FINAL
Preliminary Assessment Report
AASF #1 RW Shepherd, Montgomery, Alabama

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

September 2020

Prepared for:

Army National Guard Headquarters
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
AOI	Area of Interest
ARNG	Army National Guard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
CSMS	combined maintenance shop
EDR™	Environmental Data Resources, Inc™.
FTA	fire training area
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PRL	potential release location
SI	Site Inspection
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

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) #1 (also referred to as the "facility"), in Montgomery, Alabama, to assess potential PFAS release areas and exposure pathways to receptors. The AASF #1 facility is constructed on a parcel of land owned by the Montgomery 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 10 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;
- Identified Area(s) of Interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential source-pathway-receptor linkages of potential PFAS in soil, groundwater, surface water, and sediment for each AOI.

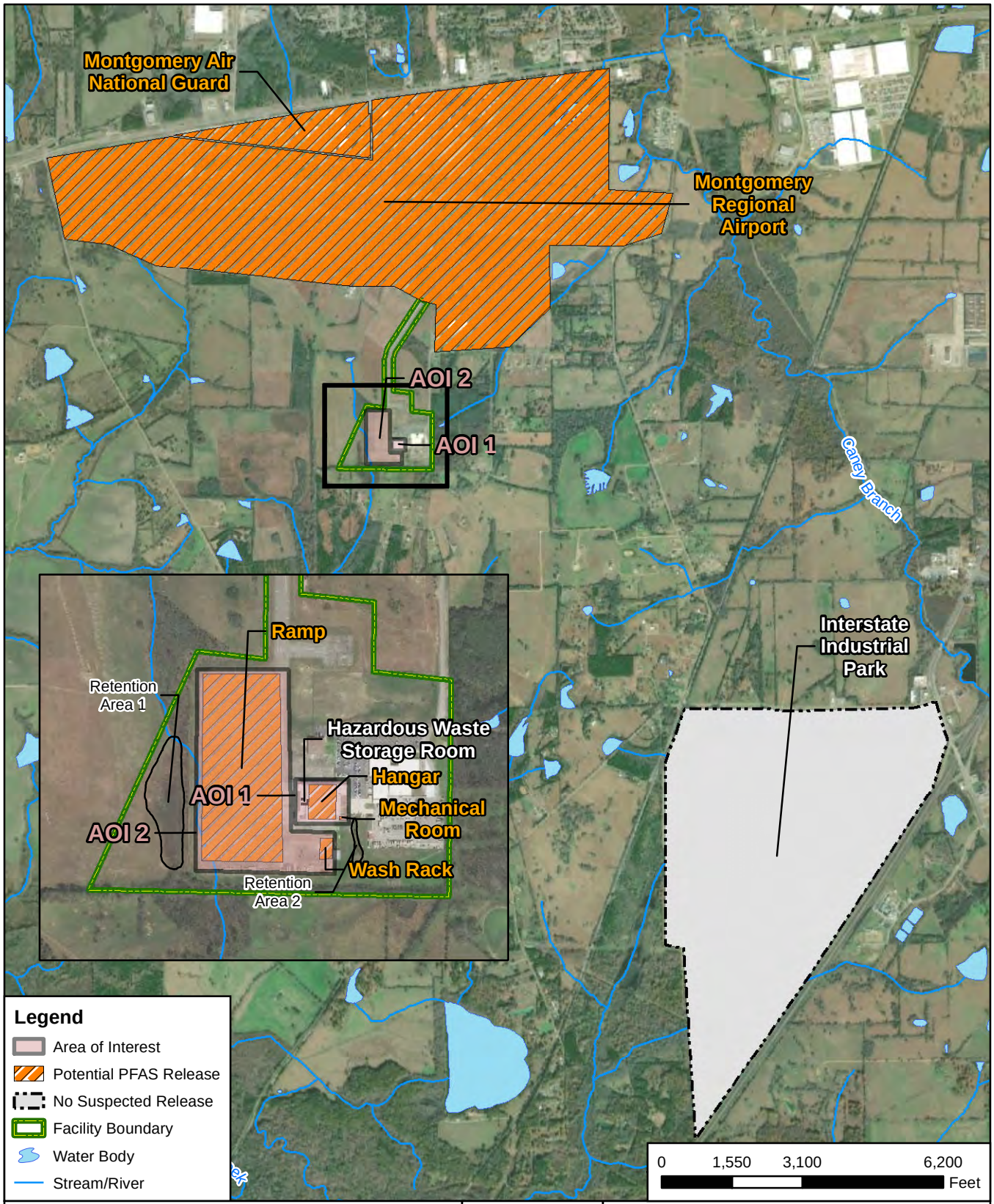
Two AOIs related to potential PFAS releases were identified at the AASF #1 facility during the PA. The AOIs are shown on **Figures ES-1** and described in **Table ES-1** below:

