical). The surveyed well data are provided in **Appendix B4**.

5.6 Investigation-Derived Waste

As of the date of this report, the disposal of IDW is not regulated federally. IDW generated during the SI is considered non-hazardous waste and was managed in accordance with the SI QAPP

Addendum (AECOM, 2021) and with the DA Guidance for Addressing Releases of PFAS, Q18 (DA, 2018). ARNG coordinated waste profiling, transportation, and disposal of the solid IDW.

Soil IDW (i.e., soil cuttings) generated during the SI activities were contained in labeled, 55-gallon Department of Transportation (DOT)-approved steel drums and left onsite in a designated waste storage area. The soil IDW was not sampled and assumes the characteristics of the associated soil samples collected from that source location.

Liquid IDW generated during SI activities (i.e., purge water, development water, and decontamination fluids) were contained in labeled, 55-gallon DOT-approved steel drums, and left onsite in a designated waste storage area. The liquid IDW was not sampled and assumes the characteristics of the associated groundwater samples collected from that source location. Containerized liquid IDW will be managed and disposed of by ARNG under a separate contract.

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, pH by USEPA Method 9045D, and Grain Size by ASTM Method D422.

5.8 Deviations from SI QAPP Addendum

Four deviations from the SI QAPP Addendum were identified during review of the field documentation. The deviation is noted below and is documented in Field Change Request Forms (**Appendix B3**):

- Due to bedrock refusal at approximately 3 feet bgs, only surficial soil was collected from boring AOI02-01.
- At location AOI02-03, groundwater was encountered less than one foot from ground surface, likely due to a clay layer. The hole was hand-cleared to 6 feet bgs, and a 5 feet screen was installed at the bottom of the cleared hole to serve as a temporary well. No augers or rig was used to drill deeper.
- On 20 April 2022, in an attempt to clear through asphalt at location AOI02-02, approximately 1.25 feet of asphalt was encountered followed by approximately 1.25 feet of concrete. This total depth of asphalt and concrete clearing was the total extent of the drill rig's capabilities, and work was stopped.
- AECOM, USACE, and ARNG decided the lacking information from AOI02-02 and AOI02-01 may result in a data gap. AECOM remobilized to the site on 29 April 2022 with the private utility locator contractor and scanned several additional locations north of AOI02-01. AECOM's driller hand cleared a new location (AOI02-04) and was able to drill to bedrock refusal at approximately 12 feet bgs. AECOM communicated the findings to USACE and ARNG and all parties agreed that three soil samples and a water sample should be collected from this location. Soil and groundwater sample specifications from location AOI02-04 are described in **Table 5-1** and **Table 5-2**.

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Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Bangor Training Site, Bangor, Maine

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)	Grain Size (ASTM D-422)	Comments
Soil Samples							
AOI01-01-SB-00-02	4/21/2022 9:30	0-2	x				
AOI01-01-SB-03-04	4/21/2022 10:00	3-4	x				
AOI01-01-SB-5.3-5.8	4/21/2022 12:10	5.3-5.8				x	
AOI01-02-SB-00-02	4/21/2022 13:45	0-2	x				
AOI01-02-SB-02-03	4/21/2022 14:10	2-3	x				
AOI01-03-SB-00-02	4/20/2022 14:30	0-2	x				
AOI01-03-SB-05-07	4/20/2022 14:50	5-7	x	x	x		
AOI01-03-SB-11-12	4/20/2022 15:45	11-12	x				
AOI01-04-SB-00-02	4/21/2022 16:30	0-2	x				
AOI01-04-SB-05-06	4/21/2022 16:45	5-6	x				
AOI02-01-SB-00-02	4/20/2022 8:45	0-2	x				
AOI02-03-SB-00-02	4/19/2022 12:00	0-2	x				
AOI02-03-SB-2.5-3.0	4/21/2022 12:00	2.5-3				x	
AOI02-03-SB-05-06	4/19/2022 15:00	5-6	x	x	x		
AOI02-04-SB-00-02	4/29/2022 11:10	0-2	x				
AOI02-04-SB-04-05	4/29/2022 11:20	4-5	x				
AOI02-04-SB-05-07	4/29/2022 11:30	5-7	x				
AOI01-03-SB-11-12-D	4/20/2022 16:00	11-12	x				Duplicate
AOI01-02-SB-00-02-D	4/21/2022 14:00	0-2	x				Duplicate
AOI01-03-SB-00-02-MS	4/20/2022 14:30	0-2	x				MS
AOI01-03-SB-00-02-MSD	4/20/2022 14:30	0-2	x				MSD
AOI01-03-SB-05-07-D	4/20/2022 15:00	5-7		x	x		Duplicate
AOI01-03-SB-05-07-MS	4/20/2022 14:50	5-7		x	x		MS
AOI01-03-SB-05-07-MSD	4/20/2022 14:50	5-7		x	x		MSD
Groundwater Samples							
AOI01-01-GW	4/25/2022 12:30	N/A	x				
AOI01-02-GW	4/25/2022 14:10	N/A	x				
AOI01-02-GW-MS	4/25/2022 14:10	N/A	x				MS
AOI01-02-GW-MSD	4/25/2022 14:10	N/A	x				MSD
AOI01-03-GW	4/25/2022 10:30	N/A	x				
AOI01-04-GW	4/25/2022 15:30	N/A	x				
AOI02-03-GW	4/25/2022 16:45	N/A	x				
AOI02-03-GW-D	4/25/2022 16:45	N/A	x				Duplicate
AOI02-04-GW	4/29/2022 15:30	N/A	x				

