FINAL
Preliminary Assessment Report
Quonset Point Army Aviation Support Facility
North Kingstown, Rhode Island

Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

February 2020

Prepared for:

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

U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
Baltimore, MD 21201

Prepared by:

AECOM
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876
aecom.com

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Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
EDR	Environmental Data Resources
°F	degrees Fahrenheit
FTA	fire training area
HA	Health Advisory
HEMTT	Heavy Expanded Mobility Tactical Trucks
IRP	Installation Restoration Program
LPH	Landing Plane Hangar
NAS	Naval Air Station
NCBC	Naval Construction Battalion Center
ng/l	nanograms per liter
OWS	oil water separator
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
ppt	parts per trilion
RIANG	Rhode Island Air National Guard
RIARNG	Rhode Island Army National Guard
RIDEM	Rhode Island Department of Environmental Management
RIDOH	Rhode Island Department of Health
SI	Site Inspection
UCMR3	Unregulated Contaminant Monitoring Rule 3
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

Executive Summary

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division, Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and polyfluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam released as part of firefighting activities, although other PFAS sources are possible.

AECOM completed a PA for PFAS at the Quonset Point Army Aviation Support Facility (AASF) in North Kingstown, Rhode Island (referred to as 'the Site') to assess potential PFAS release areas and exposure pathways to receptors. The Quonset Point AASF is constructed on a parcel of land that has been leased by the Rhode Island ARNG (RIARNG) from the US Air Force since 1981. The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit 26 September 2019
- Interviewed current RIARNG personnel and operations staff
- Completed visual site inspections at known or suspected potential PFAS release locations and documented with photographs
- Developed a preliminary conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Area of Interest (AOI) and the Site

Two AOIs related to a potential PFAS release were identified (**Table 7-1**) at the Quonset Point AASF during the PA (**Figure 7-1**).

Table ES-1: AOIs at the Quonset Point AASF

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	North and South Hangar Fire Suppression System	RIARNG	2009-present
AOI 2	Former Plating Building	Private Industry	1989-2008

Based on potential PFAS release at these AOIs, there is potential for exposure to PFAS contamination in media at or near the Site. The preliminary CSM for the Quonset Point AASF, which presents the potential receptors and media impacted, is shown in **Figure ES-2** and **Figure ES-3**. Based on the US Environmental Protection Agency (USEPA) Unregulated Contaminant Monitoring Rule 3 (UCMR 3) data, it was indicated that no PFAS were detected in a public water system above the USEPA's Lifetime Health Advisory (HA) level within 20-miles of the Site. However, subsequent sampling performed under the direction of the Rhode Island Department of Health did find PFAS detections (below USEPA HA levels) in several nearby public water systems.

CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Quonset Point, RI			
REVISED	11/19/2019	GIS BY	MS	11/19/2019
SCALE	1:3,240	CHK BY	AB	11/19/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	11/19/2019

- Potential PFAS Release
- Facility Boundary
- Water Body
- Wetland
- River/Stream

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Summary of Findings

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Figure ES-1

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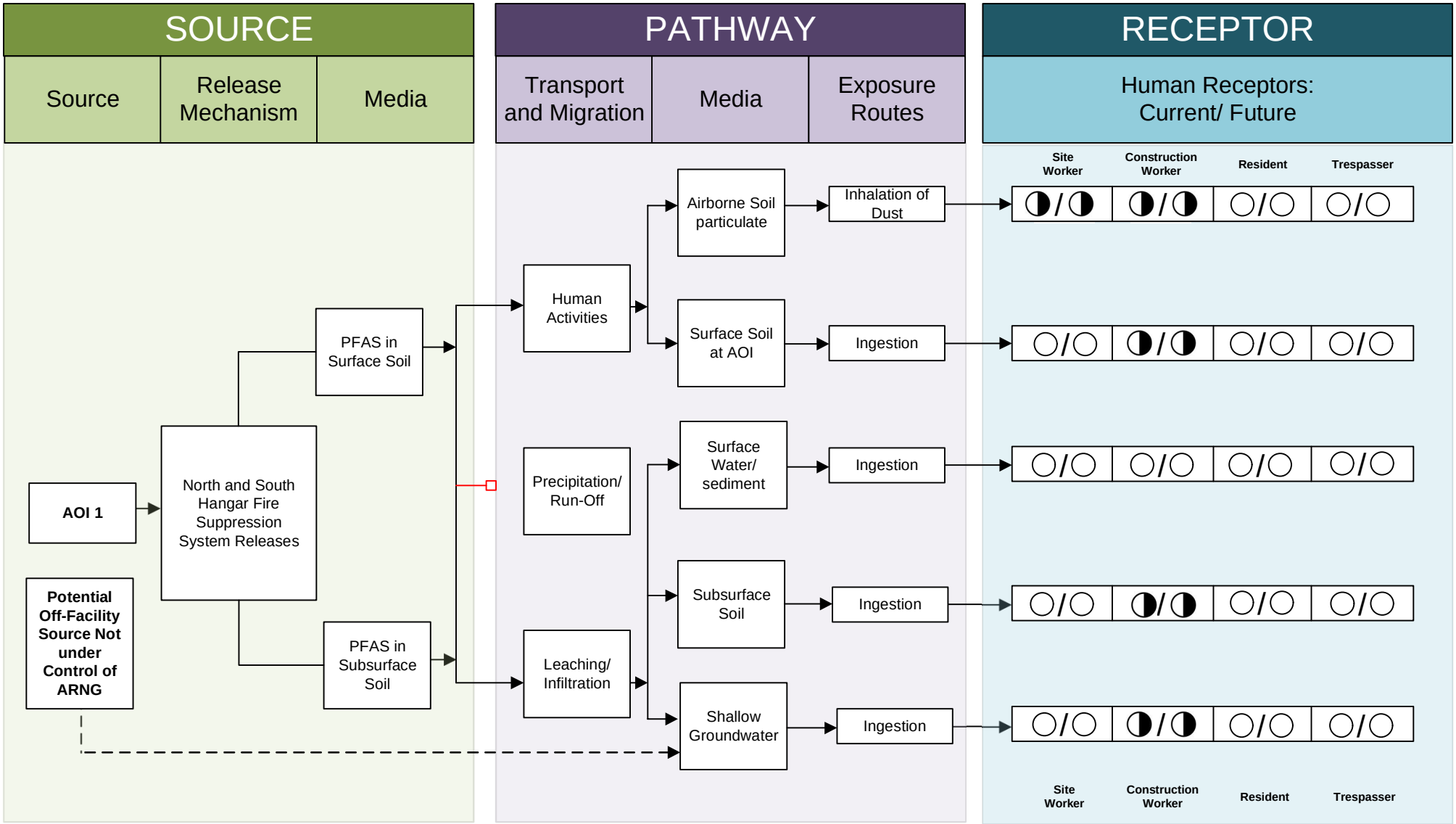


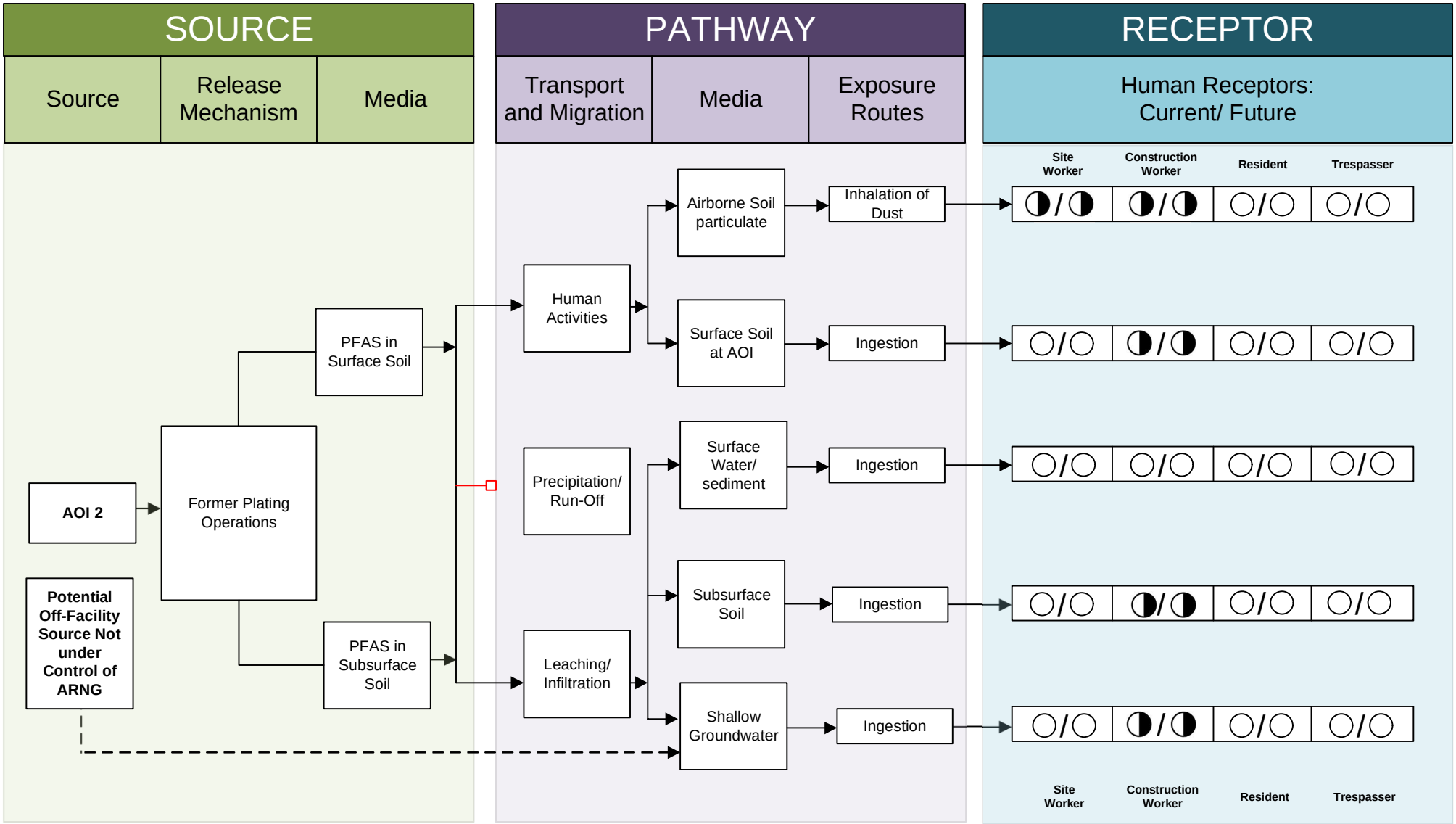
LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

NOTES

1. The resident receptor refers to an off-site resident.
2. No surface water bodies were identified at the facility, but the surface water/sediment pathway is considered for off-site receptors because it is not known whether there are off-site groundwater discharges to surface water bodies.

Figure ES-2
Preliminary Conceptual Site Model
AOI 1: North and South Hangar Fire Suppression System
Quonset Point AASF, North Kingstown, RI



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2. No surface water bodies were identified at the facility, but the surface water/sediment pathway is considered for off-site receptors because it is not known whether there are off-site groundwater discharges to surface water bodies.