Table ES- 1 AOIs at AASF #1

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Hangar Fire Suppression System and Mechanical Room	ALARNG	1995 to present
AOI 2	Flight Ramp and Wash Rack	ALARNG	2001 to 2017

Construction of the AASF #1 facility was completed in 1995. Based on aerial imagery, the hazardous waste room was added to the west end of the hangar between 2013 and 2017. The hangar building is equipped with the same AFFF dispensing system that was installed during the original construction of the site; however, the 3% AFFF concentrate was replaced with the same concentration between 2006 and 2009. The manufacturer of the historical and current 3% AFFF concentrate could not be ascertained. The Hangar, Hazardous Waste Storage Room, Mechanical Room, and Ramp and Wash Rack were investigated during this PA.

Based on potential PFAS releases at these AOIs, there is potential for receptor exposure to PFAS contamination in media at or near the facility. The preliminary CSM for the facility, which presents the potential receptors and media impacted, is shown on **Figure ES-2**. Based on the United States (US) Environmental Protection Agency (USEPA) Unregulated Contaminant Monitoring Rule 3 (UCMR3) data, it was indicated that no PFAS were detected in a public water system above the USEPA's lifetime Health Advisories (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 UCMR3 but might be detected if analyzed today.



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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	8/27/2020

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Summary of Findings

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Figure ES-1

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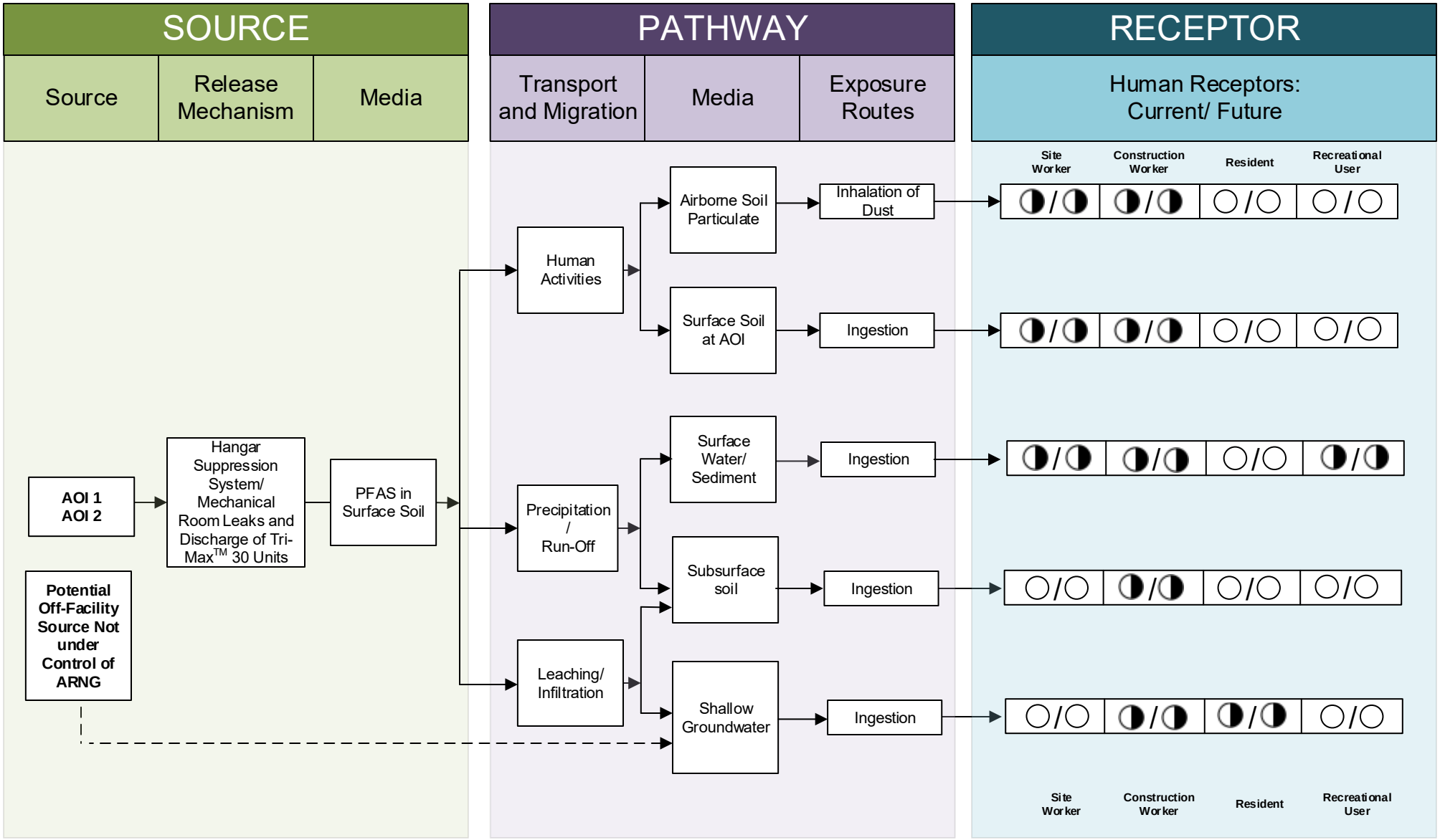