Table 5-1
Site Inspection Samples by Medium
Site Inspection Report, Bangor Training Site, Bangor, Maine

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)	Grain Size (ASTM D-422)	Comments
Quality Control Samples							
BTS-ERB-01	4/20/2022 19:05	N/A	x				ERB
BTS-ERB-02	4/20/2022 19:10	N/A	x				ERB
BTS-FRB-01	4/21/2022 12:00	N/A	x				FRB
BTS-DECON-01	5/14/2021 11:10	N/A	x				DECON
BTS-DECON-02	4/21/2022 11:00	N/A	x				DECON

Notes:
ASTM = American Society for Testing and Materials
bgs = below ground surface
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
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, Bangor Training Site, Bangor, Maine

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	9.5	4.5 - 9.5	145.17	145.00	4.56	4.39	140.61
	AOI01-02	9	4 - 9	144.28	143.94	3.73	3.39	140.55
	AOI01-03	11.8	6.8 - 11.8	146.95	147.13	5.41	5.59	141.54
	AOI01-04	7	2 - 7	148.78	147.15	3.59	1.96	145.19
2	AOI02-03	6	1 - 6	153.45	151.85	3.12	1.52	150.33
	AOI02-04	12	7 - 12	151.14	148.75	9.23	6.84	141.91

Notes:

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

bgs = below ground surface
btoc = below top of casing
NA = not applicable
NAVD88 = North American Vertical Datum 1988

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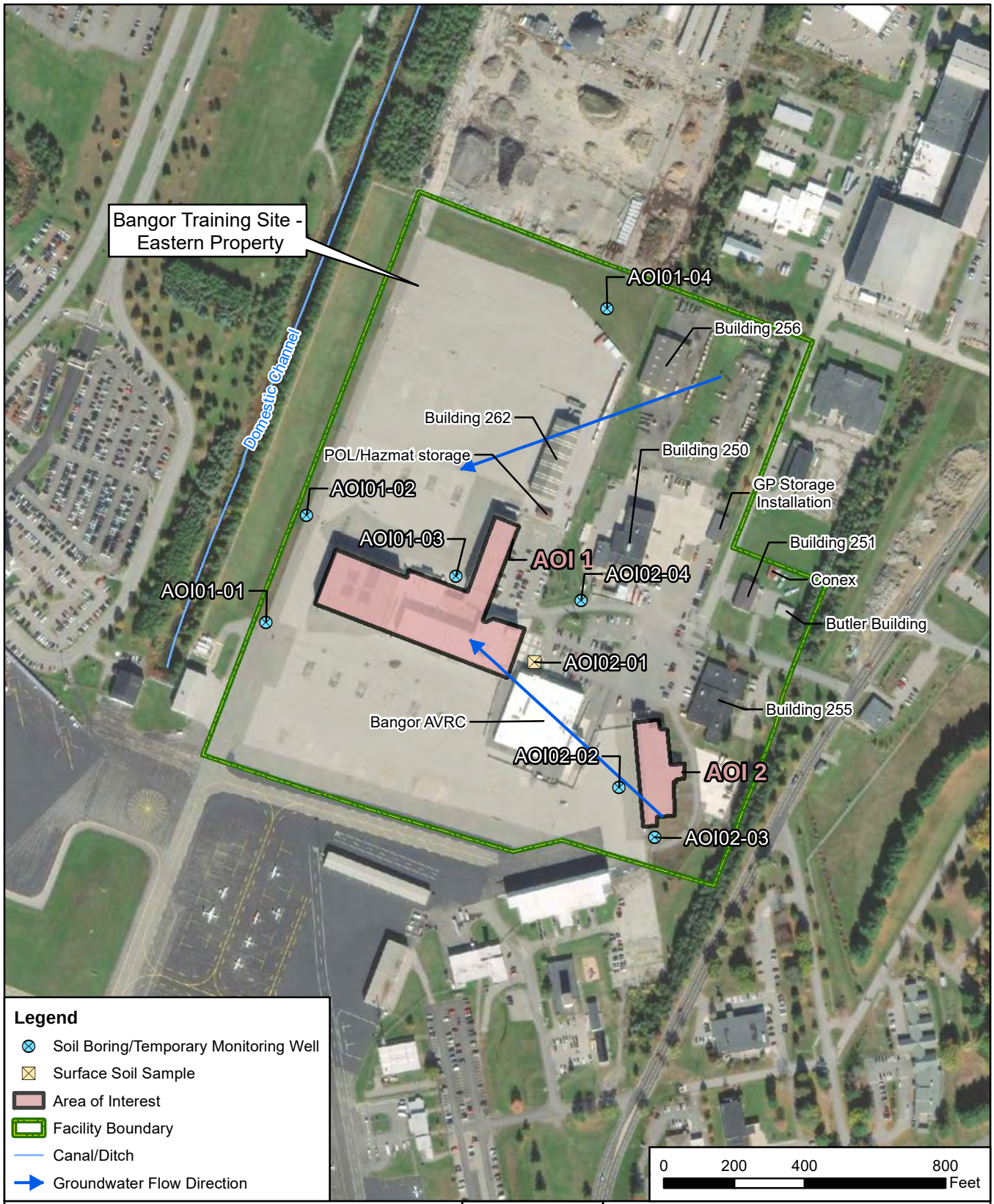

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	10/17/2022	GIS BY	MS	10/17/2022
SCALE	1:4,800	CHK BY	JD	10/17/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	10/17/2022

Site Investigation 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** and **Section 6.4**. **Table 6-2** through **Table 6-4** present results in soil or groundwater for the relevant compounds. Tables that contain all results are provided in **Appendix F**, and the laboratory reports are provided in **Appendix G**.

