FINAL
Preliminary Assessment Report
Army Aviation Support Facility #2
Birmingham, Alabama

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

September 2020

Prepared for:

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

UNCLASSIFIED

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
ALARNG	Alabama Army National Guard
ANGB	Air National Guard Base
AOI	Area of Interest
ARNG	Army National Guard
AST	aboveground storage tank
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	conceptual site model
EDR™	Environmental Data Resources, Inc.™
FTA	fire training area
gpm	gallons per minute
HA	Health Advisory
ng/L	nanograms per liter
OWS	oil/water separator
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site Inspection
UCMR 3	Unregulated Contaminant Monitoring Rule 3
US	United States
USEPA	United States Environmental Protection Agency
VSI	visual site inspection

Executive Summary

The Army National Guard (ARNG) is performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. A PA for per- and polyfluoroalkyl substances (PFAS)-containing materials was completed for Army Aviation Support Facility (AASF) #2, in Birmingham, Alabama, to assess potential PFAS release areas and exposure pathways to receptors. The AASF #2 facility is constructed on a parcel of land owned by the Birmingham Airport Authority and leased to the Alabama ARNG (ALARNG). The performance of this PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit 11 April 2019 and completed visual site inspections at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current ALARNG personnel, including environmental managers, and operations staff;
- Developed a preliminary conceptual site model (CSM) to outline the potential release, pathway, and receptors PFAS for AASF #2.

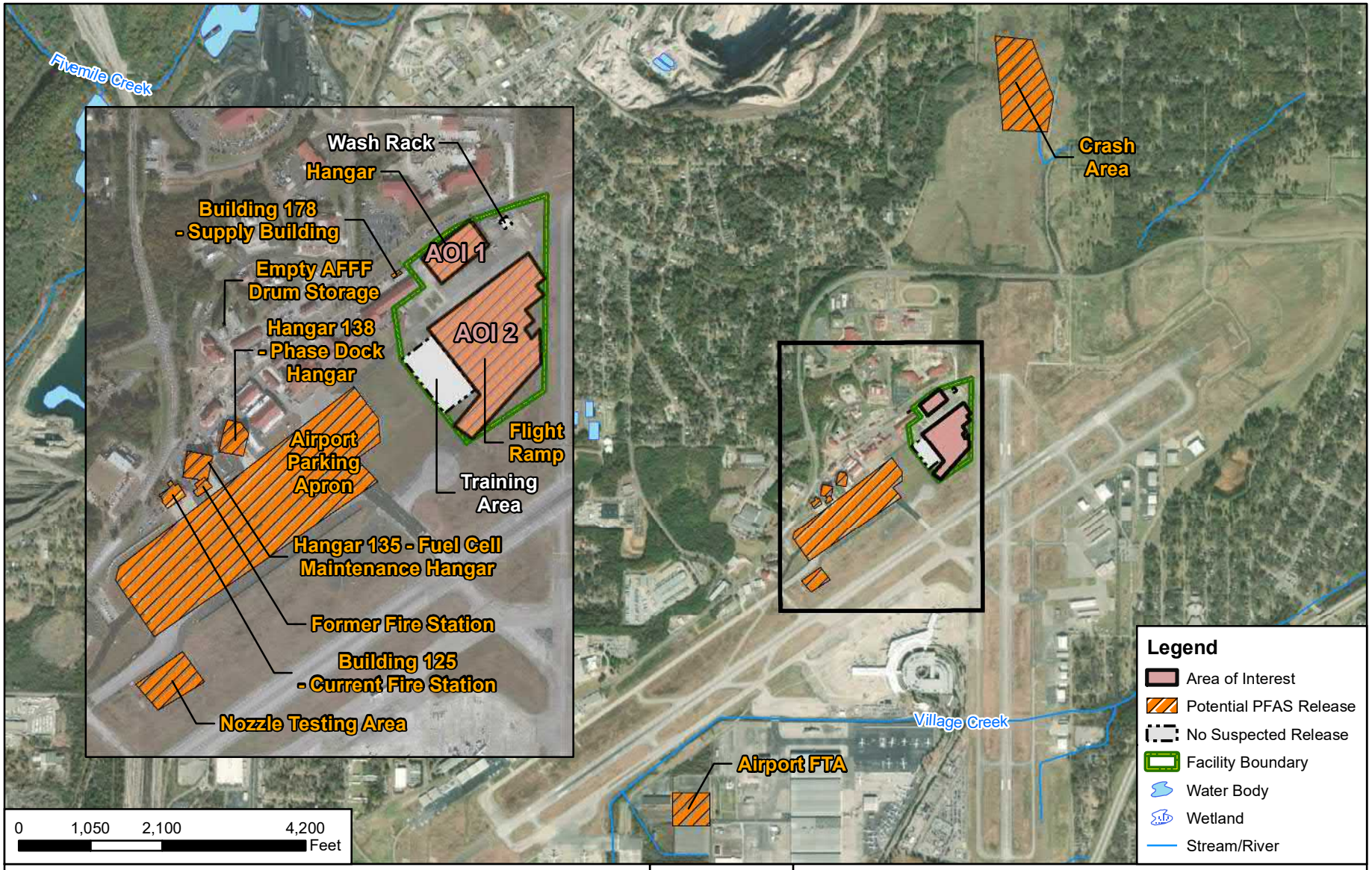
Two areas of interest (AOIs) related to potential PFAS releases were identified at AASF #2 during the PA. The AOIs are shown on **Figure ES-1** and summarized in **Table ES-1**.

Table ES-1: AOIs at AASF #2

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Hangar	ALARNG	1996 to present
AOI 2	Flight Ramp	ALARNG	Unknown to 2010

According to ALARNG personnel, construction of the AASF #2 facility was completed in 1965. Based on aerial imagery, the hangar building was constructed between 1970 and 1977. The Hangar was then expanded around 1998. ALARNG personnel noted that the current aqueous film forming foam (AFFF) system was installed during the Hangar expansion in 1998 and later refurbished in 2010 as part of a state-wide effort for ALARNG facilities. Currently the system is equipped with an overhead suppression system using Ansulite 3% AFFF. The hangar, mechanical room, flight ramp, and wash rack were investigated during this PA.

Based on potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for the facility is shown on **Figure ES-2**, which presents the potential receptors and media impacted. Based on the United States 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 Lifetime Health Advisory (HA) level within 20 miles of the facility. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR 3 but might be detected if analyzed today.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at AASF #2, Birmingham, AL			
REVISED	9/10/2020	GIS BY	SK	9/10/2020
SCALE	1:25,200	CHK BY	JW	9/10/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	9/10/2020

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Summary of Findings

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Figure ES-1

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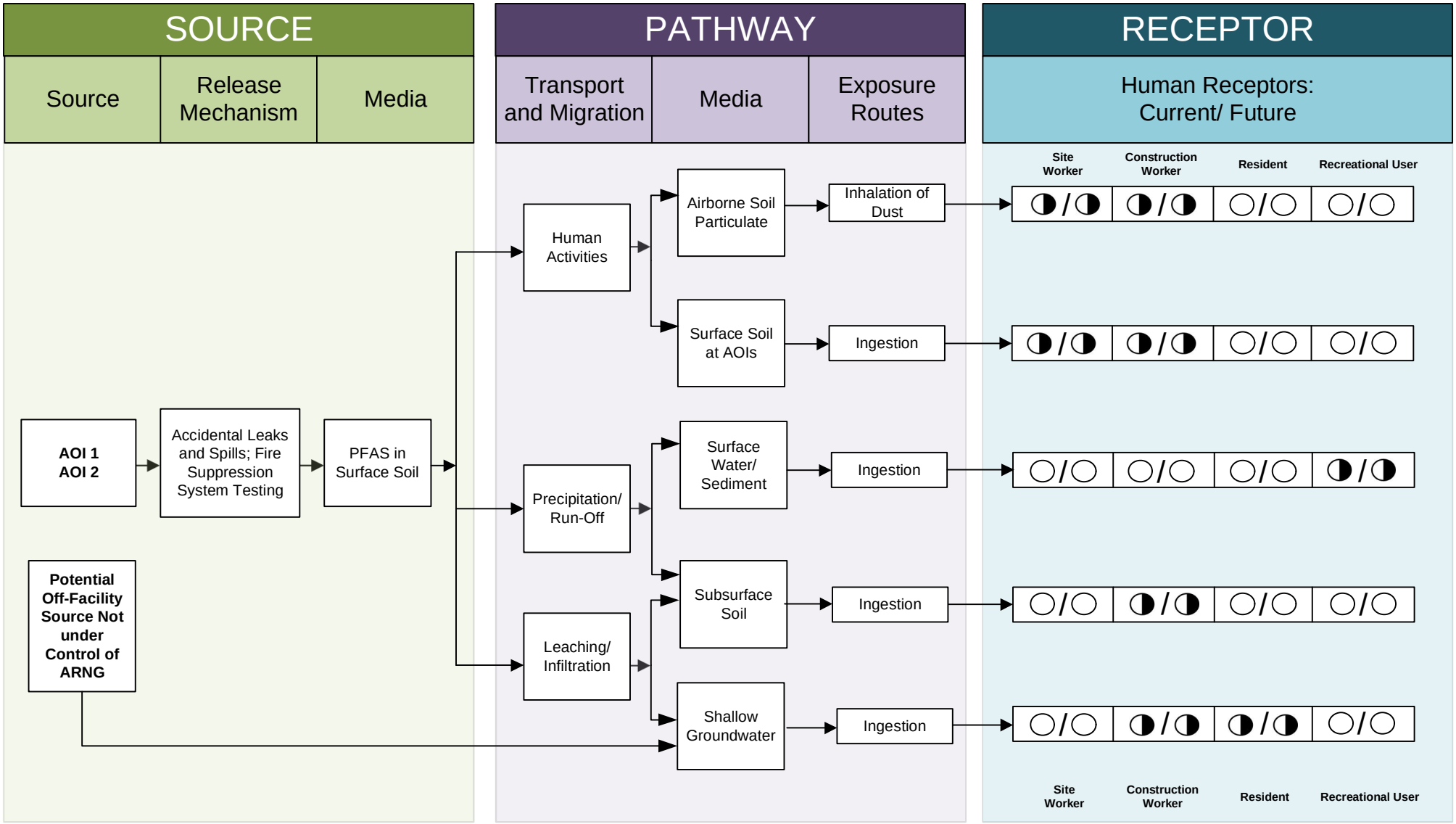


LEGEND

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

Notes:
1. The resident and recreational user receptors refer to an off-site resident and recreational user.
2. Dermal contact exposure pathway is incomplete for PFAS.