Figure ES-3
Preliminary Conceptual Site Model
AOI 2: Former Plating Building
Quonset Point AASF, North Kingstown, RI

1. Introduction

1.1 Authority and Purpose

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division, Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide* under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and polyfluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam (AFFF) released as part of firefighting activities, although other PFAS sources are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of PFAS compounds in the environment varies. The regulatory framework at both federal and state levels continues to evolve. The United States Environmental Protection Agency (USEPA) issued a Drinking Water Lifetime Health Advisory (HA) for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. In the absence of federal maximum contaminant levels, some states have adopted their own drinking water standards for PFAS. As of 2017, the Rhode Island Department of Environmental Management (RIDEM) has established groundwater quality standards for PFOA, PFOS, or a combination of PFOA and PFOS of 70 parts per trillion (ppt) (RIDEM, 2017).

This report presents the findings of a PA for PFAS at the Quonset Point Army Aviation Support Facility (AASF) (referred to as 'the Site') in North Kingstown, Rhode Island, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; USEPA, 1980), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations [CFR] Part 300; USEPA, 1994), and USACE requirements and guidance.

This PA documents the known locations where PFAS may have been released into the environment at the Quonset Point AASF. The term PFAS will be used throughout this report to encompass all PFAS chemicals being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit 26 September 2019
- Interviewed current Rhode Island ARNG (RIARNG) personnel and operations staff
- Completed visual site inspections at known or suspected potential PFAS release locations and documented with photographs

- Developed a preliminary conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Area of Interest (AOI) and the Site

1.3 Report Organization

This report has been prepared in accordance with the USEPA *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA, 1991). The report sections and descriptions of each are:

- **Section 1** – **Introduction:** identifies the project purpose and authority and describes the Site location, environmental setting, and methods used to complete the PA
- **Section 2** – **Fire Training Areas:** describes the fire training areas (FTAs) at the Site identified during the site visit
- **Section 3** – **Non-Fire Training Areas:** describes other locations of potential PFAS releases at the Site identified during the site visit
- **Section 4** – **Emergency Response Areas:** describes areas of potential PFAS release at the Site, specifically in response to emergency situations
- **Section 5** – **Adjacent Sources:** describes sources of potential PFAS release adjacent to the Site that are not under the control of ARNG
- **Section 6** – **Preliminary Conceptual Site Model:** describes the pathways of PFAS transport and receptors for the AOIs and the Site
- **Section 7** –**Conclusions:** summarizes the data findings and presents the conclusions of the PA
- **Section 8** – **References:** provides the references used to develop this document
- **Appendix A** – Data Resources
- **Appendix B** – Preliminary Assessment Documentation
- **Appendix C** – Photographic Log

1.4 Site Location and Description

The Quonset Point AASF is an active support installation located on approximately 27.9 acres in Washington County, Rhode Island, approximately 15 miles south of Providence, Rhode Island (**Figure 1-1**). The Site is bounded to the north by the Rhode Island Air National Guard (RIANG) facility, to the east by the Quonset State Airport operated flight line, to the south by a municipal airport hangar, and to the west by private industries associated with the Quonset Business Park.

The Quonset Point AASF is constructed on several parcels of land that are owned by US Air Force and leased to the RIARNG since 1981 (**Appendix A**). In 1939, Quonset Point was acquired by the US Navy, and construction of an air station and pier began in 1940 (EA Engineering, 2004a). From 1940 to 1973, the existing Site boundaries were part of the Navy facility, which included Naval Air Station (NAS) Quonset Point and the Naval Construction Battalion Center (NCBC) Davisville. The primary mission of NAS Quonset Point was to provide mobilization support to the active Naval Construction Force at NCBC Davisville and to act as a mobilization base for the rapid assembly outfitting and readying of Reserve Construction Battalions (EA Engineering, 2004a).

In 1973, NAS Quonset Point and the associated air support facilities were closed, and ownership was transferred to the State of Rhode Island (**Appendix A**). Simultaneous with this ownership transaction, the State of Rhode Island began leasing the existing AASF parcel to the US Air Force for the RIANG (ERM, 1996). In 1981, the US Air Force licensed a portion of the existing facility boundary to the RIARNG for a period of 50 years (**Appendix A**). Several other parcels were added to the existing Site boundary since that time.

Currently, the Site is comprised of two hangars (one for cold storage and one for active maintenance) which were built on the footprints of former Navy Landing Plane Hangar (LPH) #2 and #4. The original AASF occupied the former LPHs beginning in 1981. According to RIARNG personnel, the former LPHs had wet sprinkler systems that were not capable of using AFFF (**Appendix B**). However, it is not clear if the Navy otherwise stored or used AFFF in the former LPHs. The original AASF hangars were demolished in the 2000s for construction of the new AASF. LPH #2 was demolished in 2010, and LPH #4 was demolished in the early-2000s. Construction of the new AASF was phased. The north hangar was constructed after demolition of LPH #4 and was completed in approximately 2009-2010. The south hangar was constructed after demolition of LPH #2 and was completed in approximately 2011-2012. Coordinates of the north and south hangars are 41°35'42.00"N; 71°24'51.92”W and 43°35'44.62"N; 71°24'54.13”W, respectively.

1.5 Site Environmental Setting

The Site is located on the Seaboard Lowland coastal belt of the New England physiographic province, within Narragansett Bay. The topography across Quonset Point is generally flat and is only a few feet above sea level (EA Engineering, 2004c; RIDEM, 2019). The vast majority of the Site is located within a 100-year flood zone. Most of the natural swamps and marshes found within this region were filled during construction of NAS Quonset Point. Farther to the west, the land surface exhibits over 150-feet of relief in a series of north-south trending valleys, and ridges formed during the last glaciation (EA Engineering, 2004a).

1.5.1 Geology

The Site and surrounding area are located within the Narragansett Basin, a complex north-south trending syncline approximately 12-miles wide and up to 12,000-feet deep. The principle bedrock unit where the Site is located is the Pennsylvanian aged (323 to 298-million years ago) Rhode Island Formation (EA, Engineering, 2004c) (**Figure 1-2**). The original sedimentary bedrock of the formation was primarily marine fine- to coarse-grained sandstone and shale, which was subsequently metamorphosed into various types of meta-sandstone (quartzite), metaconglomerates, meta-argillites, phyllite, gneiss, and schist. The Rhode Island Formation is further characterized by cross-bedding and irregular, discontinuous beds. No mapped faults exist within at least 2 miles of the Site (EA Engineering, 2005; USGS, 2019). Bedrock investigations in the surrounding area have observed the depth to competent bedrock ranges approximately 38 to 66-feet below ground surface (bgs) (EA, Engineering, 2004c).

The unconsolidated Quaternary (2.6-million years to present) soil overlying the bedrock was deposited by glacial activity during the Pleistocene Epoch (**Figure 1-2**). The final deposition of glacial material occurred during the Wisconsin glacial stage (10,000-20,000-years ago). As the glacial front melted and receded, unconsolidated glacial till and glacio-lacustrine sediments were deposited. A dense, non-stratified, heterogeneous mixture of sand, silt, clay, and gravel was emplaced on top of the bedrock (EA Engineering, 2004c). Within the area of the Site, the thickness of the glacial deposits ranges from 10 to 100 feet in thickness. While these deposits are present at the Site, the majority of the area is covered with structures and pavement.

1.5.2 Hydrogeology

The Narragansett Bay is the largest body of water near the Site and surrounds Quonset Point on three sides. The surficial aquifer (Potowonmut-Wickford Aquifer System) is unconfined and located within the glacial deposits below the site. Depth to groundwater measured from the adjacent RIANG facility range from 4 to 9 feet bgs (AMEC, 2018. A deep overburden hydrologic zone exists between the surficial fill and glacial deposits and underlying bedrock. This zone consists of silty, gravelly sand to sandy, gravelly silt. Below this middle unit is the competent bedrock, which in places has shown to be partially confined.

Groundwater flow in surficial aquifer is generally southeast towards Narragansett Bay. Additionally, this aquifer system is tidally influenced, and its salinity is affected by fresh and marine water environments. The groundwater features of the Site and surrounding area are shown in **Figure 1-2**.

There are no known drinking water wells located on or near the Site. Groundwater in the Quonset Point area is not within a Groundwater Reservoir, Groundwater Recharge, or Sole Source Aquifer, as designated by RIDEM (RIDEM, 2019). Additionally, the groundwater beneath the Site and in the surrounding area is not within a designated Community or Non-Community Wellhead Protection Area. The nearest public drinking water well is located approximately 2 miles upgradient of the Site. In addition, the groundwater at the Site (and Quonset Point as a whole) is designated as ‘GB’ by RIDEM, which applies to groundwater sources that may not be suitable for public or private drinking water without treatment due to known or presumed degradation of groundwater quality (RIDEM, 2009).

The ARNG has not performed any PFAS sampling on Site. Additionally, based on a review of the USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR 3) data, no public water supply has been sampled within 20 miles of the Site. However, the Rhode Island Department of Health (RIDOH), in conjunction with municipal water suppliers, have performed PFAS sampling independent of the UCMR 3 program. Results found that several surrounding public drinking water supplies had detectable concentrations of PFAS, but they were all below USEPA HA levels. These results have been tabulated by the RIARNG and are included in **Appendix A**.

1.5.3 Hydrology

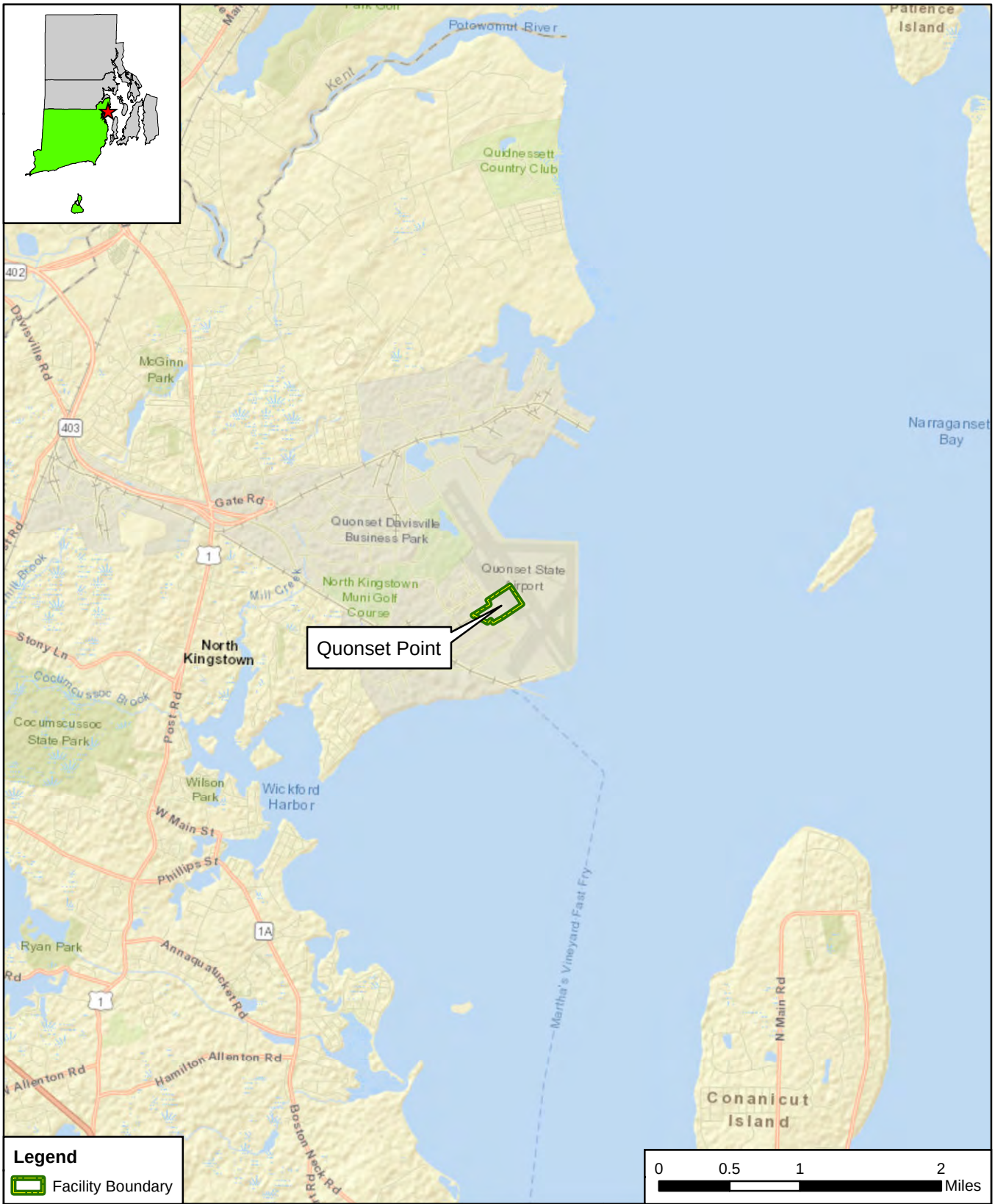
There are no surface water features within the facility boundary. The closest surface water feature is Frys Pond, which is approximately 3,000 feet north of the Site (**Figure 1-3**). According to RIARNG personnel, any precipitation that falls on Site is captured in storm drain catch basins that flow away from the hangar and eventually into Narragansett Bay via Frys Pond (**Appendix B**). During large storm events, water typically pools in the grassy area along the runway to the east of the Site.