6.1 Screening Levels

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

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

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

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

a.) Assistant Secretary of Defense, 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. 6 July 2022.

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

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

6.2 Soil Physicochemical Analyses

To provide basic soil parameter information, soil samples were analyzed for TOC, pH, and grain size, which are important for evaluating transport through the soil medium. **Appendix F** contains the results of the TOC, pH, and grain size sampling. The grain size results indicate that the soil is comprised primarily of silt (60.38 % to 67.50%) and clay (30.29% to 31.28%)

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

6.3 AOI 1

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1: Building 260. The soil and groundwater results are summarized on **Table 6-2** through **Table 6-4**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.3.1 AOI 1 Soil Analytical Results

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

Ten (10) soil samples were collected from four locations, AOI01-01 through AOI01-04. Surficial soil samples were collected from 0 to 2 feet bgs, and shallow subsurface soil samples were taken from intervals between 2 to 12 feet bgs at all locations. No deep subsurface soil samples were collected from this AOI. PFOA, PFOS, PFHxS, and PFNA were detected in soil, but at concentrations below their SLs. PFBS was not detected in any of the soil samples collected at AOI 1.

In the surface soil samples, the maximum concentration detected for any relevant compound was 1.21 micrograms per kilogram (µg/kg) at AOI01-02. In the shallow subsurface, the maximum concentration detected for any relevant compound was 1.64 J µg/kg at AOI01-03.

6.3.2 AOI 1 Groundwater Analytical Results

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

Groundwater was sampled from temporary monitoring wells AOI01-01 through AOI01-04. The following exceedances of the SLs were measured:

- PFOA was detected above the SL of 6 ng/L in three of the four wells, with a maximum concentration of 3,210 ng/L at AOI01-03.
- PFOS was detected above the SL of 4 ng/L at all four wells, with a maximum concentration of 75.2 ng/L at AOI01-01.

- PFNA was detected above the SL of 6 ng/L at two of the four wells, with a maximum concentration of 94.5 ng/L at AOI01-3.

PFHxS and PFBS were detected below their respective SLs in all four AOI 1 wells.

6.3.3 AOI 1 Conclusions

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

6.4 AOI 2

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 2: Building 254 (Cold Storage Hangar). The results in soil and groundwater are summarized on **Table 6-2** through **Table 6-4**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.4.1 AOI 2 Soil Analytical Results

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

Soil was sampled from surface soil (0 to 2 feet bgs) and shallow subsurface soil (4 to 7 feet bgs) from boring locations AOI02-01, AOI02-03, and AOI02-04. No deep subsurface soil samples were collected from this AOI. PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in soil, but at concentrations below their SLs.

In surface soil, the maximum concentration detected for any relevant compound was 1.83 J µg/kg at AOI02-01. PFHxS was not detected in surface soil. In the shallow subsurface soil, the maximum concentration detected for any relevant compound was 0.138 J µg/kg at AOI02-04. PFOA, PFNA, and PFBS were not detected in the shallow subsurface.

6.4.2 AOI 2 Groundwater Analytical Results

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

Groundwater was sampled from temporary monitoring wells AOI02-03 and AOI02-04. The following exceedances of the SLs were measured:

- PFOA was detected above the SL of 6 ng/L in one well (AOI02-04) with a maximum concentration of 15.7 ng/L at AOI02-04.
- PFOS was detected above the SL of 4 ng/L in both wells, with a maximum concentration of 14.8 ng/L at AOI02-04.
- PFHxS was detected above the SL of 6 ng/L at one well (AOI02-04) with a maximum concentration of 89 ng/L at AOI02-04.

PFNA and PFBS were detected in all four wells below their respective SLs.

6.4.3 AOI 2 Conclusions

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

Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report, Bangor Training Site

Area of Interest		AOI01										AOI02					
Sample ID		AOI01-01-SB-00-02		AOI01-02-SB-00-02		AOI01-02-SB-00-02-D		AOI01-03-SB-00-02		AOI01-04-SB-00-02		AOI02-01-SB-00-02		AOI02-03-SB-00-02		AOI02-04-SB-00-02	
Sample Date		04/21/2022		04/21/2022		04/21/2022		04/20/2022		04/21/2022		04/20/2022		04/19/2022		04/29/2022	
Depth		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft		0-2 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)																	
PFBS	1900	ND	U	ND	U	ND	U	ND	U	ND	U	0.039	J	ND	U	ND	U
PFHxS	130	ND	U	0.163	J	0.156	J	ND	U	ND	U	ND	U	ND	U	ND	U
PFNA	19	0.037	J	0.148	J	0.137	J	0.073	J	0.057	J	1.14		0.033	J	0.316	J
PFOA	19	ND	U	0.132	J	0.131	J	0.195	J	0.081	J	0.953	J	ND	U	0.268	J
PFOS	13	0.358	J	1.21		1.09		0.149	J	0.282	J	1.83		0.224	J	0.883	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