Figure ES-2
Preliminary Conceptual Site Model
AASF #2

1. Introduction

1.1 Authority and Purpose

The Army National Guard (ARNG) G9 is the lead agency in performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) at Impacted Sites at ARNG Facilities Nationwide*. This work is supported by the United States (US) Army Corps of Engineers Baltimore District and their contractor AECOM Technical Services, Inc. (AECOM) 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 US Environmental Protection Agency (USEPA) issued Drinking Water Health Advisories (HAs) for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined.

This report presents the findings of a PA for PFAS-containing materials at the current Army Aviation Support Facility (AASF) #2 (referred to as “the facility”), Birmingham, Alabama, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300), and Army requirements and guidance.

This PA documents locations where PFAS may have been released into the environment at the facility. 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 available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 11 April 2019 and completed visual site inspections (VSIs) at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current Alabama ARNG (ALARNG) personnel, environmental managers, and operations staff;
- Developed a preliminary conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Areas of Interest (AOIs) and the facility.

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 facility location, environmental setting, and methods used to complete the PA.
- **Section 2** – **Fire Training Areas:** describes the fire training areas (FTAs) at the facility identified during the site visit.
- **Section 3** – **Non-Fire Training Areas:** describes other locations of potential PFAS releases at the facility identified during the site visit.
- **Section 4** – **Emergency Response Areas:** describes areas of potential PFAS release at the facility, specifically in response to emergency situations.
- **Section 5** – **Adjacent Sources:** describes sources of potential PFAS release adjacent to the facility 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 facility.
- **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 Facility Location and Description

The facility is in northeast Birmingham, Jefferson County, Alabama. The facility is within the property of Birmingham-Shuttlesworth International Airport, at the northernmost portion of the property, off Interstate 59. The site location is depicted on **Figure 1-1**.

According to ALARNG personnel, construction of the facility began around 1965. Based on aerial imagery, the hangar building was constructed between 1970 and 1977. The Hangar was then expanded around 1998. The facility is situated on a parcel of land owned by the Birmingham Airport Authority (Jefferson County Alabama, 2019). The current AASF #2 facilities include one hangar for the operation, maintenance, and repair of ALARNG rotary-winged aircraft, administrative offices, and classrooms. Water and electric utilities are provided by the city of Birmingham.

1.5 Facility Environmental Setting

The AASF #2 is situated in the Valley and Ridge Physiographic Province, which is characterized by a series of northeast trending linear ridges and valleys underlain by alternating beds of hard and soft, highly faulted and folded, sedimentary rocks ranging from Cambrian to Pennsylvanian in age (Johnson et al., 2002). Topography at the facility slopes southward toward Village Creek.

1.5.1 Geology

Surface soils in the valleys of the Valley and Ridge Province were formed mainly in residuum of weathered limestone and are predominantly red, iron-rich and clay types with silt loam surface textures. The ridges consist of cherty limestone that produce a gravelly loam and gravelly clay subsoil and a gravelly silt loam surface layer. Bodine and Fullerton soil series cover an extensive part of the Valley and Ridge Province (Johnson et al., 2002).

The facility is underlain by the Ketona Dolomite and is located on the Airport anticline close to the contact with the Ordovician and Upper Cambrian Knox Group. The Ketona Dolomite is characterized as a light to medium gray, thick-bedded, fine- to coarse-grained dolomite. The Ketona Dolomite is underlain by the Middle to Upper Cambrian-aged Conasauga Formation. The Conasauga Formation comprises three intervals of calcium carbonate rock. The uppermost interval is dolomitic, the middle interval is bioclastic and oolitic limestone, and the lowest interval is interbedded shale and micritic limestone. The adjacent Knox Group is generally described as a light to medium gray, laminated, finely crystalline cherty dolomite and limestone (Rindsberg et al., 2003; Irvin et al., 2006).

Previous subsurface investigations at the adjacent Birmingham Air National Guard Base (ANGB), located at the Birmingham-Shuttlesworth International Airport, interpreted the dolomite as belonging to the Knox Group and was encountered at one borehole at 23 feet below ground surface (bgs) (Leidos, 2019). The geology underlying the facility is depicted on **Figure 1-2**.

1.5.2 Hydrogeology

The facility sits atop the Valley and Ridge aquifer system, which includes over 20 geologic units of dolomitic, limestone, chert, sandstone, and shale compositions of Cambrian to Devonian age. The Valley and Ridge aquifer system includes the Knox Group, the Ketona Dolomite, and the Conasauga Formation (Kopaska-Merkel et al., 2005). The Knox Group ranges in thickness from 1,500 to 3,500 feet and produces large quantities of water with wells yielding up to 800 gallons per minute (gpm). The Ketona Dolomite ranges in thickness from 0 to 760 feet and is a major producer of groundwater in Jefferson County with wells yielding around 300 gpm. Groundwater in these units are found in dissolution channels, where circulating water has dissolved the rock and thus increased the porosity (Hunter and Moser, 1990; Kopaska-Merkel et al., 2005).

According to previous investigations at the adjacent Birmingham ANGB, saturated soil has been identified in the unconsolidated sediments overlaying the bedrock. Saturated soils in unconsolidated material were encountered at shallow depths of less than 20 feet bgs and generally do not yield significant quantities of water (Leidos, 2019).

General regional groundwater flow beneath the facility is toward the west, according to Valley and Ridge aquifer system potentiometric contour maps (Kopaska-Merkel, 2005); however, an SI report at the Birmingham ANGB interpreted surficial groundwater flow to the south (Leidos, 2019) (**Figure 1-2**). An EDR™ report conducted a well search for a 1-mile radius surrounding the facility (**Appendix A**). Using additional online resources, such as state and local GIS databases, wells were researched to a 4-mile radius of the facility. Based on this research, only inactive US Geological Survey monitoring wells were identified.

Drinking water at the facility is supplied by Birmingham Water Works, who obtains the water from the Cahaba River and Lake Purdy, which is 6 and 9 miles southwest of the facility, respectively. Based on the USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR 3) data, it was indicated that no PFAS was detected in a public water system above the USEPA HAs within 20 miles of the facility. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined. PFAS analyses performed in 2016 had method detection limits that were higher than currently

achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR 3 but might be detected if analyzed today.

1.5.3 Hydrology

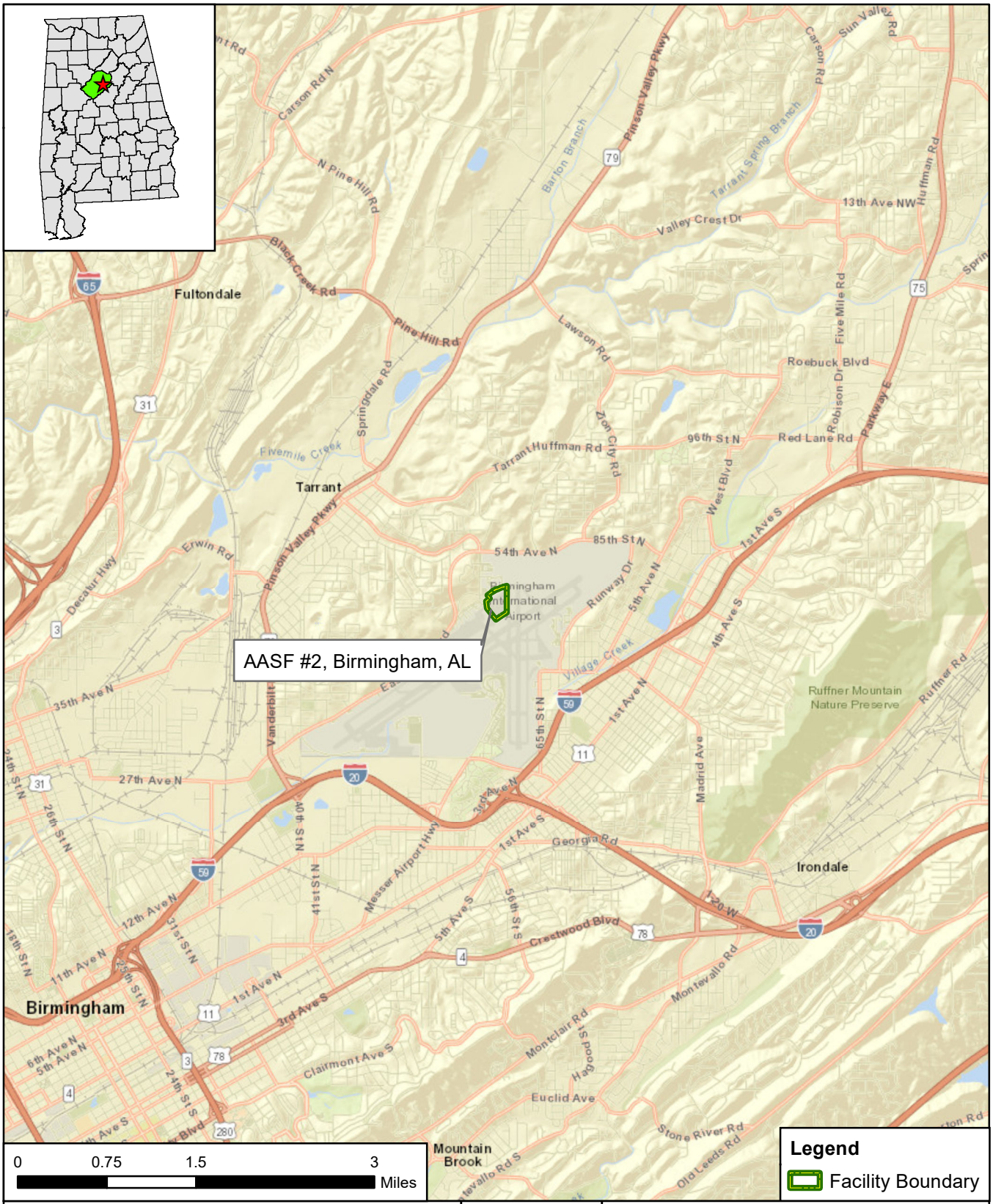
The AASF #2 lies within the Mobile River Basin (Johnson et al., 2002) in the Upper Village Creek Watershed. The only surface water bodies near the facility is a retention area, located less than half a mile northeast of the facility, and Village Creek, which flows southeast to southwest of AASF #2 and flows into Bayview Lake, which is located approximately 11 miles west of the facility. Village Creek and Bayview Lake are used for recreational uses including fishing. Surface water flow drains from the facility to the southwest towards Village Creek. Surface water features surrounding the facility are shown in **Figure 1-3**.