LEGEND

- 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 #1 RW Shepherd

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 (USACE) 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 poly-fluoroalkyl 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 lifetime Drinking Water Health Advisories 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. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined. The state of Alabama does not currently have drinking water standards for PFAS.

This report presents the findings of a PA for PFAS-containing materials at the current AASF #1 (referred to as “the facility”), Montgomery, 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 [CFR] 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 10 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, including environmental managers, and operations staff;

- Identified Area(s) of Interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential source-pathway-receptor linkages of potential PFAS in soil, groundwater, surface water, and sediment for each AOI.

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 as follows:

- **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 located in southwest Montgomery, in Montgomery County, Alabama. The facility property is within the Montgomery Regional Airport, at the southernmost portion of the airport property, off US Highway 80 (Selma Highway). The site location is depicted on (**Figure 1-1**).

According to ALARNG personnel, the facility was constructed in 1995. The facility is situated on a 160-acre parcel of land owned by the Montgomery Airport Authority (Montgomery County, 2019). The current AASF #1 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 Montgomery. Floor drains at the facility discharge to the oil water separator (OWS) and then to the stormwater sewer. According to ALARNG personnel, wastewater from the AASF #1 facility goes to the Cotoma Wastewater Treatment Plant (WWTP) located approximately 6 miles northwest of the facility.

1.5 Facility Environmental Setting

The ALARNG AASF #1 is situated in the Black Prairie Belt district of the Coastal Plain physiographic province. The Black Prairie Belt lies to the south and west of the Fall Line Hills and

occupies a crescent shaped area extending from northern Mississippi into central Alabama. The Black Prairie Belt is characterized by an undulating, deeply-weathered plain of low relief. The facility lies in the Southeastern Plains ecoregion, which is characterized by smooth to irregular plains or flatlands separated in some places by curved bands of asymmetrical ridges and rugged hills. Streams draining this ecoregion are generally low gradient with silty sand substrates. Forest and woodland areas are prevalent and are part of the mosaic of cropland, pasture, and urban areas that dot the landscape. Natural vegetative cover includes oak, hickory, pine, and southern mixed forests (Geological Survey of Alabama, 2002).

1.5.1 Geology

Near-surface sediments consist of Quaternary Alluvium and Pleistocene Terrace Deposits. The Alluvium units measures 0 to 40 feet thick and are characterized by white to light-gray, silty, poorly sorted sand with yellow, gray-orange to bluish-gray, sandy clay lenses. The thickness of the Terrace Deposits range from 10 to 100 feet and are characterized by pale-yellowish-orange, cross-bedded, medium to very coarse grained, poorly-sorted sand; dark-reddish-brown sandy clay; and lenses of well-rounded gravel (Geological Survey of Alabama, 1963).