Notes

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
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, Bangor Training Site

	Area of Interest	AOI01												AOI02	
	Sample ID	AOI01-01-SB-03-04		AOI01-02-SB-02-03		AOI01-03-SB-05-07		AOI01-03-SB-11-12		AOI01-03-SB-11-12-D		AOI01-04-SB-05-06		AOI02-03-SB-05-06	
	Sample Date	04/21/2022		04/21/2022		04/20/2022		04/20/2022		04/20/2022		04/21/2022		04/19/2022	
	Depth	3-4 ft		2-3 ft		5-7 ft		11-12 ft		11-12 ft		5-6 ft		5-6 ft	
Analyte	**OSD Screening Level [a]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)															
PFBS	25000	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
PFHxS	1600	ND	U	0.047	J	ND	U	ND	U	ND	U	ND	U	ND	U
PFNA	250	0.023	J	ND	U	ND	U	0.065	J	0.065	J	ND	U	ND	U
PFOA	250	ND	U	ND	U	0.314	J	1.54		1.64		ND	U	ND	U
PFOS	160	1.07		0.359	J	ND	U	ND	U	ND	U	ND	U	ND	U

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
PFHxS
PFNA
PFOA
PFOS

Acronyms and Abbreviations

AASF
AOI
D
DL
ft
HQ
ID
LCMSMS
LOD
ND
OSD
QSM
Qual
SB
USEPA
µg/kg

Table 6-3
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Shallow Subsurface Soil
Site Inspection Report, Bangor Training Site

Area of Interest		AOI02			
Sample ID		AOI02-04-SB-04-05		AOI02-04-SB-05-07	
Sample Date		04/29/2022		04/29/2022	
Depth		4-5 ft		5-7 ft	
Analyte	OSD Screening Level [a]	Result	Qual	Result	Qual
Soil, LCMSMS compliant with QSM 5.3 Table B-15 (µg/kg)					
PFBS	25000	ND	U	ND	U
PFHxS	1600	0.109	J	0.056	J
PFNA	250	ND	U	ND	U
PFOA	250	ND	U	ND	U
PFOS	160	0.138	J	0.062	J

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

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

Interpreted Qualifiers

J = Estimated concentration

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

Notes

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

Chemical Abbreviations

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

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
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 Groundwater
Site Inspection Report, Bangor Training Site

Area of Interest		AOI01								AOI02					
Sample ID		AOI01-01-GW		AOI01-02-GW		AOI01-03-GW		AOI01-04-GW		AOI02-03-GW		AOI02-03-GW-D		AOI02-04-GW	
Sample Date		04/25/2022		04/25/2022		04/25/2022		04/25/2022		04/25/2022		04/25/2022		04/29/2022	
Analyte	OSD Screening Level [a]	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	1.66	J	3.04	J	5.19		0.648	J	ND	U	ND	U	6.13	
PFHxS	39	21.8		31.2		34.5		5.26		3.25	J	3.46	J	89.0	
PFNA	6	2.13	J	9.97		94.5		2.82	J	1.78	J	1.72	J	1.13	J
PFOA	6	4.91		39.2		3210		13.2		3.93	J	4.17		15.7	
PFOS	4	75.2		57.7		24.1		21.2		14.2		14.6		14.8	

Grey Fill — Detected concentration exceeded OSD Screening Levels

References

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

Interpreted Qualifiers

J = Estimated concentration

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

Notes

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

Chemical Abbreviations

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

Acronyms and Abbreviations

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

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

Facility Boundary

Canal/Ditch

0 200 400 800 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

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

Facility Boundary

Canal/Ditch

0 200 400 800 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

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

Facility Boundary

Canal/Ditch

0 200 400 800 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

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

Facility Boundary

Canal/Ditch

0 200 400 800 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

CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

Facility Boundary

Canal/Ditch

0 200 400 800 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

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Germantown, MD 20876

Figure 6-5

PFOA

PFOS

PFBS

Domestic Channel

AOI01-01

AOI01-02

AOI01-03

AOI01-04

AOI02-03

AOI02-04

PFOA Results (ng/L)

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

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 Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