1.5.4 Climate

The climate of the Mobile River Basin is warm and humid, ranging from subtropical at the coast to temperate at higher elevations. In the summer, the Gulf of Mexico produces warm, humid air that moves inland, creating precipitation (Johnson et al., 2002). The average temperature at Birmingham is 63.3 degrees Fahrenheit (°F), with an average high of 73.8 °F and an average low of 52.8 °F. Birmingham receives an average of 53.71 inches of rain per year (WorldClimate, 2020).

1.5.5 Current and Future Land Use

The AASF #2 is a restricted access facility located on the property of Birmingham-Shuttlesworth International Airport. It also lays adjacent to the Birmingham ANGB. Other properties surrounding AASF #2 are primarily residential. Reasonably anticipated future land use is not expected to change from the current land use.



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Preliminary Assessment for PFAS at AASF #2, Birmingham, AL				
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SCALE	1:75,000	CHK BY	BM	3/10/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	3/10/2020

Facility Location

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Figure 1-1

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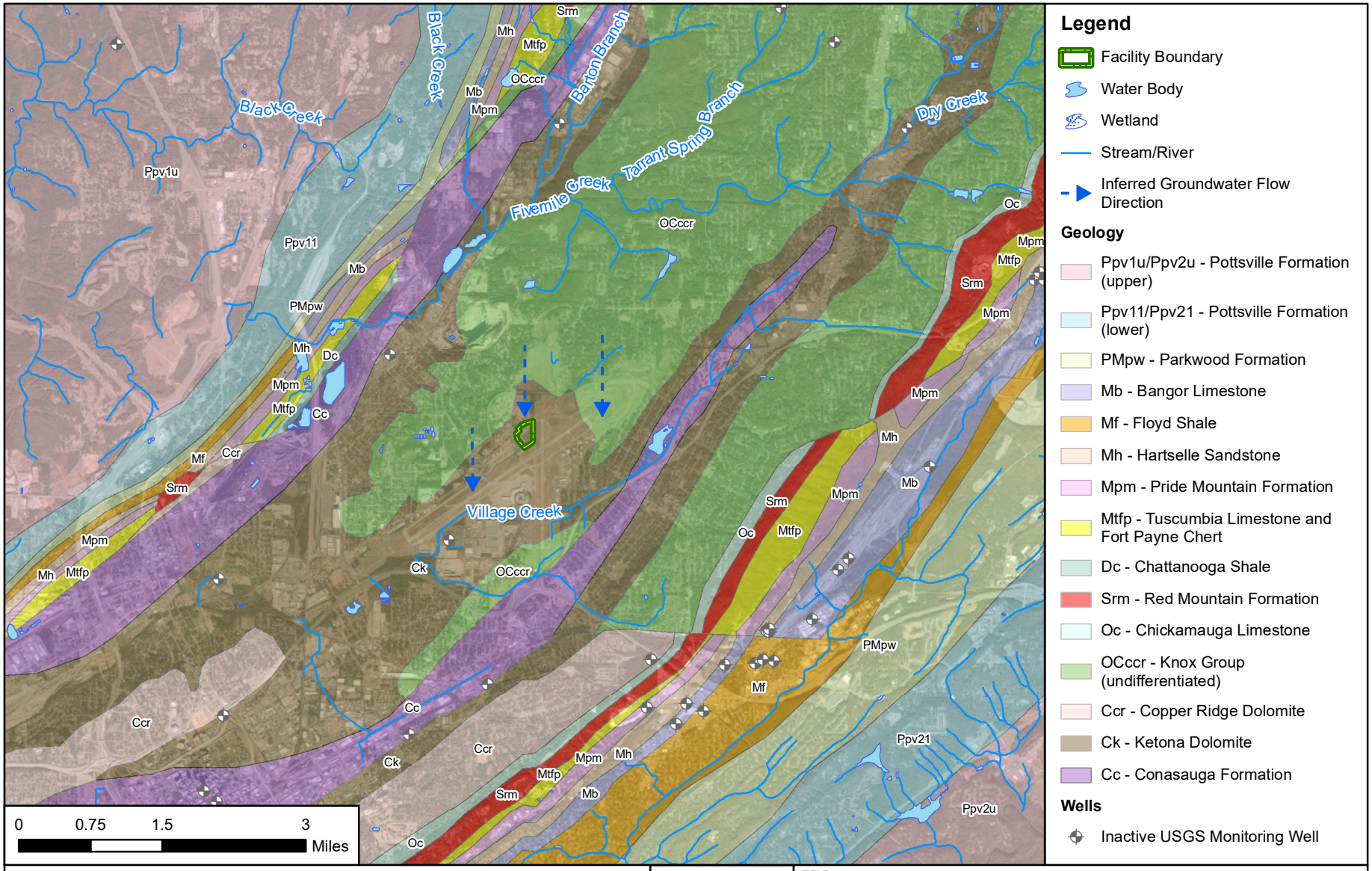

Legend

- Facility Boundary
- Water Body
- Wetland
- Stream/River
- Inferred Groundwater Flow Direction

Geology

- Ppv1u/Ppv2u - Pottsville Formation (upper)
- Ppv11/Ppv21 - Pottsville Formation (lower)
- PMpw - Parkwood Formation
- Mb - Bangor Limestone
- Mf - Floyd Shale
- Mh - Hartselle Sandstone
- Mpm - Pride Mountain Formation
- Mtfp - Tuscumbia Limestone and Fort Payne Chert
- Dc - Chattanooga Shale
- Srm - Red Mountain Formation
- Oc - Chickamauga Limestone
- OCccr - Knox Group (undifferentiated)
- Ccr - Copper Ridge Dolomite
- Ck - Ketona Dolomite
- Cc - Conasauga Formation

Wells

- Inactive USGS Monitoring Well

CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at AASF #2, Birmingham, AL			
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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	8/21/2020

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TITLE

Groundwater Features

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Figure 1-2

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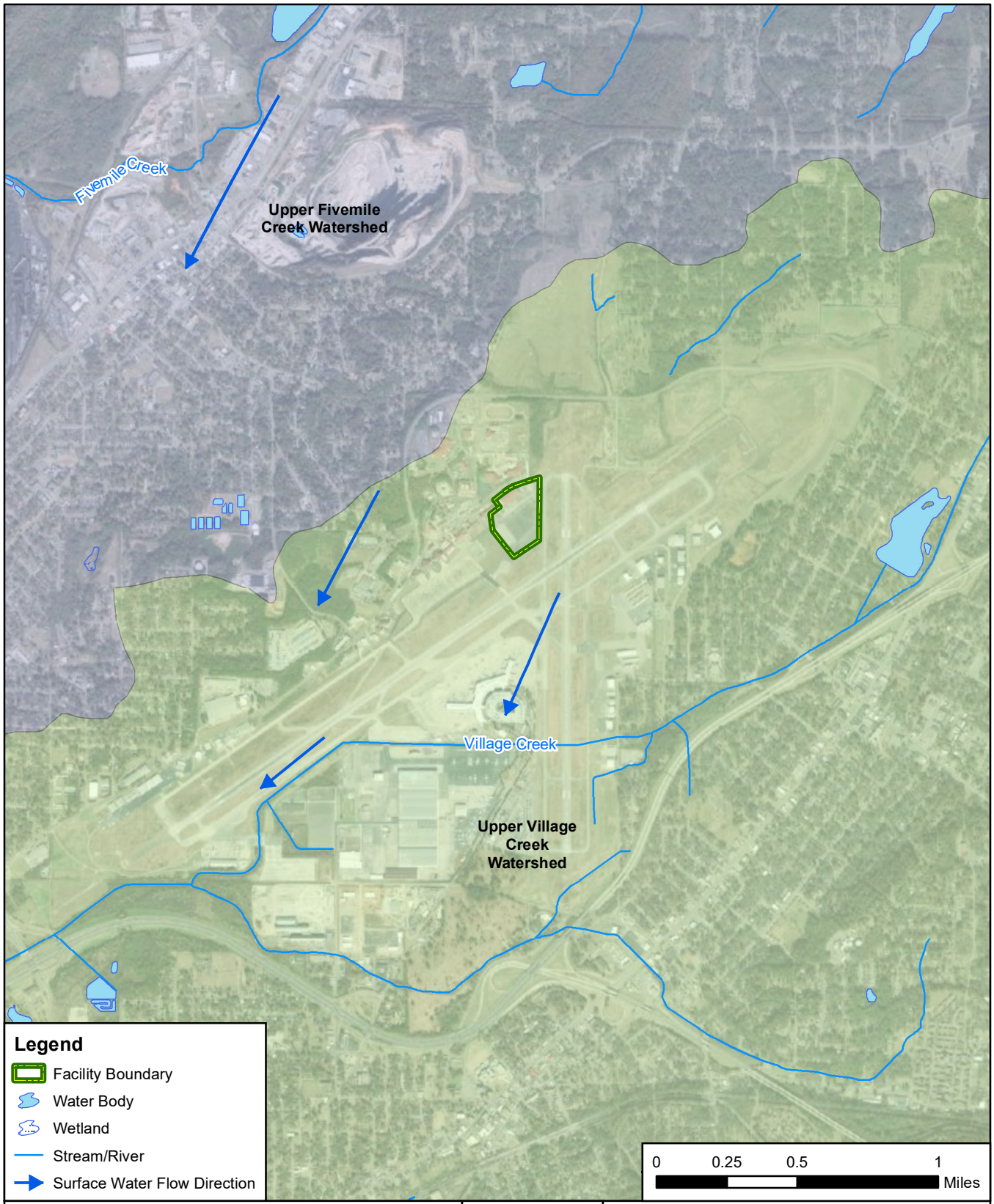

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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	8/21/2020

Surface Water Features

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Figure 1-3

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2. Fire Training Areas

Based on interviews with ALARNG personnel who have been working at the facility since 2002, no FTAs were identified at the AASF #2. The only training exercises were described as safety drills and did not involve the use of AFFF.