1.5.4 Climate

The climate at the Site consists of four clearly separated seasons, with predominant weather movement from west to east. Temperatures vary from average highs of 60.3 degrees Fahrenheit (°F) to average lows of 39.4 °F. Average precipitation is 51.41-inches of rain and 37-inches of snowfall during winter months (World Climate, 2019).

1.5.5 Current and Future Land Use

The Quonset Point AASF is a controlled access Site adjacent to the RIANG. The anticipated future land use is not expected to change from the current land use; however, future infrastructure improvements, land acquisitions, and land use controls are unknown.



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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	11/15/2019

Facility Location

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Figure 1-1

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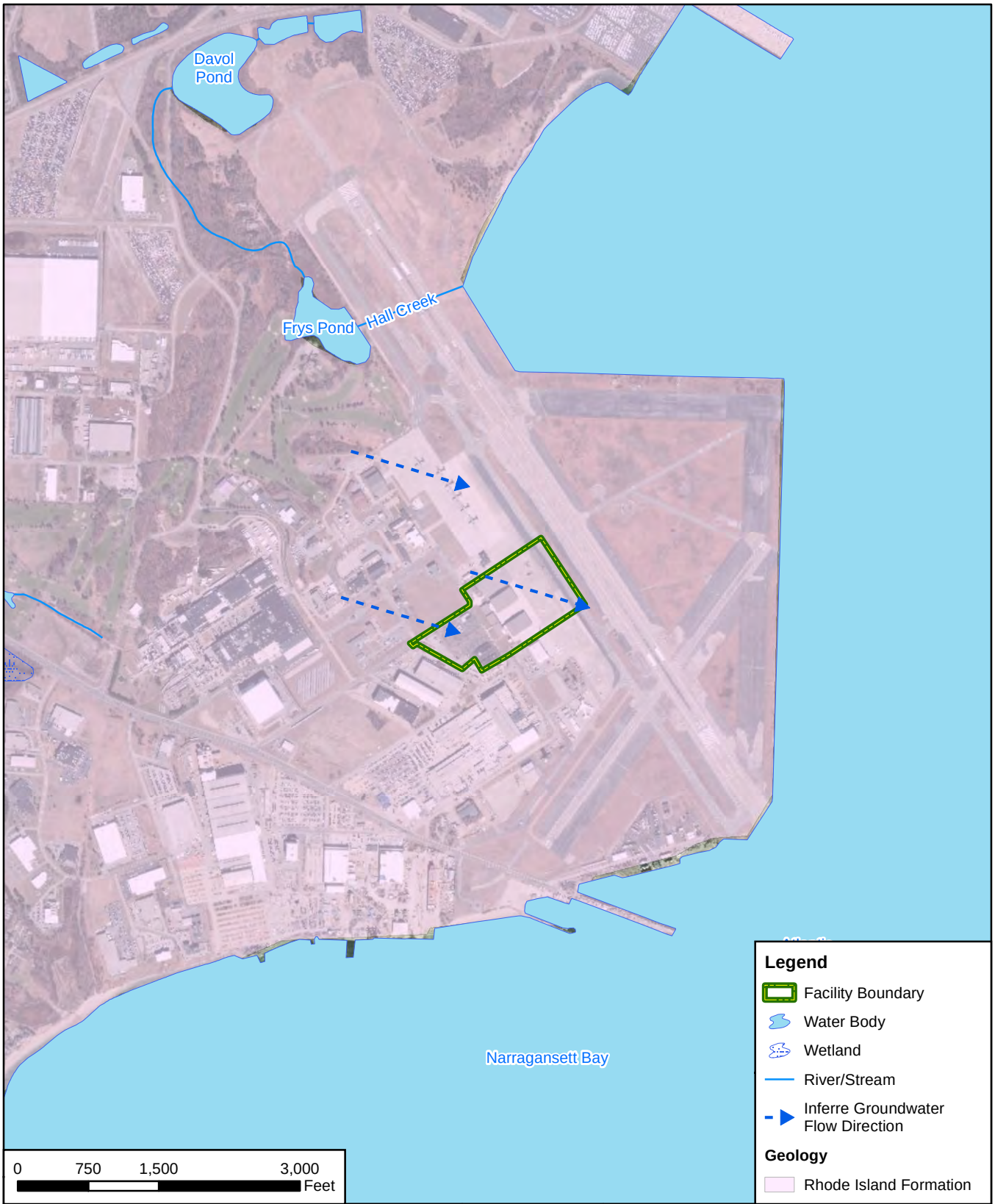

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/19/2019

Groundwater Features

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Figure 1-2

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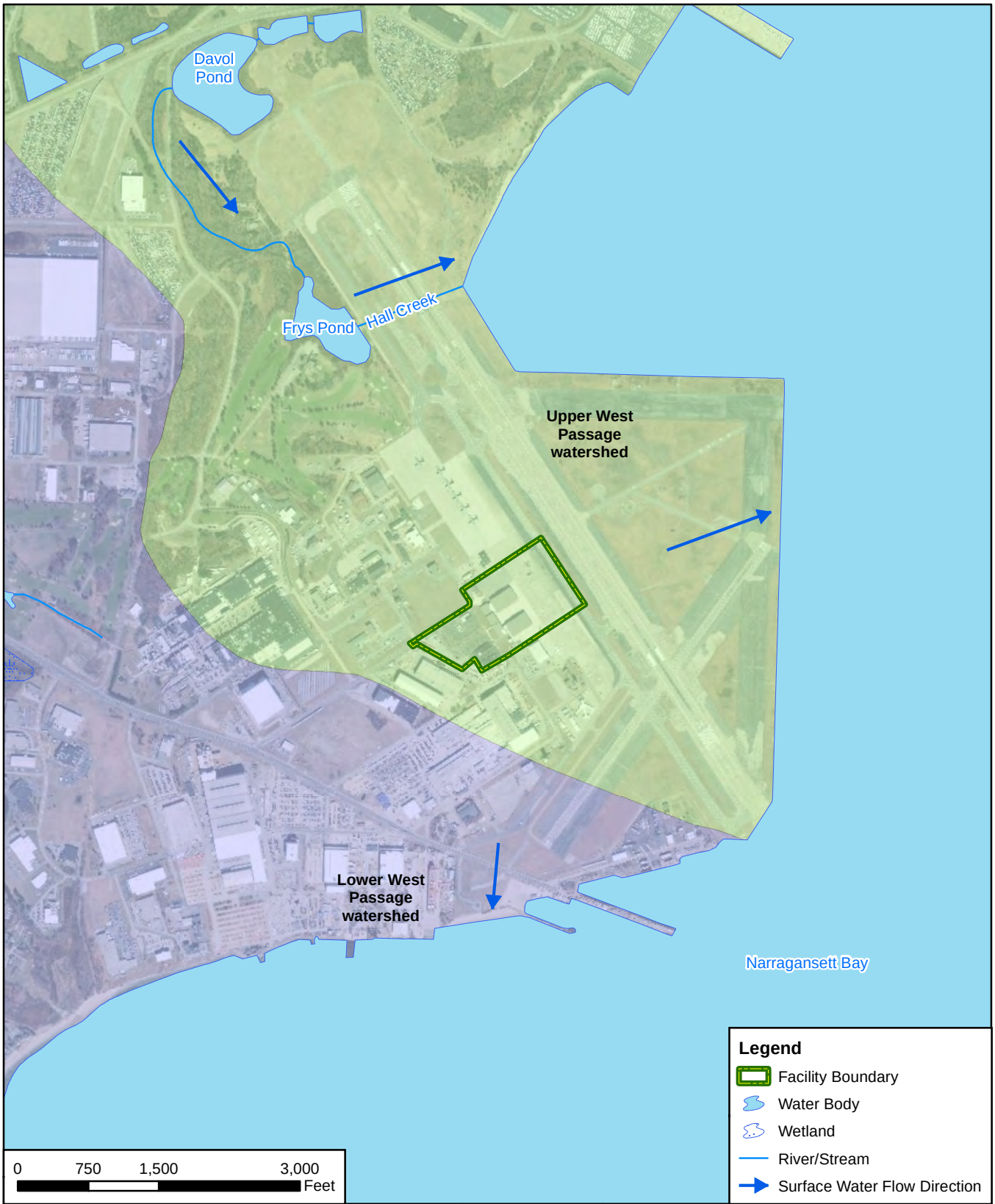

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

No FTAs were identified within the facility boundary during the PA through interviews or document review. The RIANG Fire Department provides first response emergency services to the RIARNG. If necessary, the Town of North Kingstown Fire Department would respond second. According to RIARNG personnel, no joint fire training exercises with the RIANG or Town of North Kingstown have occurred in recent memory (**Appendix B**).

3. Non-Fire Training Areas

Non-FTAs where AFFF were stored and/or potentially released were identified during the PA. A description of the non-FTAs is presented below, and the non-FTAs are shown on **Figure 3-1**.

3.1 North and South Hangar Fire Suppression System

The AASF comprises administrative offices, two hangars, and supporting maintenance space. As previously mentioned, one of the current hangars is used for cold storage (South Hangar), and the other is actively used for helicopter maintenance (North Hangar). Construction of the AASF was completed in approximately 2012 on the footprints of LPH #2 and #4. The original AASF occupied the former LPHs beginning in 1981. According to RIARNG personnel, the former LPHs had wet sprinkler systems that were not capable of using AFFF (**Appendix B**).