- Facility Boundary
- Canal/Ditch
- Groundwater Flow Direction

0 200 400 800 Feet

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

N

PFOA, PFOS, and PFBS Detections in Groundwater

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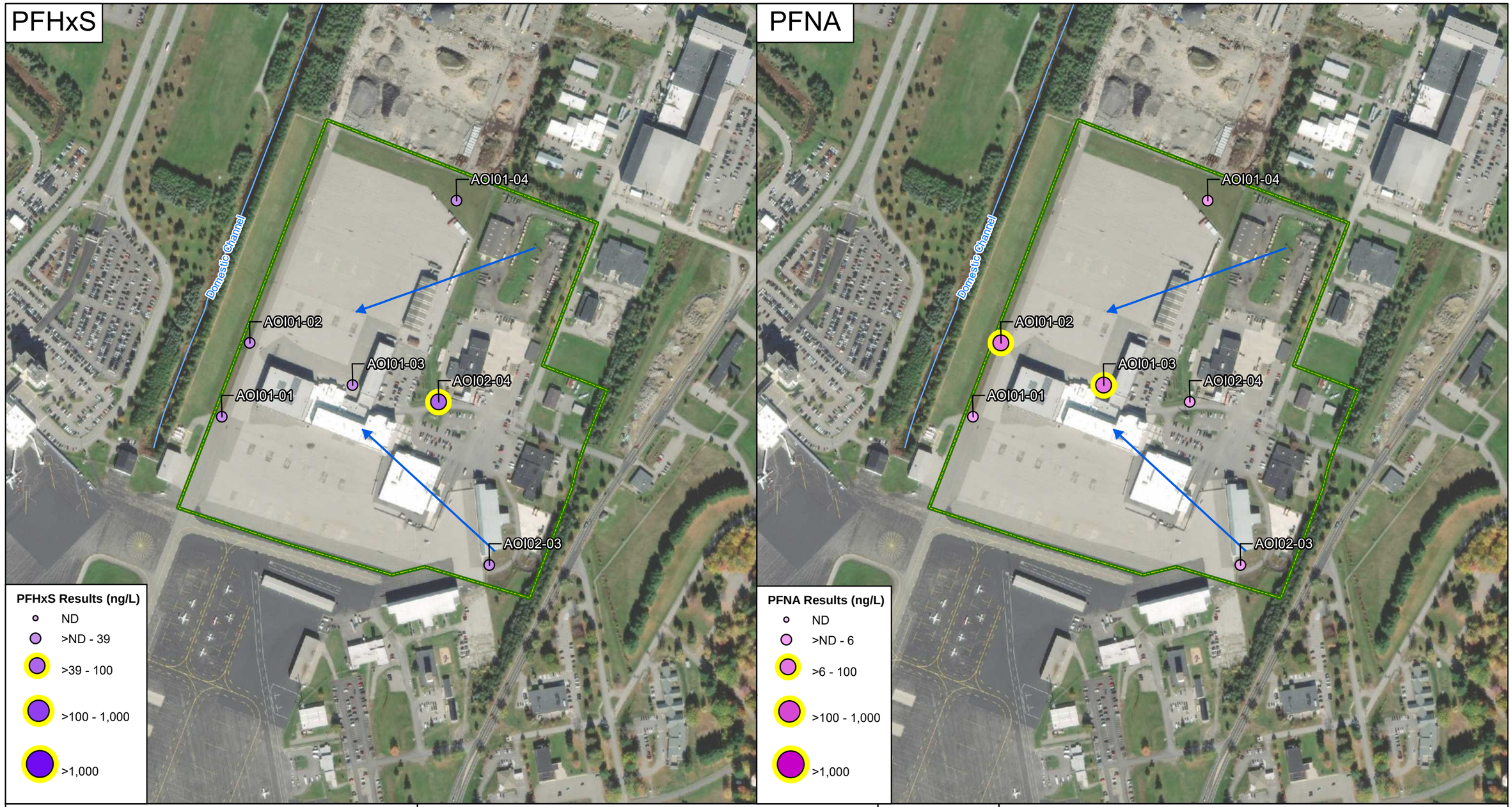
Germantown, MD 20876

Figure 6-6



CLIENT	ARNG			
PROJECT	Site Inspection at Bangor Training Site, ME			
REVISED	12/14/2022	GIS BY	MS	12/14/2022
SCALE	1:4,800	CHK BY	JD	12/14/2022
Base Map: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community		PM	CM	12/14/2022

Legend

- Facility Boundary
- Canal/Ditch
- Groundwater Flow Direction

0 200 400 800 Feet

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

N

PFHxS and PFNA Detections in Groundwater

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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** and **Figure 7-2**. 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 potential 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 (potential) 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, 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 potential source and potential receptors at AOI 1 and AOI 2 based on the aforementioned criteria.

7.1.1 AOI 1

AOI 1 is the Building 260 (AASF) complex, where multiple AFFF releases occurred from the hangar fire suppression system. These released include: a 2003 fire suppression system AFFF release contained to building drainage lines that have since been replaced, a 2011 fire suppression system AFFF release to the fire suppression pump room and city sanitary sewer lines, a 2016 fire suppression system AFFF release to the fire suppression pump room, ramp area

outside the pump room, and runoff sump, and a 2023 release which impacted the tarmac immediately outside the fire suppression room. Additionally, portable Tri-Max™ fire extinguishers were stored on the parking areas at the AASF.

PFOA, PFOS, PFHxS, and PFNA were detected in surface soil at AOI 1 below their respective SLs. Site workers and construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. PFOA, PFOS, PFHxS, and PFNA were detected in the shallow subsurface soil at AOI 1. No construction projects were underway at the time of the SI fieldwork; therefore, the subsurface soil exposure pathway for future construction workers is potentially complete. Due to the restricted entry access at the facility and the surrounding land use, the exposure pathway for surface soil and subsurface soil via inhalation and ingestion are incomplete for off-facility residents and trespasser/recreational users. The CSM for AOI 1 is presented on **Figure 7-1**.