3. Non-Fire Training Areas

In addition to FTAs, the PA evaluated areas where PFAS-containing materials may have been broadly used, stored, or disposed. This may include buildings with fire suppression systems, paint booths, AFFF storage areas, and areas of compliance demonstrations. Information on these features obtained during the PA are included in **Appendices A** and **B**. Three non-FTAs where AFFF was stored and/or potentially released were identified during the PA. A description of each non-FTA is presented below and shown on **Figure 3-1**. Interview records and photographs appear in **Appendix B** and in **Appendix C**, respectively.

3.1 Hangar

The Hangar is located north of the Flight Ramp and west of the wash rack. The geographic coordinates are 33°34’19.6”N and 86°45’02.3”W. In 1996, the facility obtained eight 55-gallon floor tanks containing Ansulite 3% AFFF. In 1998, the Hangar was expanded, and an overhead fire suppression system was installed consisting of two 1,400-gallon tanks filled with Ansulite 3% AFFF. The two 1,400-gallon tanks are in the mechanical room. During the VSI, corrosion was observed on the tanks. Markings on the side of the tanks indicate that they were filled in 1997 and refilled in August 1998. The fire suppression system was refurbished in 2010 and the AFFF was replaced. The disposal of the AFFF removed from the system in 2010 is unknown. Additionally, interviewees had no recollection of testing of the system after installation or refurbishment. Floor drains and trench drains in the Hangar are routed to the oil/water separator (OWS), which discharges to the sanitary sewer. There are no reported releases or spills of AFFF in either the eight 55-gallon tanks or the two 1,400-gallon tanks.

3.2 Flight Ramp

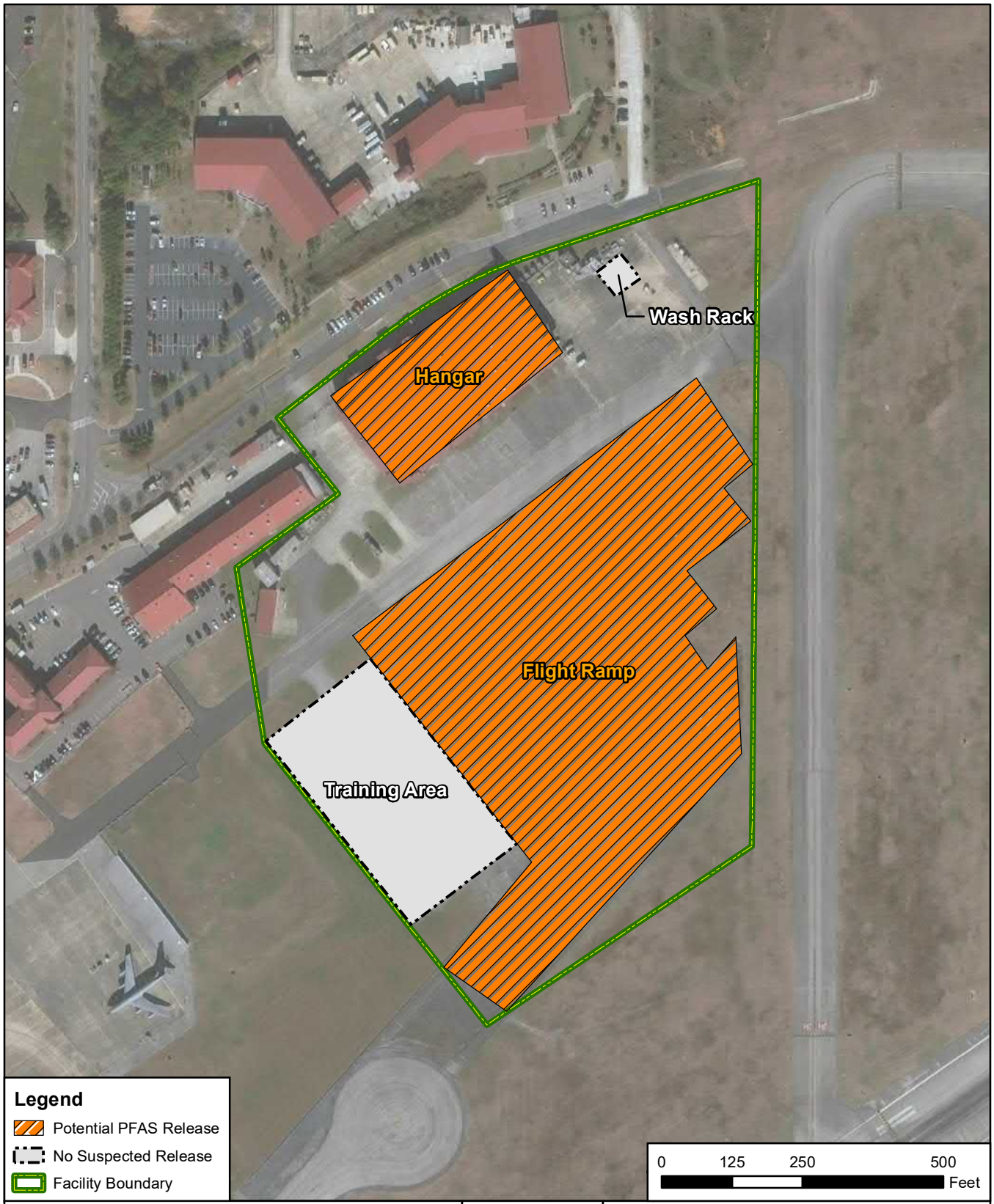
The Flight Ramp is located is located south of the Hangar. The geographic coordinates are 33°34’14.6”N and 86°44’59.9”W. Historically, approximately 16 Tri-Max™ 30 units were staged along the ramp. No information was provided regarding the date the units were obtained. These extinguishers were maintained by contractors and removed in 2010. No information was available concerning the disposal of AFFF when the Tri-Max™ 30 units were serviced by the outside contractor. No information was provided regarding the disposal of the Tri-Max™ 30 units and whether they were full or empty when removed from the facility. Interviewees did not recall any instances of AFFF being discharged at the Flight Ramp and there are no reports of any spills or leaks. Currently, mobile units equipped with Purple-K are used along the Flight Ramp. Drains along the southern edge of the Flight Ramp and the wash rack drain to the OWS, which discharges to the sanitary sewer.

3.3 Training Area

The Training Area is located southwest of the Flight Ramp. The geographic coordinates are 33°34’12.2”N and 86°45’03.5”W. The Training Area was used for safety drills. ALARNG personnel indicated that these drills did not involve the use of AFFF. The frequency of the safety drills is unknown.

3.4 Wash Rack

The Wash Rack is located east of the Hangar. The geographic coordinates are 33°34’21.4”N and 86°44’58.7”W. No records or information from interviewees indicate that AFFF was discharged at this location.



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SCALE	1:3,000	CHK BY	BM	9/10/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	9/10/2020

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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 at AASF #2 during the PA through interviews or document review. Birmingham Fire Department provides emergency services at the facility.

5. Adjacent Sources

Two potential off-facility source of PFAS adjacent to AASF #2, not under the control of the ALARNG, were identified during the PA. These potential off-facility sources include the Birmingham ANGB and the Birmingham-Shuttlesworth International Airport. These potential sources are shown on **Figure 5-1** and described below.

5.1 Birmingham ANGB

The Birmingham ANGB is located a quarter-mile southwest of AASF #2. An SI for PFOS and PFOA was performed at the Birmingham ANGB in February 2019. **Table 5-1** summarizes the findings of the SI (Leidos, 2019).