The current AASF is equipped with an AFFF fire suppression system. The existing fire suppression system is housed in a maintenance room within the South Hangar and contains a 700-gallon tank of Chemguard 3% AFFF C-301MS. This fire suppression system services both the North and South Hangars.

According to RIARNG personnel and contractors who were working at the Site at that time, the fire suppression system was initially tested in the North Hangar after construction completion in 2009-2010. During the test, a by-pass line was connected to the end of the header line, and the test foam was released directly on the concrete in the courtyard (area between the two hangars). Accounts from RIARNG personnel and contractors indicated that dish soap, not AFFF, was used during the initial test; however, no documentation has been found to confirm this information. After completion of the test, the soap entered the storm drain and discharged into Narragansett Bay via Frys Pond.

Since this time, testing of the fire suppression system has occurred on a semi-annual basis. The design of the fire suppression system dictates the method in which testing is performed. The Quonset Point AASF fire suppression system is a wet-line system where the piping is primed with a 3% AFFF solution. Testing is performed by opening the header at the end of each section of piping and collecting the AFFF solution in a 55-gallon drum. A vacuum truck then vacuums the AFFF from the drum into the tank for offsite transport and disposal. Typically, 30-60 gallons of AFFF solution are generated from multiple header lines tested within both hangars. According to RIARNG personnel, the only release to the environment from these tests was drips from vacuum truck hoses and header lines after completion of the test. No other documented releases were found during the PA, and RIARNG personnel could not recall any accidental spills or releases occurring within the last 20-years.

3.2 Former Plating Building

An industrial plating building was identified at an adjacent property, which was later part of a parcel transfer to the RIARNG and is now part of the existing facility boundary. Historically, the property was owned by the Navy and used for aviation equipment assembly and maintenance until it was transferred to the State of Rhode Island in 1973. From that time until it was acquired by the RIARNG, the property was leased to private owners for industrial uses. Historic records found during the PA only went back as far as 1989, when the property was listed as Noble Industries. Later documentation listed the property as Annex Industries. The geographic coordinates of the former plating building are 41°35'41.58"N; 71°25'00.20”W.

Information obtained from the Environmental Data Resources (EDR) report confirmed that Noble and Annex Industries were generators of wastewater and sludges produced from electroplating

operations. Documentation within the EDR report specifically listed waste generated from aluminum anodizing; chemical etching and milling; and tin, zinc, and aluminum electroplating. The EDR report did not mention any waste generated as a result of chrome electroplating. The last dated piece of information included in the EDR report was a manifest dated April 2008. A review of aerial photography indicates that the building was demolished in 2009, likely in conjunction with the start of the new AASF construction. The concrete pad of the building still exists and is currently used by the RIARNG for Heavy Expanded Mobility Tactical Trucks (HEMTT) parking.

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/15/2019

Non-Fire Training Areas

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Figure 3-1

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4. Emergency Response Areas

No emergency response areas were identified within the Site during the PA through interviews or document review. Additionally, it is not known whether any emergency response areas existed within the facility boundaries before the property was turned over to RIARNG in 1981. The RIANG provides fire emergency services for the Site.

5. Adjacent Sources

Through document review and interviews, multiple offsite PFAS sources adjacent to the Site were identified during the PA (**Appendix A** and **Appendix B**). Included in the document review were two PFAS PAs (one completed by the Navy and one by the RIANG) that identified FTAs and other potential sources of PFAS surrounding the Quonset Point AASF. The Navy PA evaluated the area formerly encompassing both NAS Quonset Point and NCBC Davisville. A small portion of the former Navy land encompasses the existing RIANG facility (Resolution, 2016). The RIANG PFAS PA covered the area currently owned and operated by the active airlift wing of the RIANG (BB&E, 2016).

An SI was performed at several sites based on the results of the RIANG PA. Those results are summarized in the section below. Based on the results, the RIANG PFAS SI recommended no further action at the identified RIANG sites. The results of the Navy PA recommended no further action at two of the identified sites. A third area used by the Navy is currently owned and operated by the RIDOT. **Figure 5-1** presents the location of potential adjacent source areas to the Quonset Point AASF.

5.1 RIANG Fire Station

The current RIANG Fire Station is housed in Building 11 and was built in 1981. The building is 8,239 square feet in size and is constructed of masonry block walls and concrete floors. As documented in the RIANG PA, AFFF is utilized by the fire department and stored in each of the crash trucks (BB&E, 2016). As of 2016, there were four fire department crash trucks that hold 3% AFFF, for a total of approximately 822-gallons of AFFF. The AFFF transfers occur via hand, typically by manually pouring 5-gallon AFFF totes into the foam trailer initially or via a transfer pump if using 55-gallon drums (BB&E, 2016). Crash trucks are filled from the foam trailer via a transfer pump. Any spills or releases within the building would have gone to the floor drains, which flow to an oil water separator (OWS) prior to discharge to the sanitary sewer. No releases of AFFF have been reported in the fire station.

As a result of these PA findings, three soil borings were advanced, and one groundwater sample was collected from the area surrounding Building 11. Two surface soil samples were collected at 0-2 feet bgs, and two subsurface soil samples at 5-6 feet bgs (AMEC, 2018). Analytical results indicated several PFAS compounds were detected above the laboratory reporting limit in each boring, but no PFAS compounds exceeded the screening levels (using Air Force calculated soil values [AMEC, 2018]). Groundwater results from the temporary monitoring well detected PFOS and PFOA concentrations of 2,680 nanograms per liter (ng/L) and 185 ng/L, respectively (AMEC, 2018). These results are above the USEPA HA and RIDEM groundwater quality standards of 70 ng/L. Based on the groundwater classification, no further action was recommended at Building 11.

5.2 Former RIANG Fire Equipment Test Area

As documented in the RIANG PA, the RIANG fire department performed fire equipment tests where AFFF was sprayed onto the concrete apron and ramp area adjacent to Building 11 (BB&E, 2016). Interviews performed with fire department employees indicated the testing occurred approximately between 2010-2015. The exact frequency of testing varied but was thought to have occurred at least annually. The quantity of AFFF utilized during testing is unknown. AFFF utilized in this area could potentially enter the stormwater drains, which ultimately discharge to Frys Pond, located in this paved area (BB&E, 2016). Frys Pond is located approximately 2,000 feet to the northwest of Building 11, along the edge of the flight apron. Ultimately, Frys Pond drains to Narragansett Bay.

In addition to this fire equipment testing, an undetermined amount of AFFF was utilized in response to a jet fuel spill. In 1993, a jet fuel spill occurred, which resulted in the release of approximately 20 gallons on the aircraft apron (**Appendix A**). The area was sprayed with AFFF and washed into the stormwater drain system.

As a result of these PA findings, two soil borings were advanced, and one groundwater sample was collected from the approximate location of the fire equipment testing. Two surface soil samples were collected at 0-2 feet bgs and two subsurface soil samples at 5-6 feet bgs (AMEC, 2018). Analytical results indicated several PFAS compounds were detected above the laboratory reporting limit in each boring, but no PFAS compounds exceeded the screening levels (using Air Force calculated soil values [AMEC, 2018]). Groundwater results from the temporary monitoring well detected PFOS and PFOA concentrations of 956 ng/L and 1,110 ng/L, respectively (AMEC, 2018). These results are above the USEPA HA and RIDEM groundwater quality standards of 70 ng/L. Based on the groundwater classification, no further action was recommended in front of Building 11.

A second historic RIANG fire equipment test area was identified on the far east end of the abandoned Runway 10-28 located on land currently operated by the Quonset State Airport and owned by the Rhode Island Department of Transportation (BB&E, 2016). According to the RIANG PFAS PA, fire equipment training occurred in this general area from approximately 1990-2010. This area was used after the closure of the Navy/RIANG FTA discussed in **Section 5.4**.

5.3 RIANG Vehicle Maintenance Shop

The RIANG facility has a Vehicle Maintenance Shop, which has periodically serviced fire department vehicles. The Vehicle Maintenance Shop is housed in Building 3 and is located near the northwest corner of the RIANG facility. Building 3 was constructed in 1980 and consists of masonry block and brick with a concrete floor. Floor drains that flow into an OWS prior to discharge to the sanitary sewer are present. As documented in the RIANG PFAS PA, an undetermined amount of 3% AFFF was released during maintenance on one of the crash trucks in 2005. The AFFF drained into the floor drains and subsequently to the sanitary sewer. Foaming was noted at the local, publicly operated treatment works as a result of the AFFF release.

As a result of these PA findings, two soil borings were advanced, and one groundwater sample was collected from surrounding the Vehicle Maintenance Shop. Two surface soil samples were collected at 0-2 feet bgs, one subsurface sample from 6-8 feet bgs, and another subsurface sample from 5-6.5 feet bgs (AMEC, 2018). Analytical results indicated several PFAS compounds were detected above the laboratory reporting limit in each boring, but no PFAS compounds exceeded the screening levels (using Air Force calculated soil values [AMEC, 2018]). Groundwater results from the temporary monitoring well detected PFOS concentration of 139 ng/L (AMEC, 2018). These results are above the USEPA HA and RIDEM groundwater quality standards of 70 ng/L. The report indicated no further action, and currently, no additional investigation is planned.

5.4 Navy Fire Training Areas

Two FTAs were identified in the Navy PFAS PA. Installation Restoration Program (IRP) Site 11 consists of an open, grassy area measuring approximately 200 feet by 300 feet at the intersection of Moscrip Avenue and Middletown Street. Firefighting training activities were conducted at Site 11 between the mid-1940's and 1955 (Resolution, 2016). Firefighting training exercises consisted of igniting waste oils and extinguishing the fire. These activities ceased in 1955, prior to the introduction of AFFF for firefighting. The Navy recommended no further action at IRP Site 11 based on site closure prior to the creation of AFFF.

IRP Site 16 is an irregularly shaped area bounded to the west by Thompson Road and to the south by railroad tracks; the site also extends north to Allen Harbor and east to Narragansett Bay. A firefighting training area was reportedly located on a paved area located within the north-central portion of IRP Site 16. According to the Navy PFAS PA, training structures were constructed, doused with flammable materials, set on fire, and extinguished as part of the firefighting training exercises during the late-1960s (Resolution, 2016). Due to the questionable use of AFFF at IRP Site 16, the Navy performed groundwater sampling for PFOA and PFOS at four monitoring wells in November 2011. Results were below the USEPA HA and RIDEM groundwater quality standard of 70 ng/L.

A third Navy FTA was identified in the RIANG PFAS PA which was not captured in the Navy PFAS PA. Findings in a 2000 RIANG Environmental Baseline Survey indicated that a FTA used by the Navy existed approximately 4,000 ft north of the RIANG Fire Station (BB&E, 2016). The exact years of operation are not known, but as indicated in the RIANG PFAS PA, the FTA was originally used by the Navy and then by the RIANG when the airlift wing moved to Quonset Point in 1981. The RIANG PFAS PA confirms this area was used by the RIANG until the early-1990s (BB&E, 2016). Currently, this land is operated by the Quonset State Airport and owned by the Rhode Island Department of Transportation.

5.5 Quonset State Airport Fire Suppression System

Information obtained during interviews with RIARNG personnel indicated that the Quonset State Airport hangar, located directly south of the Quonset Point AASF, had a non-emergency release from the AFFF fire suppression system within the hangar (**Appendix B**). The exact date of the release was not known, several RIARNG personnel recall the event occurring within the last 20-years. Specific details regarding the type, quantity, or clean-up were not known.