7.1.2 AOI 2

AOI 2 is Building 254, 300-gallons of Ansul Jet-X 2% High Expansion Foam Concentrate was released from a fire suppression system. It is unknown whether Ansul Jet-X 2% High Expansion Foam Concentrate contains PFAS. The test was confined by the hangar walls, and the dried foam was eventually containerized and disposed of as municipal trash. If foam escaped during the release via floor drains, it would have entered into the municipal sanitary system.

PFOA, PFOS, PFBS and PFNA were detected in surface soil at AOI 2 below their respective SLs. Site workers and construction workers could contact constituents in surface soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers and future construction workers are potentially complete. No construction projects were underway at the time of the SI fieldwork; therefore, the subsurface soil exposure pathway for future construction workers is potentially complete. Due to the restrictive nature of the facility and the surrounding land use, the exposure pathway for surface soil and subsurface soil via inhalation and ingestion are incomplete for off-facility residents and trespasser/recreational users. The CSM for AOI 2 is presented on **Figure 7-2**.

7.2 Groundwater Exposure Pathway

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

7.2.1 AOI 1

PFOA, PFOS, and PFNA were detected above their SLs in groundwater samples collected at AOI 1. Potable water for the facility is provided by the Bangor Water District and is sourced from Floods Pond approximately 15 miles away. Additionally, one potable well associated with the Engagement Skills Trainer building exists and has detected concentrations of PFAS. The well is cross-gradient (using the facility-specific groundwater contours) of the releases at the facility and is an open bedrock well approximately 600 feet deep. Therefore, it is unlikely the detections observed in the well are related to releases at the facility and could be attributed to other adjacent sources. Regardless, MEARNG capped and closed the drinking water fountains connected to this well following an SL exceedance of PFOA in 2018. Given this information, the pathway for exposure to site workers via ingestion of groundwater is considered incomplete. Off-facility, there are five potable wells within 1-mile of the facility. According to the Maine Geological Survey, these wells are open bedrock boreholes and range in depths from 65-425 feet bgs. Additionally, none of these wells are immediately downgradient of the facility (using the facility-specific groundwater contours). Given the degree of uncertainty in the groundwater flow direction on and surrounding

the facility, as well as the uncertainty in hydraulic communication between the overburden and bedrock aquifers, conservatively the pathway for exposure to off-facility residents via ingestion of groundwater is considered potentially complete with an exceedance of the SL. Finally, depths to water measured at AOI 1 in April 2022 during the SI ranged from 1.96 to 5.59 feet bgs. Therefore, the ingestion exposure pathway for future construction workers is considered potentially complete with exceedances of the SLs. The CSM for AOI 1 is presented on **Figure 7-1**.

7.2.2 AOI 2

PFOA, PFOS, and PFHxS were detected at concentrations above their respective SLs in groundwater samples collected at AOI 2. Potable water for the facility is provided by the Bangor Water District and is sourced from Floods Pond approximately 15 miles away. Additionally, one potable well associated with the Engagement Skills Trainer building exists and has detected concentrations of PFAS. The well is cross-gradient (using the facility-specific groundwater contours) of the releases at the facility and is an open bedrock well approximately 600 feet deep. Therefore, it is unlikely the detections observed in the well are related to releases at the facility and could be attributed to other adjacent sources. Regardless, MEARNG capped and closed the drinking water fountains connected to this well following an SL exceedance of PFOA in 2018. Given this information, the pathway for exposure to site workers via ingestion of groundwater is considered incomplete. Off-facility, there are five potable wells within 1-mile of the facility. According to the Maine Geological Survey, these wells are open bedrock boreholes and range in depths from 65-425 feet bgs. Additionally, none of these wells are immediately downgradient of the facility (using the facility-specific groundwater contours). Given the degree of uncertainty in the groundwater flow direction on and surrounding the facility, as well as, the uncertainty in hydraulic communication between the overburden and bedrock aquifers, conservatively the pathway for exposure to off-facility residents via ingestion of groundwater is considered potentially complete with an exceedance of the SL. Finally, depths to water measured at AOI 2 in April 2022 during the SI ranged from 1.52 to 9.23 feet bgs. Therefore, the ingestion exposure pathway for future construction workers is considered potentially complete. The CSM for AOI 2 is presented on **Figure 7-2**.

7.3 Surface Water and Sediment Exposure Pathway

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

7.3.1 AOI 1 and AOI 2

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 and AOI 2, it is possible that those compounds may have migrated from soil and groundwater to the channel segment of Birch Stream adjacent to the facility. Given the shallow groundwater elevations and the depth of the domestic channel it is possible that groundwater could flow off-facility and into the channel which could then flow into Kenduskeag Stream. Therefore, the surface water and sediment ingestion exposure pathway for residents, or recreational user/trespassers is considered potentially complete.