Table 5-1: Potential Release Areas at Birmingham ANGB

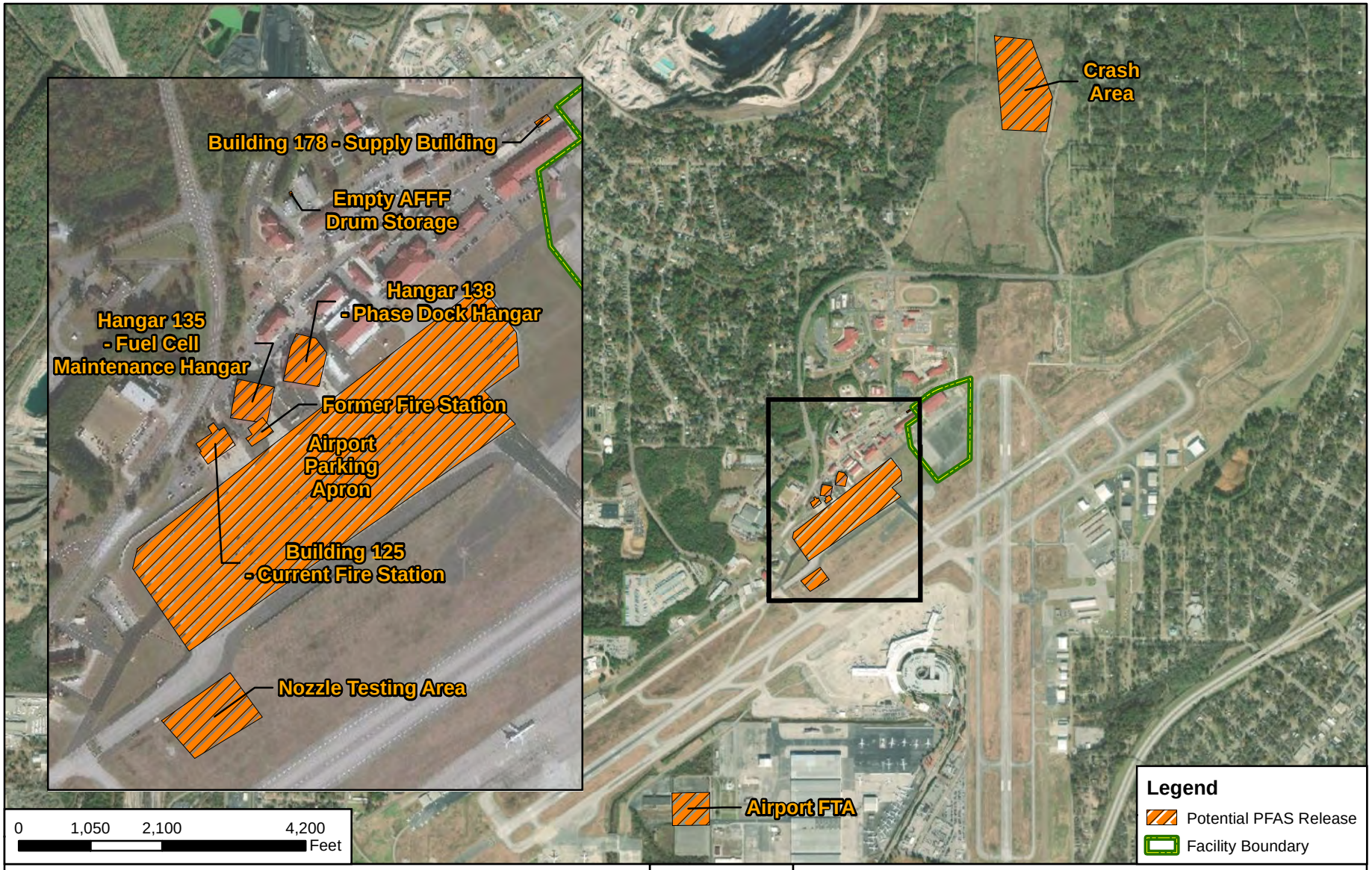
Location Name	Description	SI Findings
Hangar 135 – Fuel Cell Maintenance Hangar	Contains a 1,500-gallon aboveground storage tank (AST) containing 3% AFFF.	PFOA and PFOS exceeded the HAs for groundwater with a combined concentration of 45,230 nanograms per liter (ng/L). PFAS was also detected in soil. Further investigation was recommended.
Hangar 138 – Phase Dock Hangar	Contains an AFFF-equipped fire suppression system with a 1,485-gallon AST containing 3% AFFF.	PFOS exceeded the HA for groundwater with a concentration of 560 ng/L. PFAS was also detected in soil. Further investigation was recommended.
Building 125 – Current Fire Station	Firetrucks with a combined 1,420-gallon capacity for AFFF are housed at Building 125. Three 500-gallon ASTs, which contain a combined 500 to 600 gallons of AFFF are located in the building. An additional 1,000 gallons of AFFF is stored in a foam trailer. A leak from the foam trailer was noted in 2010.	PFOS exceeded the HA for groundwater with a concentration of 2,600 ng/L. PFAS was also detected in soil. Further investigation was recommended.
Former Fire Station	Acted as the base fire station until 1996. AFFF was stored in firefighting vehicles and two 7,500-gallon foam spreaders.	The SI report groups the Former Fire Station with Hangar 135. See Hangar 135 results.
Building 178 – Supply Building	Currently used to store AFFF in two 55-gallon drums and approximately 125 5-gallon containers (BB&E, 2016).	Location was not sampled in SI due to no known releases of AFFF ever occurring.
Empty AFFF Drum Storage	Ten empty drums that previously contained AFFF are stored at this location.	PFOS in groundwater exceeded the HA with a concentration of 460 ng/L. PFAS was also detected in soil. Further investigation was recommended.

5.2 Birmingham-Shuttlesworth International Airport

Birmingham-Shuttlesworth International Airport is located directly adjacent to AASF #2, with its property extending east, south and west of the facility. A PA report completed for the Birmingham ANGB identified multiple potential source areas at the airport. These areas were not addressed in the subsequent SI report as they are not on ANGB property. **Table 5-2** summaries the findings of the PA report (BB&E, 2016).

Table 5-2: Potential Release Areas at Birmingham-Shuttlesworth International Airport

Location Name	Rationale
Nozzle Testing Area	Located in a grassy area adjacent to the southeast of a concrete paved taxi way. Nozzle testing occurred with and without foam.
Airport Parking Apron	Located south of and directly adjacent to the Birmingham ANGB. The apron is used for parking, fueling, and maintenance of aircraft. It also contains a de-icing area as well as an OWS.
Crash Area	Located approximately 0.7 miles north/northeast of AASF #2. In August 2013, an aircraft crashed in this area. The Alabama Air National Guard and the Airport Fire Departments responded to the incident and discharged large amounts of AFFF (total quantity unknown).
Airport FTA	Located less than a mile southwest of the Birmingham ANGB. Annual fire training activities took place until the early 1990s, which involved ignition of spent or waste fuels and the use of water and AFFF by the 117th Air Refueling Wing.



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REVISED	8/11/2020	GIS BY	MS	8/11/2020
SCALE	1:25,200	CHK BY	JW	8/11/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	8/11/2020

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Adjacent Sources

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Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, two AOIs were identified at AASF #2. Locations of the AOIs are shown on **Figure 6-1**. The preliminary CSM for the AOIs is shown on **Figure 6-2**. The following sections describe the CSM components and the specific preliminary CSM 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.

6.1 Pathways

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 (National Groundwater Association, 2018).

Potential AFFF releases identified at the AASF #2 occurred on paved surfaces. Releases to the paved surfaces could have migrated a short distance onto the surrounding surface soil. Ground-disturbing activities in surface soil as well as beneath the pavement may result in potential exposure to surface soils via ingestion and inhalation of dust particles. AFFF releases to the paved surfaces could have infiltrated the subsurface via cracks in the pavement or joints between areas that are paved with different materials. Ground-disturbing activities may result in potential exposure to subsurface soils and groundwater via ingestion.

PFAS are water soluble and can migrate readily from soil to groundwater via leaching. Drinking water at AASF #2 is provided by the Birmingham Water Works, who sources their water from surface water bodies over 6 miles away. No drinking water wells exist at AASF #2 or within a 1-mile radius of the facility. It is possible that unregistered, private, domestic wells exist downgradient of the identified AOIs, which may result in potential exposure via ingestion of groundwater.

Surface water runoff at AASF #2 appears to drain to the southwest. It is possible PFAS could migrate to nearby tributaries which may result in potential exposure via ingestion of surface water and sediment.

6.2 Receptors

Receptors at the AASF #2 facility include site workers, construction workers, off-facility recreational users, and off-facility residents. These receptors, as they pertain to the facility, are described below:

- Site workers typically work at or use the site and may come into contact with the surface soils.
- Construction workers are considered workers who represent a utility worker or other worker who would be exposed to surface and/or subsurface conditions through ground-disturbing activities.
- Off-facility recreational users typically identify a person who may recreationally use an off-facility area that may be affected by a PFAS release from the facility. Off-facility recreational users could be exposed to sediment and surface water during recreational use.
- Off-facility residents identify receptors who occupy properties outside of AASF #2. Off-facility residents may come into contact with groundwater using unregistered wells.

The preliminary CSM for AASF #1 indicates which specific receptors could potentially be exposed to PFAS. The preliminary CSM for the AOIs is shown on **Figure 6-2**.

6.3 AOI 1 Hangar

AOI 1 encompasses the Hangar, which has eight 55-gallon floor tanks containing Ansulite 3% AFFF. In 1998, an overhead fire suppression system equipped with two 1,400-gallon AFFF tanks was installed. Based on markings, the tanks were likely filled in 1997 and refilled in August 1998. In 2010, the fire suppression system was refurbished and the AFFF was again replaced. Information regarding a full-scale test of the original suppression system could not be ascertained. The tanks are housed within the mechanical room. There are no reported leaks or spills of AFFF; however, corrosion on the side of the large tanks was evident.

Any releases at AOI 1 would have occurred on the Hangar floor or mechanical room, which drain to floor and trench drains. These drains would convey any AFFF to the OWS and then the sanitary sewer. If the fire suppression system underwent a full-scale test, it is possible that AFFF migrated outside the hangar and onto the flight ramp and the surrounding grassy areas. Additionally, there may be potentially complete exposure pathways at the Village Creek Wastewater Treatment Plant, located approximately 9 miles southwest of AASF #2, due to ARNG release. Potential PFAS exposure pathways resulting from releases at AOI 1 are described in **Table 6-1**.

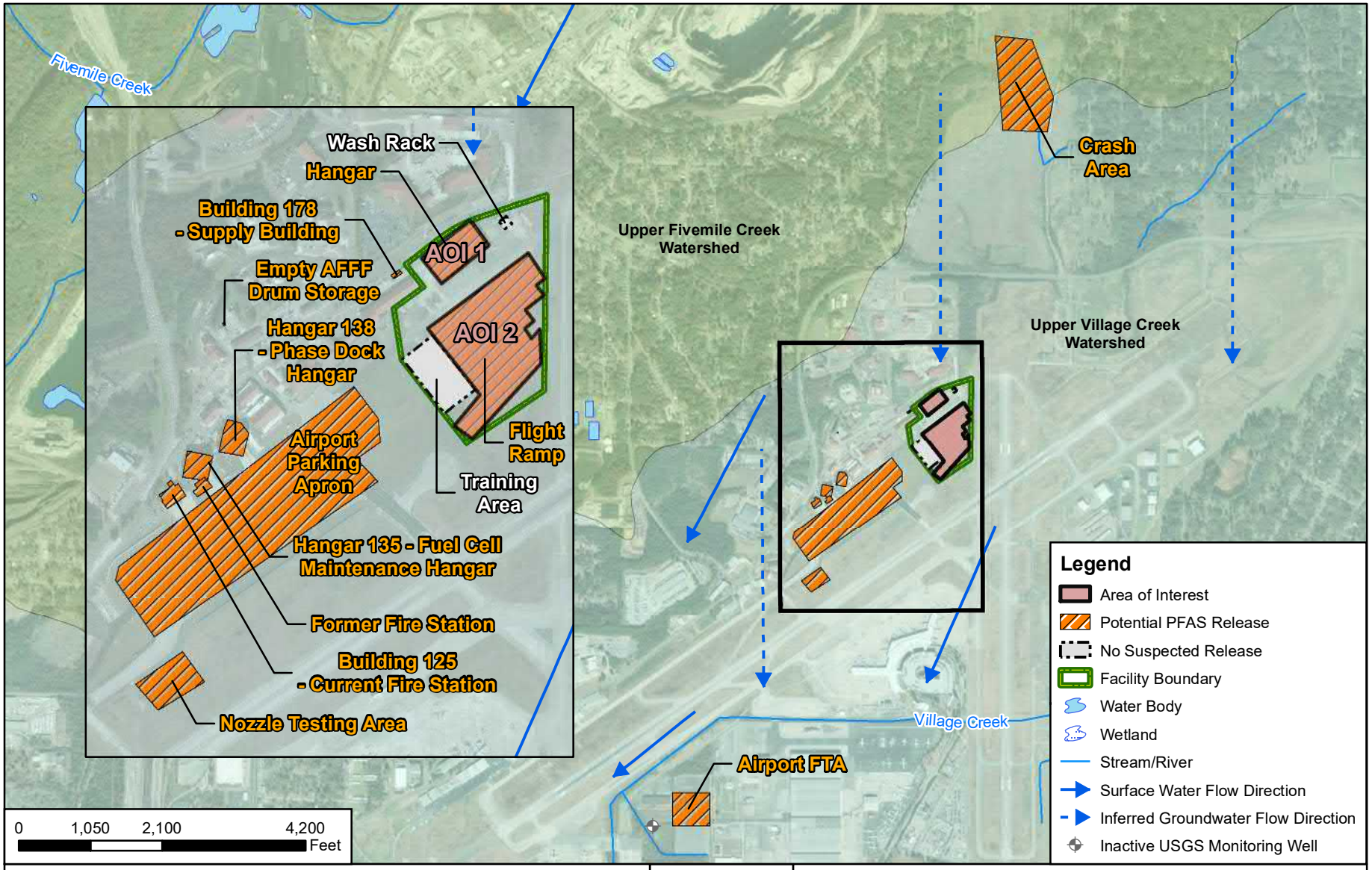
Table 6-1: Exposure Pathways at the AOIs