CLIENT	ARNG			
Preliminary Assessment for PFAS at Quonset Point, RI				
REVISED	11/19/2019	GIS BY	MS	11/19/2019
SCALE	1:16,800	CHK BY	AB	11/19/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/19/2019

N

Adjacent Sources

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, two AOIs were identified at the Quonset Point AASF: AOI 1 North and South Hangars Fire Suppression System and AOI 2 Former Plating Building. The AOI locations are shown on **Figure 6-1**. The following sections describe the CSM components and the specific preliminary CSMs developed for the AOIs. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological study. Receptors at the current facility include site workers and construction workers. The preliminary CSM for the Quonset Point AASF indicates which specific receptors could potentially be exposed to PFAS.

6.1 AOI 1 North and South Hangar Fire Suppression System

AOI 1 is the North and South Hangar Fire Suppression System at the Quonset Point AASF. The North Hangar at the AASF was constructed first and was completed in approximately 2009-2010. The South Hangar was completed in approximately 2011-2012. The hangars are equipped with an AFFF fire suppression system that is housed in a maintenance room attached to the South Hangar. The system contains a 700-gallon tank of Chemguard 3% AFFF C-301MS with lines that extend along the length of both hangars. According to RIARNG personnel and contractors who were working at the Site at that time, the fire suppression system was initially tested soon after completion of the North Hangar. During the test, a by-pass line was connected to the end of the header line and released on the concrete in the courtyard (area between the hangars). Accounts from RIARNG personnel and contractors indicated that dish soap, not AFFF, was used during the initial test; however, no documentation has been found to confirm this information. After completion of the test, the soap entered the storm drain and discharged into Narragansett Bay via Frys Pond.

Since this time, testing of the fire suppression system has occurred on a semi-annual basis. The design of the fire suppression system dictates the method in which testing is performed. The Quonset Point AASF fire suppression system is a wet-line system where the piping is primed with a 3% AFFF solution. Testing is performed by opening the header at the end of each section of piping and collecting the AFFF solution in a 55-gallon drum. A vacuum truck then vacuums the AFFF from the drum and into the tank for transport and disposal. Typically, 30-60 gallons of AFFF solution are generated from multiple header lines tested within both hangars. According to RIARNG personnel, the only release to the environment from these tests was drips from vacuum truck hoses and header lines after completion of the test. No other documented releases were found during the PA, and no RIARNG personnel recalled any accidental spills occurring within the last 20-years.

Because the entirety of AOI 1 is covered in an impervious surface (concrete, asphalt, buildings, etc.), the transport/migration pathway to site media is likely incomplete. However, a conservative approach would assume PFAS could have migrated beneath these surfaces through cracks or other imperfections in the impervious cover. Therefore, potential exposure routes at AOI 1 do exist.

Ground-disturbing activities to surface soil at AOI 1 could result in site worker and construction worker exposure to potential PFAS contamination via inhalation of surface soil particles and ingestion of surface soil. Additionally, ground-disturbing activities could result in construction

worker exposure to subsurface soil via ingestion. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete.

PFAS are water soluble and can migrate readily from soil to surface water. There are no natural surface water features within AOI 1 or Quonset Point AASF. Direct infiltration is limited to the green space upgradient of AOI 1, from where the infiltrated water would enter the shallow groundwater. Any precipitation or surface flow within AOI 1 is conveyed to stormwater drains which eventually flow to Frys Pond and Narragansett Bay. Therefore, the surface water and sediment pathways for all receptors are considered incomplete.

Given the potential releases of PFAS to soil and the high water solubility of PFAS, it is possible that PFAS have migrated into groundwater. Therefore, the exposure pathway for ingestion of shallow groundwater is considered potentially complete for construction workers. Based on groundwater flow patterns and the upgradient position of residents and public water supplies, the exposure pathway for ingestion of shallow groundwater is considered incomplete for site workers and residents. The preliminary CSM for AOI 1 is shown on **Figure 6-2**.

6.2 AOI 2 Former Plating Building

AOI 2 is a former industrial plating building. The plating operation has been traced back to 1989 as Noble Industries. The last documentation found was dated 2008 and listed the property as Annex Industries. A review of aerial photography indicated that the building was demolished in approximately 2009. Information obtained from the EDR report confirmed that Noble and Annex Industries where generators of wastewater and sludges produced from electroplating operations. These operations specifically performed tin, zinc, and aluminum electroplating. No specific information was found in the EDR report regarding chrome or chrome plating operation. Additionally, there was no information found regarding the use of PFAS as a surfactant to prevent exposure to hazardous bubbles or plating solutions to workers. The concrete pad of the building still exists, and the RIARNG use the pad for HEMTT parking.

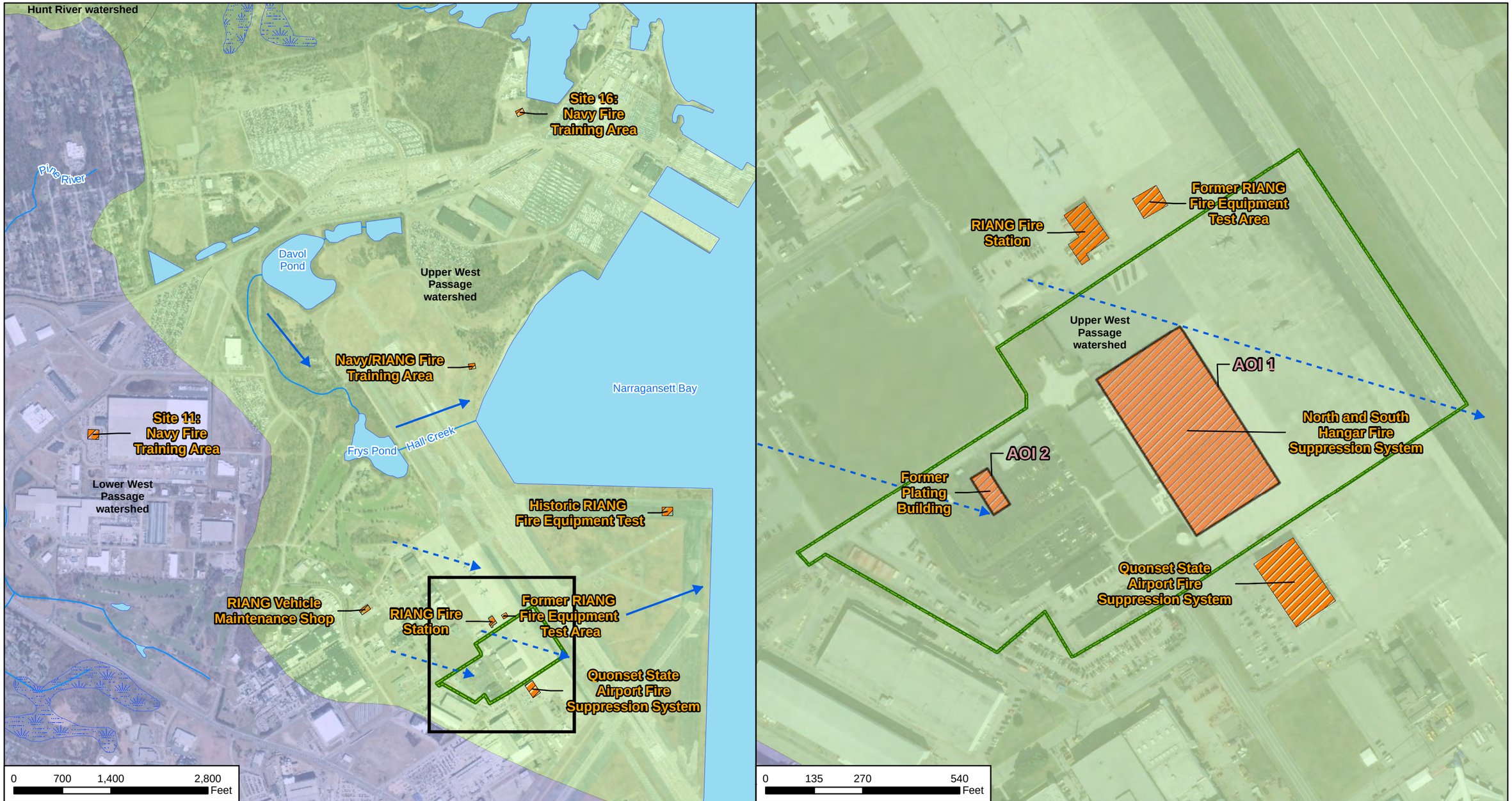
The entirety of AOI 2 is covered in an impervious surface (concrete, asphalt, etc.), and transport/migration to media is likely to be incomplete; however, a conservative approach would assume AFFF could have migrated beneath these surfaces through cracks or any other imperfections in ground cover. Therefore, potential exposure routes at AOI 2 do exist.

Ground-disturbing activities to surface soil at AOI 2 could result in site worker and construction worker exposure to potential PFAS contamination via inhalation of surface soil particles and ingestion of surface soil. Additionally, ground-disturbing activities could result in construction worker exposure to subsurface soil via ingestion. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete.

PFAS are water soluble and can migrate readily from soil to surface water. There are no natural surface water features within AOI 2 or Quonset Point AASF. Direct infiltration is limited to the green space surrounding AOI 2, from where the infiltrated water would enter the shallow groundwater. Any precipitation or surface flow within AOI 2 is conveyed to stormwater drains that eventually flow to Narragansett Bay. The configuration of the stormwater system was not found during the PA; therefore, the exact number and location catch basins and outfalls are unknown. With no readily available surface water features present, the ingestion of surface water and sediment is incomplete.

Given the potential releases of PFAS to soil and the high water solubility of PFAS, it is possible that PFAS have migrated into groundwater. Therefore, the exposure pathway for ingestion of shallow groundwater is considered potentially complete for construction workers. Based on groundwater flow patterns and the upgradient position of residents and public water supplies, the

exposure pathway for ingestion of shallow groundwater is considered incomplete for site workers and residents. The preliminary CSM for AOI 2 is shown on **Figure 6-3**.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Quonset Point, RI			
REVISED	11/19/2019	GIS BY	MS	11/19/2019
SCALE	1:3,240	CHK BY	AB	11/19/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	11/19/2019