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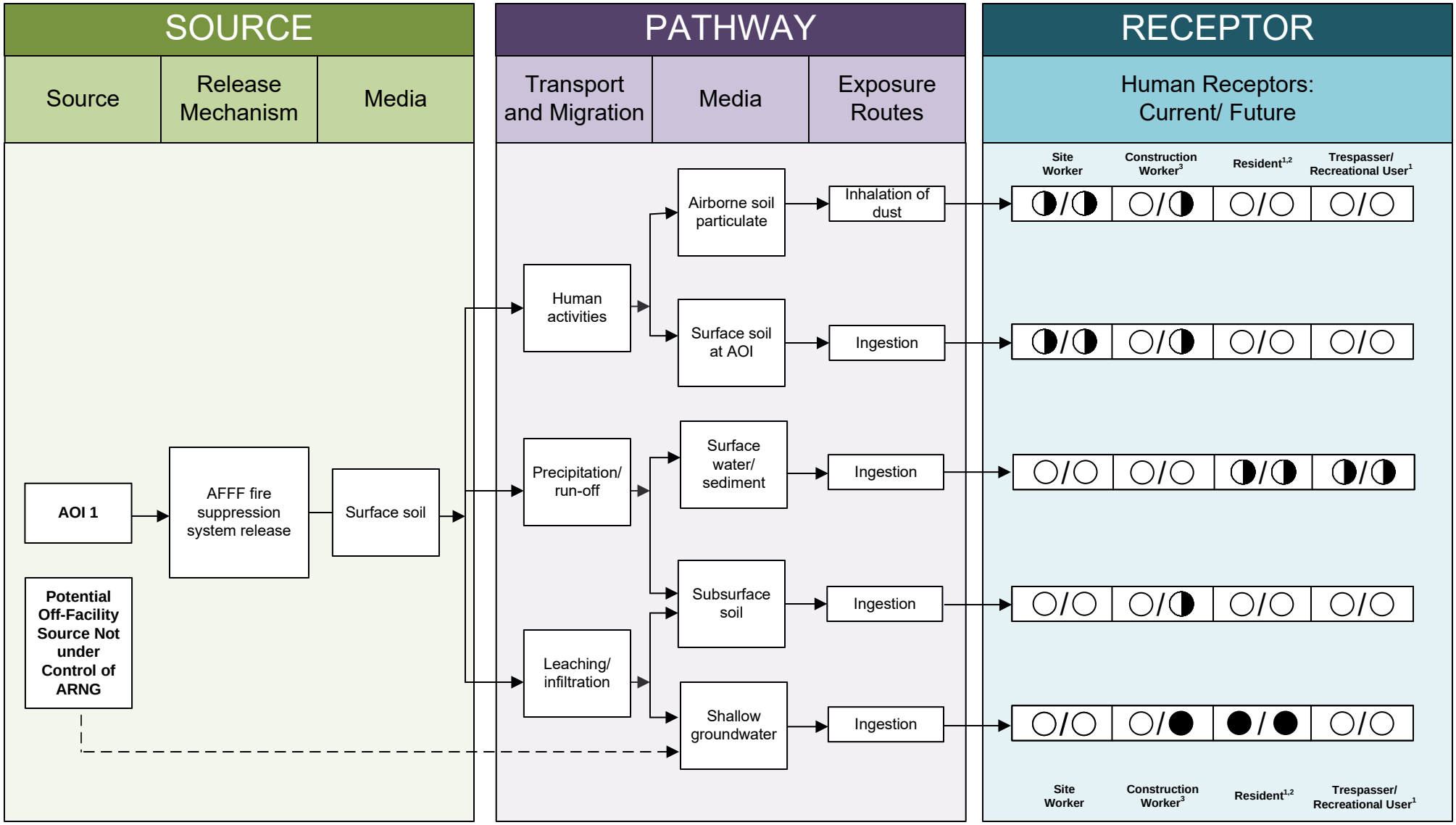