Pathway	Receptor
Surface Soil	Considered a potentially complete pathway to site workers and construction workers via ingestion or inhalation of dust
Subsurface Soil	Considered a potentially complete pathway to construction workers via ingestion or inhalation of dust
Surface Water and Sediment	Considered a potentially complete pathway to off-facility recreational users via ingestion
Groundwater	Considered a potentially complete pathway to construction workers and off-facility residents via ingestion

6.4 AOI 2 Flight Ramp

AOI 2 encompasses the Flight Ramp where approximately 16 Tri-Max™ 30 units were staged until 2010. No information was provided with regard to the date the units were obtained. There are no records of discharges or spills of AFFF at AOI 2.

Any releases at AOI 2 would have occurred on both pavement and grassy surfaces. The pavement drains via trench drains along the southern edge of the Flight Ramp to the OWS and then to the sanitary sewer. AFFF may have infiltrated into the subsurface soil via cracks or joints in the pavement. PFAS are water soluble and can migrate readily from soil to groundwater via leaching. Surface water generally flows southwest towards Village Creek, which flows into Bayview Lake. Potential PFAS exposure pathways resulting from releases at AOI 2 are described in **Table 6-1**.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at AASF #2, Birmingham, AL			
REVISED	9/10/2020	GIS BY	SK	9/10/2020
SCALE	1:25,200	CHK BY	JW	9/10/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	9/10/2020

N

Areas of Interest

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-1

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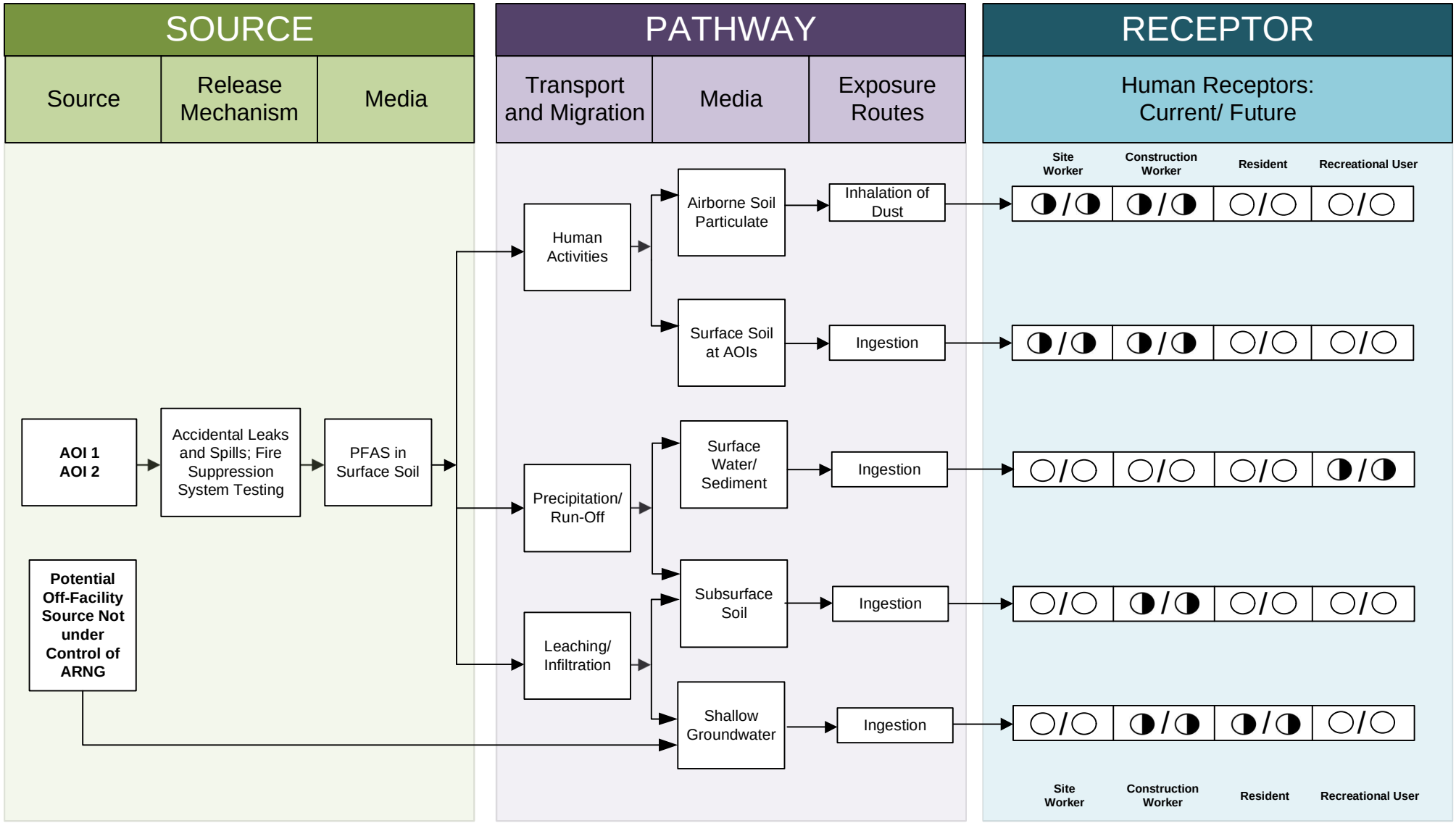


LEGEND

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

Notes:
1. The resident and recreational user receptors refer to an off-site resident and recreational user.
2. Dermal contact exposure pathway is incomplete for PFAS.

Figure 6-2
Preliminary Conceptual Site Model
AASF #2

7. Conclusions

This report presents a summary of available information gathered during the PA with respect to the use of AFFF and other PFAS-related activities at AASF #2. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Two AOIs related to potential PFAS releases were identified at the AASF #2 during the PA. A summary of the AOIs is shown in **Table 7-1** and their locations shown on **Figure 7-1**.

Table 7-1: AOIs at AASF #2

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Hangar	ALARNG	1996 to Present
AOI 2	Flight Ramp	ALARNG	Unknown to 2010

Based on potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for AASF #2, which presents the potential receptors and media impacted, is shown on **Figure 6-2**.

The following areas discussed in **Section 3** were determined to have no suspected PFAS releases.

Table 7-2: No Suspected Release Areas

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
Training Area	ALARNG	ALARNG personnel indicated no AFFF was used during safety drills.
Wash Rack	ALARNG	ALARNG personnel indicated no AFFF was discharged at this location.

7.2 Uncertainties

Available information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been present, used, or released at the facility. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept or historically maintained by the facility or available during the PA on the use of PFAS in training, firefighting, or other non-traditional activities, or on its disposal.

The conclusions of this PA are based on all available information, including: previous environmental reports, EDRs™, observations made during the VSI, and interviews. Interviews of personnel with direct knowledge of a facility generally provided the most useful insights regarding a facility's historical and current PFAS-containing materials. 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, current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected. **Table 7-3** summarizes the uncertainties associated with the PA.

Table 7-3: Uncertainties

Area of Interest	Source of Uncertainty
AOI 1	No information was provided regarding whether the fire suppression system was tested after installation or refurbishment.
AOI 1	The fate of the AFFF that was replaced in the fire suppression tanks was not provided.
AOI 2	The date the Tri-Max™ 30 units were obtained by the facility is unknown.
AOI 2	No information was available concerning the disposal of AFFF when the Tri-Max™ 30 units were serviced by the outside contractor.
AOI 2	Additionally, the fate of the units after they were removed from the facility is unclear. It is also uncertain whether the units were full of AFFF when they were removed.