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

N

Areas of Interest

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Figure 6-1

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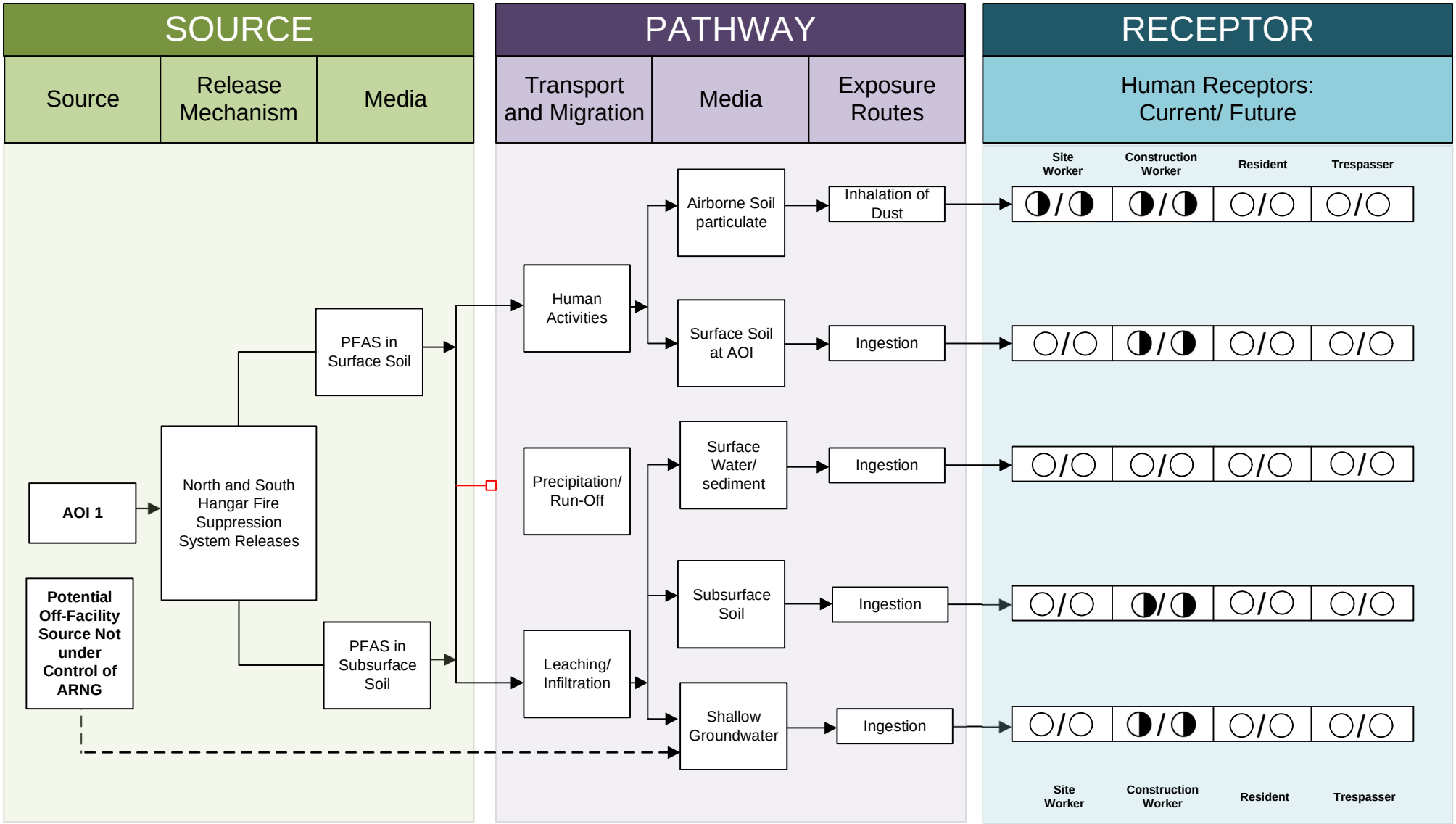


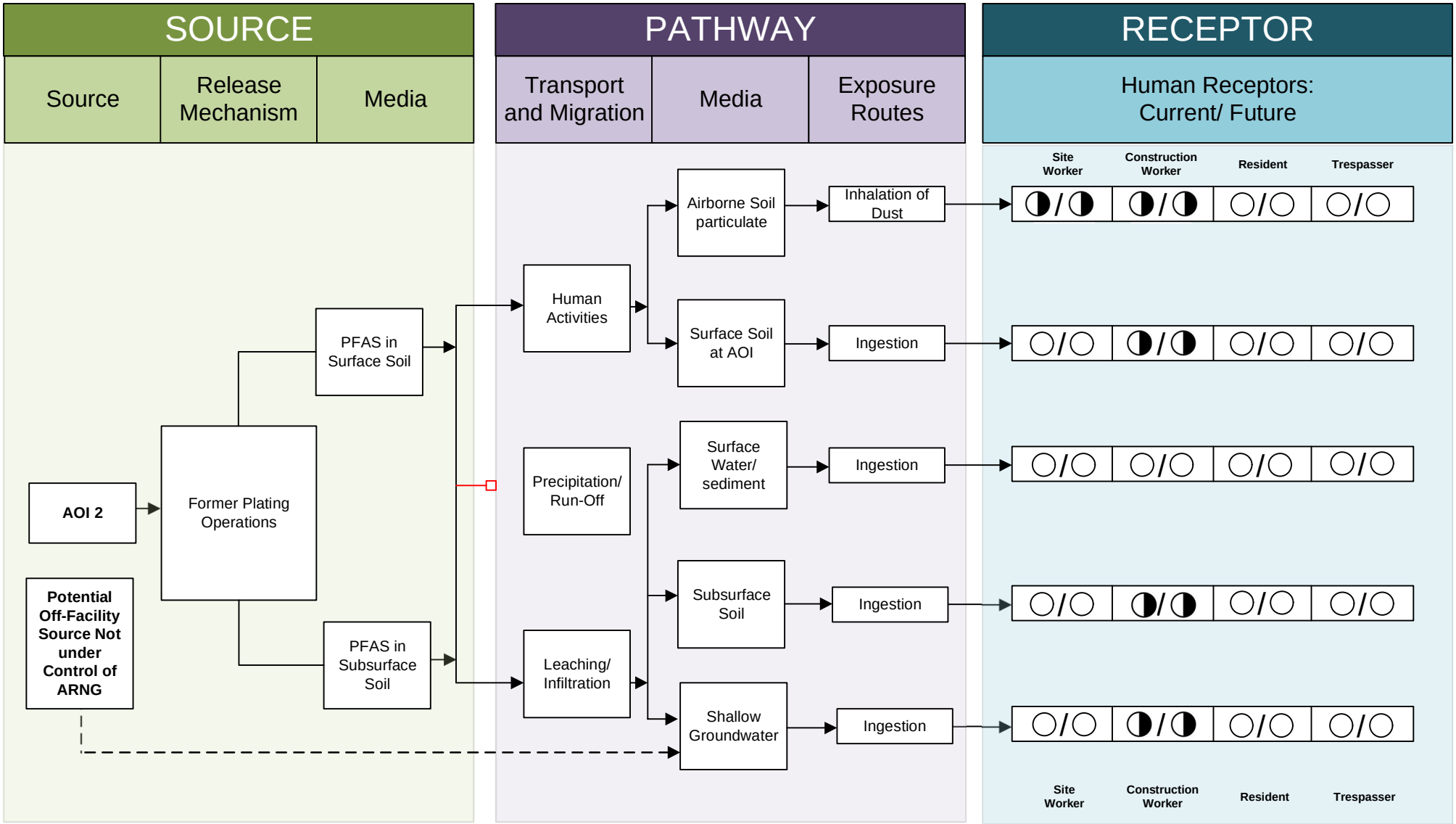
LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

NOTES

1. The resident receptor refers to an off-site resident.
2. No surface water bodies were identified at the facility, but the surface water/sediment pathway is considered for off-site receptors because it is not known whether there are off-site groundwater discharges to surface water bodies.

Figure 6-2
Preliminary Conceptual Site Model
AOI 1: North and South Hangars Fire Suppression System
Quonset Point AASF, North Kingstown, RI



LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

NOTES

1. The resident receptor refers to an off-site resident.
2. No surface water bodies were identified at the facility, but the surface water/sediment pathway is considered for off-site receptors because it is not known whether there are off-site groundwater discharges to surface water bodies.

Figure 6-3
Preliminary Conceptual Site Model
AOI 2: Former Plating Building
Quonset Point AASF, North Kingstown, RI

7. Conclusions

This report presents a summary of available information gathered during the PA on the use and storage of AFFF and other PFAS-related activities at the Quonset Point AASF. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Two AOIs related to a potential PFAS release were identified (**Table 7-1**) at the Quonset Point AASF during the PA (**Figure 7-1**).

Table 7-1: AOIs at the Quonset Point AASF

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	North and South Hangars Fire Suppression System	RIARNG	2009-present
AOI 2	Former Plating Building	Private Industry	1989-2008

Based on potential PFAS release at these AOIs, there is potential for exposure to PFAS contamination in media at or near the Site.

7.2 Uncertainties

A number of information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been present, used, or released at the Site. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept by the Site or available during the PA on the use of AFFF or other PFAS containing material at the AASF.

The conclusions of this PA are predominantly based on the information provided during interviews with personnel who had direct knowledge of AFFF of PFAS containing material use at the Site. Sometimes the provided information was vague or conflicted with other sources. Gathered information has a degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS was first used (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS release locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, retired and current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected. **Table 7-2** summarizes the uncertainties associated with the PA.

Table 7-2: Uncertainties

Area of Interest	Source of Uncertainty
All AOIs	Potential offsite PFAS release areas exist adjacent to the Quonset Point AASF. Several of these offsite areas are located upgradient of the Site and it is unknown whether or not these offsite sources affect the Quonset Point AASF.
AOI 1	The property belonged to and was used by the Navy from 1940-1973. The original AASF hangar (LPH #2 and #4) did not have an AFFF fire suppression system. However, it is unknown whether the Navy used or stored AFFF for other purposes during that time period.
AOI 1	According to interviewees recollections, the first fire suppression system testing was performed using dish soap and not AFFF. No documentation was found to confirm or refute that statement. No specific details regarding duration or volume of dish soap used. No specific details regarding how the fire suppression system was flushed after the system was flooded with dish soap.
AOI 2	No information was available regarding the use or presence of PFAS containing material for the purposes of vapor/mist suppression. Unclear on full history (years of operation and history of use).

7.3 Potential Future Actions

Interviews and records indicate that current and former activities may have resulted in potential PFAS releases at the two AOIs identified during the PA. Based on the preliminary CSM developed for the North and South Hangar Fire Suppression System, there is potential for receptors to be exposed to PFAS contamination in soil and groundwater. The Former Plating Building may have released PFAS containing material prior to transfer to the RIARNG. Similarly, based on the preliminary CSM developed for this AOI, there is potential for receptors to be exposed to PFAS contamination in soil and groundwater. **Table 7-3** summarizes the rationale used to determine if these AOIs should be considered for further investigation under the CERCLA process and undergo an SI.

It should be noted that results from the RIANG and Navy PFAS PA have identified adjacent sites that may have contributed PFAS to soil and groundwater in the surrounding area. Limited soil and groundwater data collected by the RIANG confirm that several of the identified sites have concentrations of PFAS in exceedance of the USEPA HA and RIDEM groundwater quality standards. As a result of activities from other stakeholders, it is possible that PFAS impacts may have migrated from these offsite sources to the Quonset Point AASF facility boundary. Any further investigation at the Quonset Point AASF should focus, as much as possible, on the most likely transport methods and media impacted by the releases identified in this PA.

The ARNG will evaluate the timing of an SI at the Quonset Point AASF based on the likely presence of a PFAS release, potential receptors, and the migration potential of PFAS contamination to receptors.

Table 7-3 PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1: North and South Hangar Fire Suppression System	41°35'42.00"N; 71°24'51.92”W and 43°35'44.62"N; 71°24'54.13”W	Fire suppression system testing may have released AFFF to environmental media.	Proceed to an SI, focus on soil and groundwater.
AOI 2: Former Plating Building	41°35'41.58"N 71°25'00.20”W	Industrial plating operations may have released PFAS containing chemicals to environmental media.	Proceed to an SI, focus on soil and groundwater.

CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Quonset Point, RI			
REVISED	11/19/2019	GIS BY	MS	11/19/2019
SCALE	1:3,240	CHK BY	AB	11/19/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	11/19/2019

- Potential PFAS Release
- Facility Boundary
- Water Body
- Wetland
- River/Stream

N

Summary of Findings

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Germantown, MD 20876

Figure 7-1

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8. References

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BB&E. 2016. *Final Perfluorinated Compounds Preliminary Assessment Site Visit Report*, Quonset Air National Guard Base, North Kingstown, Rhode Island. January.

EA Engineering. 2004a. *Site Investigation Work Plan, Rhode Island Army National Guard, Army Aviation Support Facility, North Kingstown, Rhode Island*. May.

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Resolution Consultants. 2016. *Evaluation of Potential Sources of Perfluorinated Compounds*. Former Naval Construction Battalion Center, Davisville, North Kingstown, Rhode Island. December.

RIDEM. 2009. *A Summary of Rhode Island Groundwater Classification and Ground Standards*. September.

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Appendix A
Data Resources

Data resources will be provided separately on CD. Data resources for the Quonset Point AASF include:

Environmental Data Resources Report

- 2019 The EDR Radius Map™ Report with GeoCheck®; Aerial Photo Decade Package; and Certified Sanborn® Map Report; Quonset Poin, 104 Airport Street, North Kingtown, RI 02852. Request October 4, 2019.
- 2019 The EDR Radius Map™ Report with GeoCheck®; Noble Industries, 241 Conway Aveneue, North Kingstown, RI 02852. Requested October 11, 2019.

Previous Investigations

- AMEC Foster Wheeler, 2018. Final Report FY16 Phase I Regional Site Inspections for Perfluorinated Compounds, Rhode Island Air National Guard, 143rd Airlift Wing, Quonset Air National Guard Base, North Kingstown, Rhode Island. June.
- BB&E, 2016. Perfluorinated Compounds Preliminary Assessment Site Visit Report, Quonset Air National Guard Base, North Kingstown, Rhode Island. January.
- EA Engineering, 2004. Phase I Remedial Investigation Report of IR Program Site 16, Volume IL Technical Report, Naval Construction Battalion Center Davisville, North Kingstown, Rhode Island. August.
- EA Engineering, 2005. Phase I Environmental Site Assessment, 31-Acre Parcel Adjacent to the Army Aviation Support Facility, North Kingstown, Rhode Island. March.
- EA Engineering, 2005. Site Investigation Report, Rhode Island Army National Guard, Army Aviation Support Facility, North Kingstown, Rhode Island. June.
- Resolution Consultants, 2016. Evaluation of Potential Sources of Perfluorinated Compounds, Former Naval Construction Battalion Center, Davisville, North Kingstown, Rhode Island. December.
- Stone Environmental, 2016. Final Remedial Investigation/Feasibility Study Report, Former Nike Battery PR-58 and Disaster Village Training Area, Volume 1 of 4: Text, Tables, Figures, and Graphics, NCBC Davisville, RI. June.
- 2019 PFAS results from local public drinking water systems.

Real Estate Documents

- 1973 License for National Guard Purposes
- 1975 Federal-State Agreement, No. DAHA 37-75-A-0001, Operation of Quonset Army National Gard Facility.
- 1978 Deed.
- 1978 Right of Entry between Air National Guard and Army National Guard.
- 1980 Deed.
- 1981 Lease From The State of Rhode Island to the Army National Guard.
- 1992 Negotiated Fire Protection Service Contract.
- 2004 Supplemental Agreement to Lease No. DACA 51-5-82-093.
- 2007 Quitclaim Deed

- 2007 Right of Way
- 2008 Certificate of Transfer of Land

Regulations, Advisories, and Orders

- RIDEM, 2017. Rhode Island Department of Environmental Management Determination of a Groundwater Quality Standard for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS). October.

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Other

Facility: AASF Quonset
Interviewer: A. Borden
Date/Time: 9/24 1540
continued 9/26 1130

[redacted]

Interviewee: [redacted]	Can your name/role be used in the PA Report? Y or N
Title: Facility/Operation Specialist	Can you recommend anyone we can interview?
Phone Number: [redacted]	Y or N _____
Email: [redacted]	

Roles or activities with the Facility/Years working at the Facility:

2009 - present
2016/2017 - present as FSS lead

PFAS Use: Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as builts), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?

	Known Uses
not able to test properly	
wet sprinkler system - 1 tank (700 gallon)	Use
system already primed in the lines → not	Procurement
able to test this way without making a mess	Disposition
and having a huge TOD cost	Storage (Mixed)
[redacted] 2017 - date of	Storage (Solution)
Gerald 401-330-7908 construction	Inventory, Off-Spec
test header for testining the line	Containment
use trash bin to collect AFFF and as	SOP on Filling
it fills up, the truck sucks it out of the	Leaking Vehicles
55-gallon drum ~ 30-60 gallons	Nozzle and Suppression System Testing
Trimax mini ones are operated by unit	Dining Facilities
"Echo Company"	Vehicle Washing
L> usually bought by support facility and	Ramp Washing
operated by the company → talk to Sgt.	Fuel Spill Washing and Fueling Stations
[redacted] (Camp Foserty)	Chrome Plating or Waterproofing

[redacted]

PA Interview Questionnaire - Other

Facility: AASF Concept
Interviewer: A. Boarden
Date/Time: 9/24/19 1540

ANG fire station tied into AASF -> but if you called 911 N. Kingstown would respond

Drips from hoses and header lines are likely where they would be some release
Hemet fuelers located on the side of plating building
GSE Building is the plating building -> [redacted]
Johnson Controls used for testing
Clean Harbors for T@D

New Mil/Spec C8 no longer approved for purchase
new formula is not compatible w/ old formula

NO trimax training
No applicable on fuel spills

Unsure if wet sprinkler line headers are connected to the foam line

Semi annual testing at every single header line in both hangars

Continued 9/26
plating shop - blue building
torpedo building @ support

Navy -> commerical -> ANG property
ARNG took over the existing footprint of bldg.

Expanding ANG Fire Station

Talk to [redacted] about former fire fighters @ Navy, if going to municipe stations

PA Interview Questionnaire - Other

Facility: Quonset AASF
Interviewer: A. Borden
Date/Time: 9/26/19 0815

Interviewee: [redacted] **Title:** Aviation Refueler **Phone Number:** [redacted] **Email:** NA	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? (Y) or N see below

Roles or activities with the Facility/Years working at the Facility:

92 Fox 15 Papa Specialist [redacted] refueler aviation
24 total years, 19 years @ Quonset maintaining Trimar
[redacted]
26 total years, Delta company maintance of aircraft

PFAS Use: Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as builts), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?

	Known Uses
Grand Power technician (GFHQ) Chief	Use
operations specialist Aviator	
2007-2008 third hangar on footprint —	Procurement
but not operated by Army Guard	Disposition
L> PAC - Providence Air Charter	Storage (Mixed)
Former AF Hangar north on footprint	Storage (Solution)
potential wet sprinkler system -> but no	Inventory, Off-Spec
AFFF system	Containment
Hangar 2 and 5	SOP on Filling
OSTI - civilian contractor plating facility	Leaking Vehicles
plating may have been on GE property	Nozzle and Suppression System Testing
(need to research further)	Dining Facilities
[redacted]	Vehicle Washing
Fire Station (current) Was been there	Ramp Washing
since 1993, likely been there for 40	Fuel Spill Washing and Fueling Stations
years	Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility: Quonset AASF
Interviewer: A. Borden
Date/Time: 9/26/19

Sandy —
Fuel Depot - offsite (Navy)
RIDEM - talk to [redacted] regarding Davisville

FSS testing — safety clean water system check
foam was released, but entirely cleaned up with truck, minimal released
WW II Hangars likely did not have FSS
Quonset Point History Books
↳ SeaBees
Check admin record for Davisville
All land is owned by RI and leased to the military
Check ANG & Navy PFAS PAs

Trimax - early 2000s first arrived
green container
tanks had to get certified and tested
annual visual inspections
discharged air only for fit test
[redacted] → used to be in [redacted] role
unclear on how the expired foam inside
unsure exactly when Trimax were offsite
- training w/ soap (dish soap) sprayed over tanker
no AFFF used during Trimax training
- never take Trimax off, aside from 1 event @ URI (LEAP fest)

No combined fire training, release of AFFF, with ANG → extraction training only

Fuel from ANG 200-400K (DLA owned)
X-ray Facility

PA Interview Questionnaire - Other

Facility: Quonset AASF
Interviewer: A. Borden
Date/Time: 9/26/19

Historic wash rack w/ associated OWS
Haz waste storage area - there was piping, but they cannot remember there being a tank for any type of FSS

Copies of the signing record
Question #10
CO_2 training and with soap

New state Hangar w/ a potential AFFF release in the hangar within the last 20-years

Fuel suppression - used PKP and other pads
unaware of any surrounding people using AFFF for vapor suppression

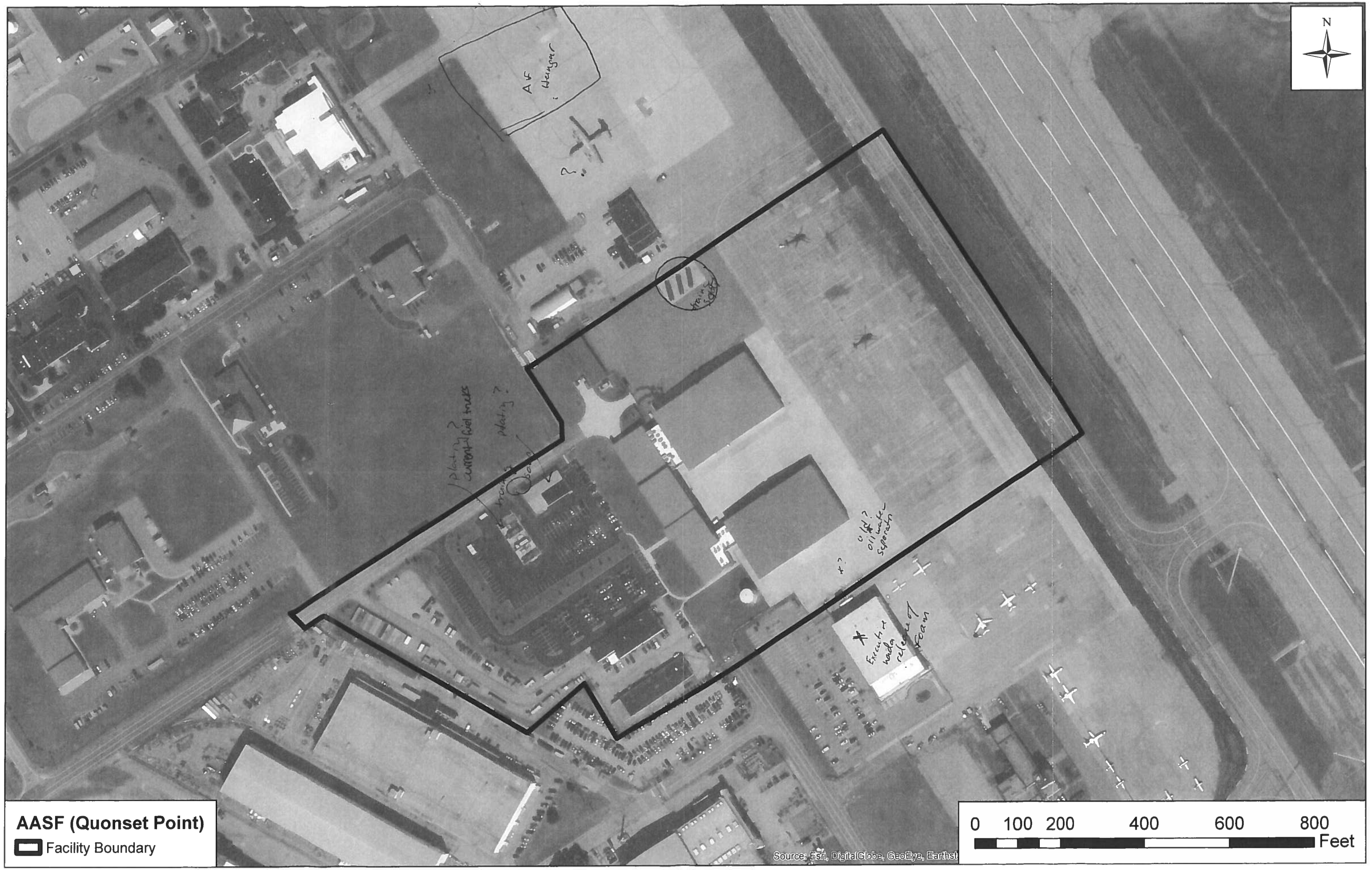
[redacted]
ANG Fire Dept

Floor drains within Hangar hold 1,000 gallon and lead to another 1,000 gallon holding tank which needs to be pumped off