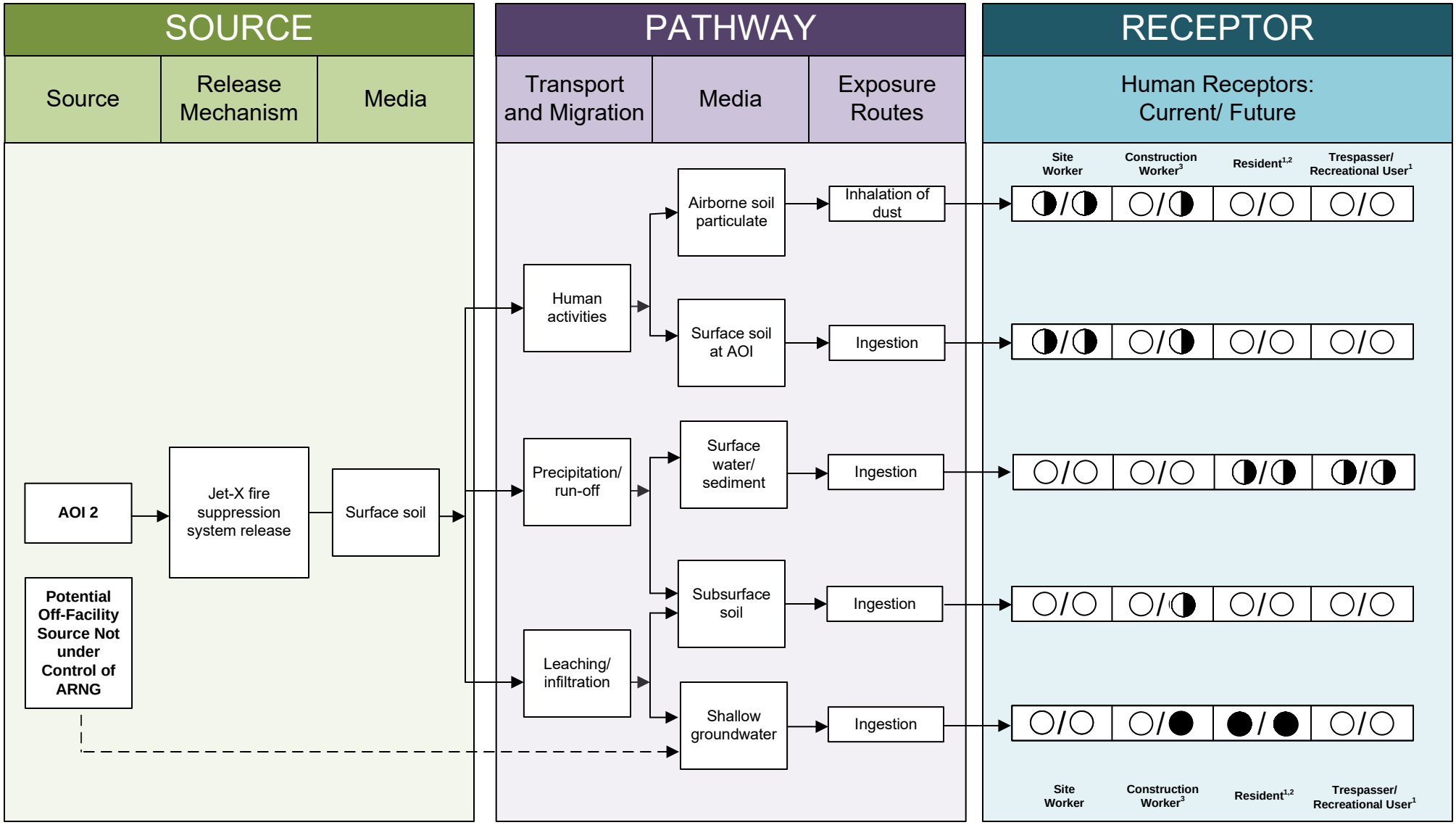
LEGEND

- 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. Inhalation of dust for off-site receptors is likely insignificant.
3. No current active construction at the facility.

Figure 7-1
Conceptual Site Model, AOI 1
Bangor Training Site



LEGEND

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

Notes:

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

Figure 7-2
Conceptual Site Model, AOI 2
Bangor Training Site

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 19 to 29 April 2022 and consisted of utility clearance, HSA borings, soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the SI QAPP Addendum (AECOM, 2021), except as previously noted in **Section 5.8**.

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

- Seventeen (17) soil samples from six boring locations;
- Six grab groundwater samples from six temporary wells;
- Twelve (12) 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 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 potential 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 is warranted in an RI for AOI 1 and AOI 2. 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:

- The detected concentrations of PFOA, PFOS, PFHxS, PFNA, and PFBS in soil at AOI 1 were below their SLs.
- PFOA, PFOS, and PFNA in groundwater exceeded their SLs. PFOA exceeded the SL of 6 ng/L, with a maximum concentration of 3,210 ng/L at location AOI01-03. PFOS exceeded the SL of 4 ng/L, with a maximum concentration of 75.2 ng/L at location AOI01-01. PFNA exceeded the SL of 6 ng/L, with a maximum concentration of 94.5 ng/L at location AOI01-03. PFHxS and PFBS were detected below their respective SLs. Based on the results of the SI, further evaluation of AOI 1 is warranted in an RI.

At AOI 2:

- The detected concentrations of PFOA, PFOS, PFHxS, PFBS, and PFNA in soil at AOI 2 were below their SLs.

- PFOA, PFOS, and PFHxS in groundwater exceeded their SLs. PFOA exceeded the SL of 6 ng/L, with a maximum concentration of 15.7 ng/L at location AOI02-04. PFOS exceeded the SL of 4 ng/L, with a maximum concentration of 14.8 ng/L at location AOI02-04. PFHxS exceeded the SL of 39 ng/L, with a maximum concentration of 89 ng/L at location AOI02-04. PFNA and PFBS were detected below their respective SLs. Based on the results of the SI, further evaluation of AOI 2 is warranted in an RI.

The topography at the facility and surrounding area would suggest that the groundwater flow direction is southeast; however, site-specific groundwater flow collected during this SI indicates that groundwater flows west, as shown in **Figure 2-4**. This could in part be due to shallow bedrock observed at AOI 2 (bedrock was identified as shallow as 3.3 feet bgs). The observed shallow depth to water measurements may be indicative of a bedrock high or other subsurface feature impacting the groundwater flow underlying the facility. Further evaluation is required to refine the groundwater flow direction.

Lastly, one of the two equipment blanks had detections of PFOS at 0.913 ng/L. More discussion about this equipment blank detection can be found in **Appendix A**.

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 – Potential Source Area	Groundwater – Potential Source Area	Groundwater – Facility Boundary	Future Action
1	Building 260	◐	●	●	Proceed to RI
2	Building 254	◐	●	●	Proceed to RI

Legend:

● = detected; exceedance of the screening levels

◐ = detected; no exceedance of the screening levels

○ = not detected

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