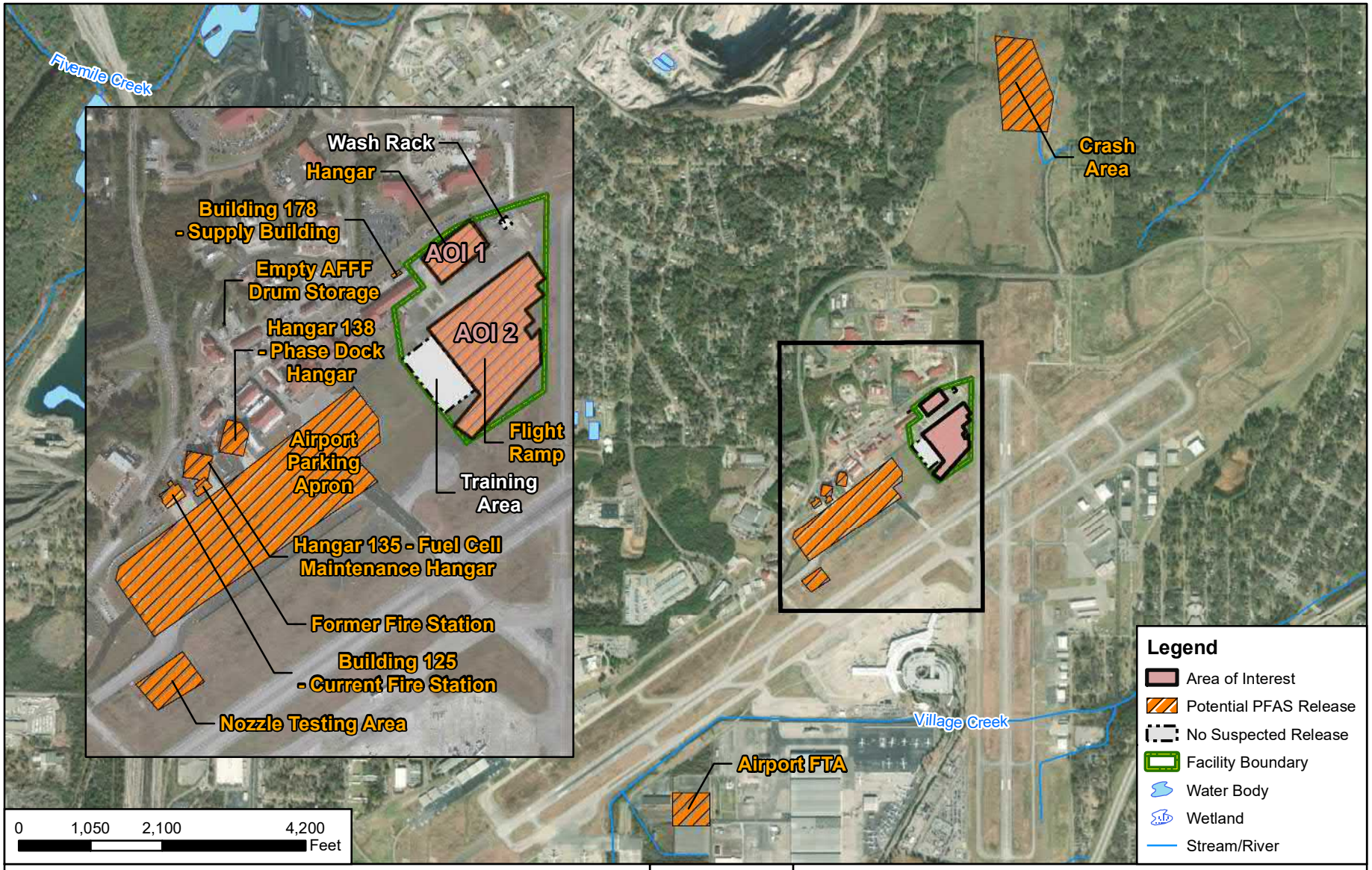
7.3 Potential Future Actions

Interviews and records (covering 2002 to present) indicate that ALARNG activity may have resulted in potential PFAS releases at the two AOIs identified during the PA. Based on the preliminary CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater, surface water, and sediment at two AOIs. **Table 7-4** summarizes the rationale used to determine if the AOI should be considered for further investigation under the CERCLA process and undergo an SI.

ARNG will evaluate the need for an SI at AASF #2 based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources.

Table 7-4: PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1 Hangar	33°34’19.6”N; 86°45’02.3”W	Currently houses overhead fire Suppression system with 2,800-gallon AFFF capacity and eight 55-gallon floor tanks containing AFFF. No discharges and/or spills were recorded or reported.	Proceed to an SI, focus on soil and groundwater
AOI 2 Flight Ramp	33°34’14.6”N; 86°44’59.9”W	Historically, approximately 16 Tri-Max™ units were staged along AOI 2. No spills or leaks were recorded or reported.	Proceed to an SI, focus on soil and groundwater



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at AASF #2, Birmingham, AL			
REVISED	9/10/2020	GIS BY	SK	9/10/2020
SCALE	1:25,200	CHK BY	JW	9/10/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	9/10/2020

N

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

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Appendix A
Data Resources

Data resources will be provided separately on CD. Data resources for AASF #2 include:

AASF #2 EDR Report

- 2019 EDR Aerial Photo Decade Package. AASF #2, 5701 East Lake Boulevard, Birmingham, AL 35212. June.
- 2019 EDR Radius Map Report™ with GeoCheck®. AASF #2, 5701 East Lake Boulevard, Birmingham, AL 35212. June.
- 2019 EDR Certified Sanborn® Map Report. AASF #2, 5701 East Lake Boulevard, Birmingham, AL 35212. June.
- 2019 EDR Summary Radius Map Report. AASF #2, 5701 East Lake Boulevard, Birmingham, AL 35212. June.

Site Documents

- 2018 *Spill Prevention, Control and Countermeasure Plan, Alabama Army National Guard Birmingham Complex*. November.
- 1995 *Plumbing Non-Pressure First Floor Plan: Area 2 (Addition)*. Army Aviation Support Facility No.2 Addition and Alteration. September.

Miscellaneous Reports

- 2016 BB&E. *Final Perfluorinated Compounds Preliminary Assessment Site Visit Report, 117th Air Refueling Wing, Alabama Air National Guard, Birmingham, Alabama*. May.
- 2019 Leidos. *Site Inspection Report for Perfluorooctane Sulfonate and Perfluorooctanoic Acid at Birmingham International Airport, Alabama.* Part 1 of 3. February.
- 2019 Leidos. *Site Inspection Report for Perfluorooctane Sulfonate and Perfluorooctanoic Acid at Birmingham International Airport, Alabama*. Part 2 of 3. February.
- 2019 Leidos. *Site Inspection Report for Perfluorooctane Sulfonate and Perfluorooctanoic Acid at Birmingham International Airport, Alabama*. Part 3 of 3. February.

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility: AASF # 2
Interviewer: [redacted]
Date/Time: 4/11/19 08:30

Interviewee: See Preliminary Assessment Sign In Sheet **Title:** " **Phone Number:** See PA Sign In Sheet **Email:** See PA Sign-In Sheet	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Y or N _____

1. Roles or activities with the Facility/years working at the Facility.

   See PA Sign-In Sheet at the End of this Questionnaire

2. Where can I find previous facility ownership information? AASF #2 is on Property owned by Birmingham Airport Authority 23 00 09 1 001 001.002 and the Municipal Airport 23 00 09 4 000 001.000. Parcel Boundary on Jackson County property appraiser appear to intersect at the flight Ramp and training pad. Municipal Airport Property also appears to be owned by Birmingham Airport Authority.

3. What can you tell us about the history of PFAS including aqueous film forming foam (AFFF) at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.

   Maintenance Fire Surpression System w/ 2 tanks. Facility constructed in 1965. System installed ≈1998.
   Fire Training Areas Safety Drills west side of Runway.
   Firefighting (Active Fire) None
   Crash None Known
   Fire Suppression Systems (Hangers/Dining Facilities) System in Hanger. Trimax units on Roof ≈16 units until ≈ 2016. System refurbished in 2010.
   Fire Protection at Fueling Stations None. NA.
   Non-Technical/Recreational/ Pest Management NA
   Metals Plating Facility NA
   Waterproofing Uniforms (Laundry Facilities) NA.
   Other

4. Fill out CSM Information worksheet with the Environmental Manager.

5. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing the AFFF/suppression system? Do you have "As Built" drawings for the buildings? Hanger uses an overhead Surpression System. Supplied by 2 tanks in Mechanical room with 1,400 gallon capacity. Surpression System is overhead in Hanger and also has 8 floor tanks. Containing Ansulite AFFF 3%. Markings on tanks in mechanical room indicate refill by 8-29-96 and Sometime 1997. Install date on floor tanks 1996. Corrosion evident in mechanical room but not in Hanger.

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

6. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam? If retrofitted, when was that done?

Suppression System Charged with Ansulite AFFF 3%.

7. How is AFFF procured? Do you have an inventory/procurement system that tracks use?

unknown. Fluid Changed by Contractor ~ 1996 & 1997.

8. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?

Ansul 3%.

9. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material? Stored in 2 1,400 gal Concentrate tanks

10. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them? No active FTAs. ARNG mentioned Air National Guard FTAs, which is adjacent to the facility. ARNG mentioned they did not use foam but did safety drills at training area west of Camp.

11. When a release of AFFF occurs during a fire training exercise, now and in the past, how is the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

ARNG did not have records or recollection of AFFF FTAs. Trimce units were maintained by contractors. Storm drains along South edge of Ramp + drain at wash rack drain to stormwater sewer.

12. Can you recall specific times when city, county, and/or state personnel came on-post for training? If so, please state which state/county agency or military entity? Do you have any records, including photographs to share with us?

Potentially training with Air National Guard west of flight ramp. No known use of foam with Air National Guard. Training by ARNG was reported as safety drills with no use of AFFF foam.

13. Did military routinely or occasionally fire train off-post? List the units that you can recall used/trained at various areas.

No known FTA activity by ARNG.

14. Did individual units come with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

No known FTA by ARNG. only mentioned potential FTA by Air National Guard.

15. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

No known emergency response incidents.

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

16. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

NA. No fuel spills reported.

17. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

N/A.

18. Are there mutual aid/use agreements between county, city, and local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement?

Birmingham Fire department provides emergency services.

19. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste treatment plants, and AFFF ponds)? only storage includes hangar + flight line.

20. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

NA

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

21. Are there past studies you are aware of with environmental information on plants/animals/ groundwater/soil types, etc., such as Integrated Cultural Resources Management Plans or Integrated Natural Resources Management Plans?

None Provided / available at the time of PA.

22. What other records might be helpful to us (environmental compliance, investigation records, admin record) and where can we find them?

None available at the time of PA.

23. Do you have or did you have a chrome plating shop on base? What were/are the years of operation of that chrome plating shop?

N/A

24. Do you know whether the shop has/had a foam blanket mist suppression system or used a fume hood for emissions control? If foam blanket mist suppression was used, where was the foam stored, mixed, applied, etc.?

NA

25. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

Maintained by Contractor. Unknown disposal of Trimed units.
Last foam replacement ~ 1997. in Mechanical room.

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?