Selma Group rocks of Late Cretaceous age unconformably underlie the Pleistocene Terrace Deposits. Selma group rocks include all Upper Cretaceous strata above the Eutaw Formation. Stratigraphic units of the Selma Group, in descending order, include Providence Sand, Prairie Bluff chalk, Ripley Formation sands, Demopolis chalk, and Mooresville chalk. Units of the Selma Group are relatively impermeable or have low groundwater permeability (Geological Survey of Alabama, 1963).

The Eutaw Formation unconformably underlies the Mooresville Chalk of the Selma Group. The Eutaw Formation ranges from 3 feet thick in Northeast Montgomery to 405 feet thick in southwest Montgomery. The Eutaw formation consists of sand, light-greenish-gray, cross laminated, fine to medium-grained, well-sorted, micaceous, glauconitic, fossiliferous sand; it is interbedded with greenish-gray micaceous glauconitic fossiliferous clay and sandy clay. The Gordo Formation unconformably underlies the Eutaw formation and is characterized by pale-yellowish-orange medium to coarse grained, poorly sorted, quarzitic, ferruginous-cemented sand; it is interbedded with moderate-reddish-brown to pale-red-purple clay. The Coker Formation unconformably underlies the Gordo Formation and consists of light-greenish-gray, medium to coarse grained, well-sorted, micaceous, quarzitic, glauconitic, fossiliferous sand; it is thinly laminated with greenish-gray, lignitic, fossiliferous clay. Basement rock unconformably below the Cocker Formation is characterized by Pre-Cretaceous crystalline, biotite, mica schist (Geological Survey of Alabama, 1963). Geologic units underlying the facility are depicted on **Figure 1-2**.

1.5.2 Hydrogeology

The Quaternary Alluvium sediments yield small quantities of water of good quality in shallow wells installed at depths from less than 10 to about 30 feet below land surface. Some users of these wells experience water shortages during times of limited rainfall; however, some wells installed in topographically lower areas and near streams can produce water year-round (Geological Survey of Alabama, 1963).

Sand and Gravel beds of the Terrace Deposits are very permeable and yield moderate to large supplies of water. Wells installed in these sand and gravel beds are used for industrial, domestic, and stock use (Geological Survey of Alabama, 1963).

The Coker, Gordo, and Eutaw formations are the most productive aquifers in Montgomery County, where large quantities of water are pumped from these formations for municipal use by the City of Montgomery (Geological Survey of Alabama, 1963).

Groundwater features surrounding the facility are shown in **Figure 1-2**. General groundwater flow beneath the facility is toward the northwest. 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 Geographic Information System databases, wells were researched to a 4-mile radius of the facility. According to the EDR™ report, no groundwater wells have been identified within a 1-mile radius of AASF #1. Based on the USEPA Unregulated Contaminant Monitoring Rule 3 data, it was indicated that no PFAS were detected in a public water system above the HA 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 UCMR3 but might be detected if analyzed today.