MRX49 fire extinguishers used on flightline

~~The~~ paint spray booth didn't have a foam suppression system

Class A


N
AASF (Quonset Point)
Facility Boundary
0 100 200 400 600 800
Feet
Source: Esri, DigitalGlobe, GeoEye, Earthst


N
AASF (Quonset Point)
Facility Boundary
0 100 200 400 600 800
Feet
Source: Esri, DigitalGlobe, GeoEye, Earthst

Appendix B.2
Visual Site Inspection Checklists

Visual Survey Inspection Log

Recorded by: A. Borden
ARNG Contact: Cindy Garrinesco
Date: 9/26/19

Source/Release Information

Site Name / Area Name / Unique ID: Quonset AASF
Site / Area Acreage: Unknown
Historic Site Use (Brief Description): aviation support, maintenance, training

Current Site Use (Brief Description):

1. Was AFFF used (or spilled) at the site/area? Y (N)
   1a. If yes, document how AFFF was used and usage time (e.g., fire fighting training 2001 to 2014): minor releases (drips) from FSS testing along header lines
2. Has usage been documented? (Y) N
   2a. If yes, keep a record (place electronic files on a disk): AFFF use from at least the time the hangars were constructed
3. What types of businesses are located near the site? (Industrial) Commercial / (Plating) Waterproofing / Residential
   3a. Indicate what businesses are located near the site: Plating occured in building adjacent to the AASF hangars
4. Is this site located at an airport/flightline? (Y) N
   4a. If yes, provide a description of the airport/flightline tenants: ARNG, ANG, public use

Other Significant Site Features:

1. Does the facility have a fire suppression system? (Y) N
   1a. If yes, indicate which type of AFFF has been used: Chemguard C301MS
   1b. If yes, describe maintenance schedule/leaks: semiannual testing from tank and dry hangars, collected in 55-gallon drum
   1c. If yes, how often is the AFFF replaced: Never been refilled
   1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing? No floor drains

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? (Y) N
   1a. If so, note observation and location: flows from flightline to storm drains and out to the bay
2. Is there channelized flow within the site/area? (Y) N
   2a. If so, please note observation and location: storm drains
3. Are monitoring or drinking water wells located near the site? (Y) N
   3a. If so, please note the location: MW are located upgradient of the site, no ~~DW sites~~ wells onsite – DW provided by town
4. Are surface water intakes located near the site? Y (N)
   4a. If so, please note the location:

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? (Y) N
   1a. If so, please describe change (ex. Structures no longer exist): historic use of area dates back to WW II and Navy use, original hangars demolished and rebuilt
2. Is the site/area vegetated? Y (N)
   2a. If not vegetated, briefly describe the site/area composition:
3. Does the site or area exhibit evidence of erosion? Y (N)
   3a. If yes, describe the location and extent of the erosion:
4. Does the site/area exhibit any areas of ponding or standing water? Y (N)

Visual Survey Inspection Log

4a. If yes, describe the location and extent of the ponding:

Receptor Information

1. Is access to the site restricted? (Y) N
   1a. If so, please note to what extent: located on ANG property and restricted access
2. Who can access the site? (Site Workers) / (Construction Workers) / Trespassers / Residential / Recreational Users / Ecological
   2a. Circle all that apply, note any not covered above:
3. Are residential areas located near the site? Y (N)
   3a. If so, please note the location/distance: all cpgradient of site
4. Are any schools/day care centers located near the site? Y (N)
   4a. If so, please note the location/distance/type:
5. Are any wetlands located near the site? Y (N)
   5a. If so, please note the location/distance/type:

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
AOI001	1/1/2018	Building 500, on flightline, looking south. NE Corner Fire Suppression System
1@2	9/26/19	AFFF tank, 700gallon
3@4		AFFF tank, name plate, SDS
5		AFFF system valves
6		Water tank for AFFF system
7@8		FSS lines
9-11		Drain lines for AASF
12@13		Architecture of original Hangar
14		Public hangar
15		Maintenance hangar
16-18		Maintenance hangar floor drain
19		ANG fire trucks
20		Plating room drain?
21@22+(23)		Hoist
24-32		Old torpedo building
33@34		ANG fire station

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Quonset AASF

Why has this location been identified as a site?

Fire Suppression System, release & spills plating

Are there any other activities nearby that could also impact this location?

plating?

Training Events

Have any training events with AFFF occurred at this site? No

If so, how often? NA

How much material was used? Is it documented? NA

Identify Potential Pathways: Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies? Yes

Surface Water:

Surface water flow direction? E/SE

Average rainfall? look up

Any flooding during rainy season? minor in grassy area between runway

Direct or indirect pathway to ditches? NA

Direct or indirect pathway to larger bodies of water? Direct

Does surface water pond any place on site? in grassy area along runway

Any impoundment areas or retention ponds? No

Any NPDES location points near the site?

How does surface water drain on and around the flight line? to storm water catch and out to the bay – otherwise in grassy areas

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? SE – E

Depth to groundwater?

Uses (agricultural, drinking water, irrigation)? NA

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? Yes

Is groundwater used for drinking water? No

Are there drinking water supply wells on installation? No

Do they serve off-post populations? No

Are there off-post drinking water wells downgradient No

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? No

If so, do we understand the process and which water is/was treated at the plant?

Do we understand the fate of sludge waste?

Is surface water from potential contaminated sites treated?

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go? No, at ANG fire station

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles? Yes, along header lines, semiannual, not a deluge system – collected in 55-gallon drum and taken offsite

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker Yes

Construction Worker Yes

Recreational User No

Residential No

Child No

Ecological Potentially

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?

Documentation

Ask for Engineering drawings (if applicable).

Has there been a reconstruction or changes to the drainage system? When did that occur?

Appendix C
Photographic Log

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No01

Date 9/26/2019

Time 9:45

Description:
Photo of exterior active hangar (North Hangar) from courtyard area.

Orientation:
Northwest

Photograph No02

Date 9/26/2019

Time 10:41

Description:
AFFF fire suppression system piping inside maintenance room.

Orientation:

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No03

Date 9/26/2019

Time 10:42

Description:
AFFF fire suppression system electrical panel and additional piping.

Orientation:
East-southeast

Photograph No04

Date 9/26/2019

Time 10:43

Description:
AFFF tank data plate.

Orientation:
East

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No05

Date 9/26/2019
Time 9:30

Description:
AFFF tank.

Orientation:
Northeast

Photograph No06

Date 9/26/2019
Time 9:31

Description:
AFFF tank.

Orientation:
Southeast

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No07

Date 9/26/2019

Time 9:31

Description:
AFFF SDS attached to the side of the tank.

Orientation:
East

Photograph No08

Date 9/26/2019

Time 9:36

Description:
AFFF fire suppression line within the cold storage hangar (South Hangar).

Orientation:
East

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No09

Date 9/26/2019

Time 9:35

Description:
Second photo of AFFF fire suppression piping in cold storage hangar (South Hangar).

Orientation:
East

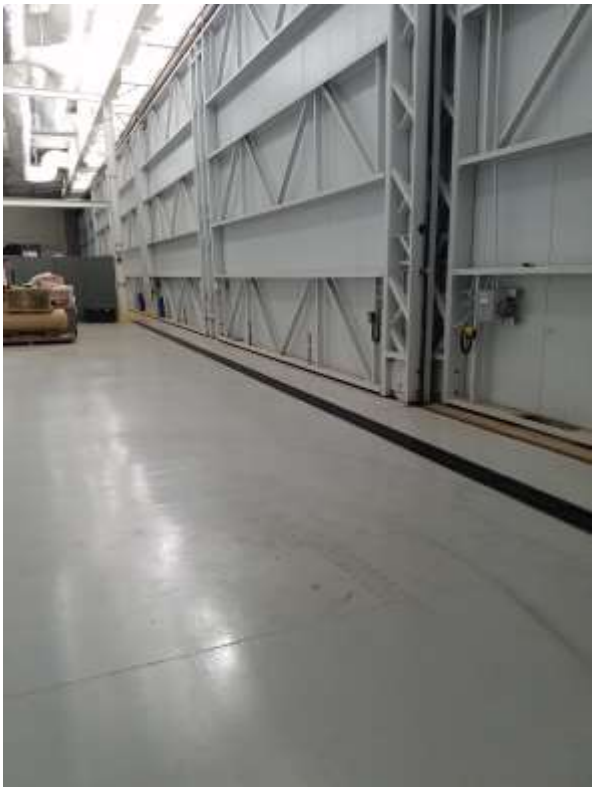
Photograph No10

Date 9/26/2019

Time 9:39

Description:
Floor drain within the cold storage hangar (South Hangar).

Orientation:
Southeast



Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No11

Date 9/26/2019

Time 9:36

Description:
Floor drain within the cold storage hangar (South Hangar).

Orientation:
East

Photograph No12

Date 9/26/2019

Time 9:32

Description:
Water storage tank specifically for the AFFF fire suppression system.

Orientation:
South

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No13

Date 9/26/2019

Time 10:16

Description:

Concrete pad of the former plating building. Currently use for storage of the HEMTT (Heavy Expanded Mobility Tactical Trucks).

Orientation:

West

Photograph No14

Date 9/26/2019

Time 10:22

Description:

Former entryway and loading dock for the plating building.

Orientation:

East

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No15

Date 9/26/2019

Time 10:19

Description:
Potential floor drain witin the concrete pad of the former plating building.

Orientation:
Northeast

Photograph No16

Date 9/26/2019

Time 9:43

Description:
Exterior photo of the Quonset State Airport Hangar. Location of non-emergency AFFF release from the fire suppression system.

Orientation:
South

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Quonset Point AASF	North Kingstown, Rhode Island

Photograph No17

Date 9/27/2019
Time 10:45

Description:
RIANG Fire Station.

Orientation:
East

Photograph No18

Date 9/26/2019
Time 9:58

Description:
RIANG fire trucks.

Orientation:
Northeast