Preliminary Assessment Sign-In Sheet

Name	Position	Years at the Facility	Phone Number/Email	May AECOM use your name in the PA Report?
[redacted]	Supervisory Instructor Pilot	3.5 yrs	[redacted]	YES
	Maint. Supervisory	10 yrs		Yes
	maint. Supervisor	17 yrs		Yes
	Quality Control	13 yrs		yes
	SMM	17		YES
	MAINTAINER	10		Yes

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

Names(s) of people performing VSI: [redacted]

Recorded by:

ARNG Contact:

Date and Time: 4/11/19 09:00

Method of visit (walking, driving, adjacent): Walking

Source/Release Information

Site Name / Area Name / Unique ID: AASF #2 Birmingham

Site / Area Acreage: on Birmingham Airport Property.

Historic Site Use (Brief Description): Facility constructed ≈ 1965. Hanger constructed between 1970-1977. Hanger Expansion 1998, system refurbished in 2010.

Current Site Use (Brief Description): used as an AASF current & historical.

Physical barriers or access restrictions: Restricted Access.

1. Was PFAS used (or spilled) at the site/area? (Y) / N

1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):

PFAS use at suppression system & on Ramp. Corrosion noted on concentrate tanks in mechanical room. Trimat units on Ramp (≈16 units) on ramp until 2010.

2. Has usage been documented? Y / (N)

2a. If yes, keep a record (place electronic files on a disk):

No known releases in hanger and trimat units were maintained by Contractor until removal in 2010.

3. What types of businesses are located near the site? **Industrial / Commercial / Plating / Waterproofing / Residential**

3a. Indicate what businesses are located near the site

AASF #2 is on Airport Property. residential properties surround the airport.

4. Is this site located at an airport/flightline? (Y) / N

4a. If yes, provide a description of the airport/flightline tenants: Delta & Southwest airlines to South and AWG adjacent to the AASF #2 facility to the west.

Visual Survey Inspection Log

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: 3 %. Ansulite Concentrate Supplied by 2 1400 gallon Concentrate tanks. Overhead system in the hangar with 8 floor tanks in hangar as well.

1b. If yes, describe maintenance schedule/leaks:

System expansion in 2008 + chemical change out in 2010 with the same 3% Concentration. No recollection of testing system with foam. System may have been trigger with just water.

1c. If yes, how often is the AFFF replaced:

Concentrate changed out (Exchanged) in 2010 with same Concentrate 3%. Ansulite.

1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

Floor drains lead to OWS and then sanitary sewer.

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? (Y) / N

1a. If so, note observation and location: Floor + storm drains go to OWS + Stormwater. Some surface water flows E/NE to retention area.

2. Is there channelized flow within the site/area? Y / (N)

2a. If so, please note observation and location: only in storm drains + trench drain South of Ramp.

3. Are monitoring or drinking water wells located near the site? (Y) / N

3a. If so, please note the location: Monitoring wells at ANG facility adjacent to the site (west).

4. Are surface water intakes located near the site? (Y) / [redacted]

4a. If so, please note the location: Birmingham water works provides drinking water via surface water sources. The closest surface water source is ~ 8 miles SE at Lake, Purdy and the Cahaba River.

5. Can wind dispersion information be obtained? Y / (N)

5a. If so, please note and observe the location.

6. Does an adjacent non-ARNG PFAS source exist? (Y) / N

6a. If so, please note the source and location. ANG facility to the west.

6b. Will off-site reconnaissance be conducted? Y / (N) Received ANG SI document.

Visual Survey Inspection Log

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): Hangar expanded & 1998.

2. Is the site/area vegetated? (Y) / N

2a. If not vegetated, briefly describe the site/area composition: grassy areas surrounding ramp

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)

4a. If yes, describe the location and extent of the ponding: only retention area to the Northeast. less than 1 mile away.

Receptor Information

1. Is access to the site restricted? (Y) / N

1a. If so, please note to what extent:

Restricted to AEWC Personell and approved contractors.

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:

Surrounding Airport property.

4. Are any schools/day care centers located near the site? (Y) / N

4a. If so, please note the location/distance/type:

Schools in areas surrounding airport.

5. Are any wetlands located near the site? Y / (N)

5a. If so, please note the location/distance/type:

Visual Survey Inspection Log

Additional Notes Trimax units historically staged on Ramp until removal in 2010. ± 16 units. Trimax units were serviced by contractors. ARNG did not recall discharge of foam from Hanger or trimax units on Ramp. No FTAs except potential FTA at ANG Property. Training Area by ARNG on west side of Ramp did not use Fire or AFFF.

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
1	4/11/19 Hanger	General view of AFFF foam tank in hanger
2	4/11/19 Hanger	Side view of AFFF foam tank on hanger floor
3	4/11/19 mechanical Room	Floor drain in mechanical room
4	4/11/19 mechanical Room	General Photo of 2, 1,400-gallon AFFF 3% Concentrate tanks
5	4/11/19 mechanical Room	Evidence of corrosion on AFFF Concentrate tank
6	4/11/19 Hanger	General view of overhead Suppression System in Hanger

Visual Survey Inspection Log

Additional Notes

Photographic Log

Photo ID/Name	Date & Location		Photograph Description
7	4/11/19	Hangar	General floor drain in Hangar
8	4/11/19	Hangar	General trench drain in Hangar. Trench Drains at NE + SW side of Hangar
9	4/11/19	Wash Rack	General view of wash Rack
10	4/11/19	Ramp	General view to the NE of Ramp toward retention area
11	4/11/19	Ramp	General view of Purple K units on Ramp
12	4/11/19	Ramp	General view of trench Drain at South side of Ramp
13	4/11/19	Training Area	General view of ARNG training area at Southwest side of the Ramp.

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: AASF #2 Birmingham

Why has this location been identified as a site? Historical presence of AFFF (Trimat units) and current / historical AFFF Suppression System in Hangar.

Are there any other activities nearby that could also impact this location? ANG facility adjacent + Southwest of AASF#2. Birmingham-Shuttlesworth International Airport runways to the South. AASF#2 is on Airport property.

Training Events

Have any training events with AFFF occurred at this site? No FTAs by ANG - Only mention of ANG training

If so, how often? N/A. Training likely by ANG but frequency is unknown.

How much material was used? Is it documented? unknown. No FTAs by ARNG.

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?

Surface Water:

Surface water flow direction? Southeast from Hanger to Ramp and East Northeast toward Retention area.

Average rainfall? ≈ 53"

Any flooding during rainy season? None

Direct or indirect pathway to ditches? Storm drain at wash Rack and trench drain at South end of Ramp

Direct or indirect pathway to larger bodies of water? No nearby water body. SW flow to retention area E-NE of site.

Does surface water pond any place on site? None onsite. Retention area E-NE of facility.

Any impoundment areas or retention ponds? offsite. to the E-NE.

Any NPDES location points near the site? unknown.

How does surface water drain on and around the flight line? Trench drain at South end of Ramp. Storm drain also at wash Rack. water from drains go to ows + then to Sanitary Sewer System.

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? South and Southeast.

Depth to groundwater? ≈ 70 ft BGS

Uses (agricultural, drinking water, irrigation)? The THs aquifer is not used for drinking/agric activ. Low yield.

Any groundwater treatment systems? None

Any groundwater monitoring well locations near the site? Monitoring wells at ANG facility.

Is groundwater used for drinking water? NO. Water supplied by municipality.

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? None

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

Do we understand the fate of sludge waste? N/A

Is surface water from potential contaminated sites treated? N/A

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go? N/A

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? N/A

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker ✓

Construction Worker ✓

Recreational User

Residential ✓ unregistered shallow wells.

Child

Ecological

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

Residential properties surrounding Birmingham Airport

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	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 1

Description:

Unknown direction.

Typical AFFF foam tank on hangar floor.

Photo date: 4/11/19

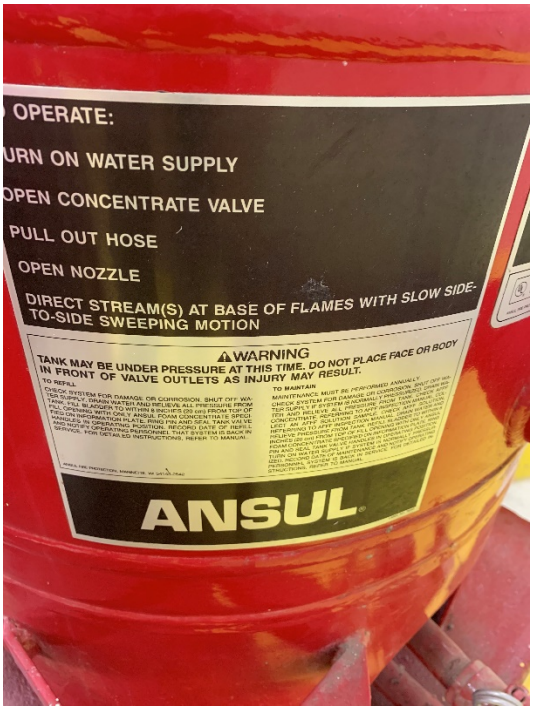
Photograph No. 2

Description:

Unknown direction.

Side of the AFFF floor tank in the Hangar.

Photo Date: 4/11/19



APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 3

Description:

Unknown direction.

Floor drain in Mechanical Room.

Photo Date: 4/11/19

Photograph No. 4

Description:

Unknown Direction.

General photo of 1,400-gallon concentrate tanks in Mechanical Room.

Photo Date: 4/11/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 5

Description:

Unknown direction.

Evidence of corrosion on AFFF concentrate tank in Mechanical Room.

Photo Date: 4/11/19

Photograph No. 6

Description:

Unknown direction.

General view of overhead suppression system in the Hangar.

Photo Date: 4/11/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 7

Description:

Unknown direction.

General floor drain in Hangar.

Photo Date: 4/11/19

Photograph No. 8

Description:

Unknown direction.

General trench drain in Hangar. Trench drains in the Hangar run along the northeast and southwest sides of the Hangar.

Photo Date: 4/11/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 9

Description:

Facing east.

General view of Wash Rack.

Photo Date: 4/11/19

Photograph No. 10

Description:

Facing northeast.

General view northeast of the facility, toward the off-site retention area.

Photo Date: 4/11/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 11

Description:

Facing southeast.

General view of mobile Purple-K units on currently staged on flight ramp.

Photo date 4/11/19

Photograph No.12

Description:

Facing northeast.

General view of trench drain on south side of the ramp.

Photo Date: 4/11/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #2 Birmingham, AL	Birmingham, Alabama

Photograph No. 13

Description:

Facing northwest.

General view of training area designated by ARNG.

Photo Date: 4/11/19