1.5.3 Hydrology

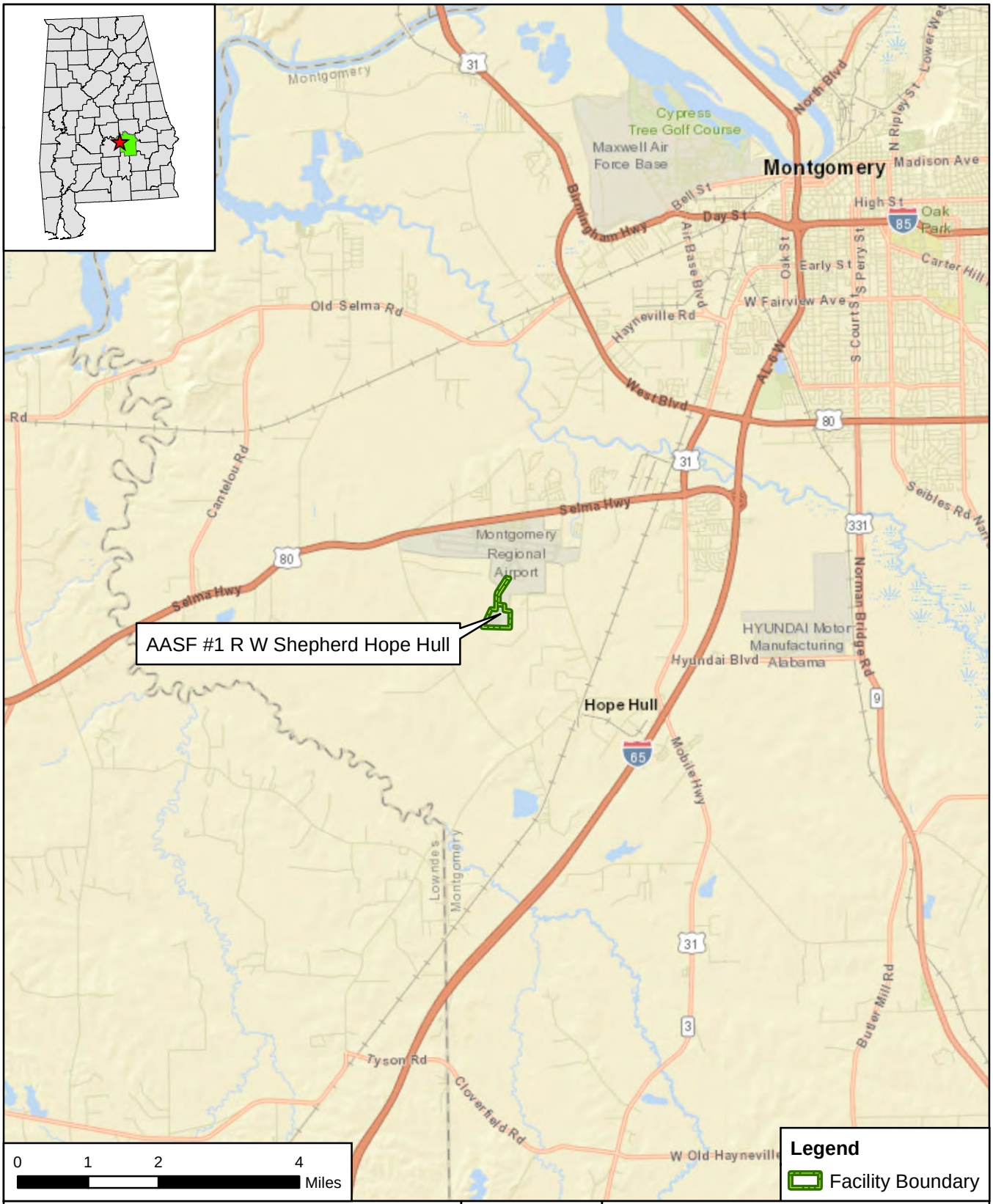
The AASF #1 facility lies within Alabama River Basin (Geological Survey of Alabama, 2002). General surface water drains from the facility via sheet flow to the northwest; however, surface water could also drain to the low-lying retention areas to the southwest of the flight ramp (Retention Area 1) and southeast of the mechanical room (Retention Area 2). There is also one storm drain within the wash rack (east of the flight ramp) that empties to the oil/water separator and then the sanitary sewer. The nearest named surface water body is Catoma Creek, approximately 2.5 miles northeast, which empties into the Alabama River. Surface water features surrounding the facility are shown in **Figure 1-3**.

1.5.4 Climate

Alabama's climate is humid subtropical, with average annual temperatures in Montgomery of about 65 degrees Fahrenheit (°F). Rainfall in Alabama usually is abundant and distributed throughout the year. Average annual precipitation ranges from less than 50 inches to 54 inches near Montgomery to a high of 66 inches near the coast. (Geological Survey of Alabama, 2002). The average temperature in the area of the facility is 65 °F, with an average high of 76.5 °F and an average low of 53.5 °F. Montgomery receives an average of 53.03 inches of rain per year (World Climate, 2020).

1.5.5 Current and Future Land Use

The ALARNG AASF #1 facility is located within the Montgomery Regional Airport. Properties surrounding the AASF #1 facility primarily consist of commercial properties to the north and southeast, rural residential properties to the east and south, and agricultural properties to the west. Reasonably anticipated future land use is not expected to change from the current land use.



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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	11/18/2019

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Facility Location

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Figure 1-1

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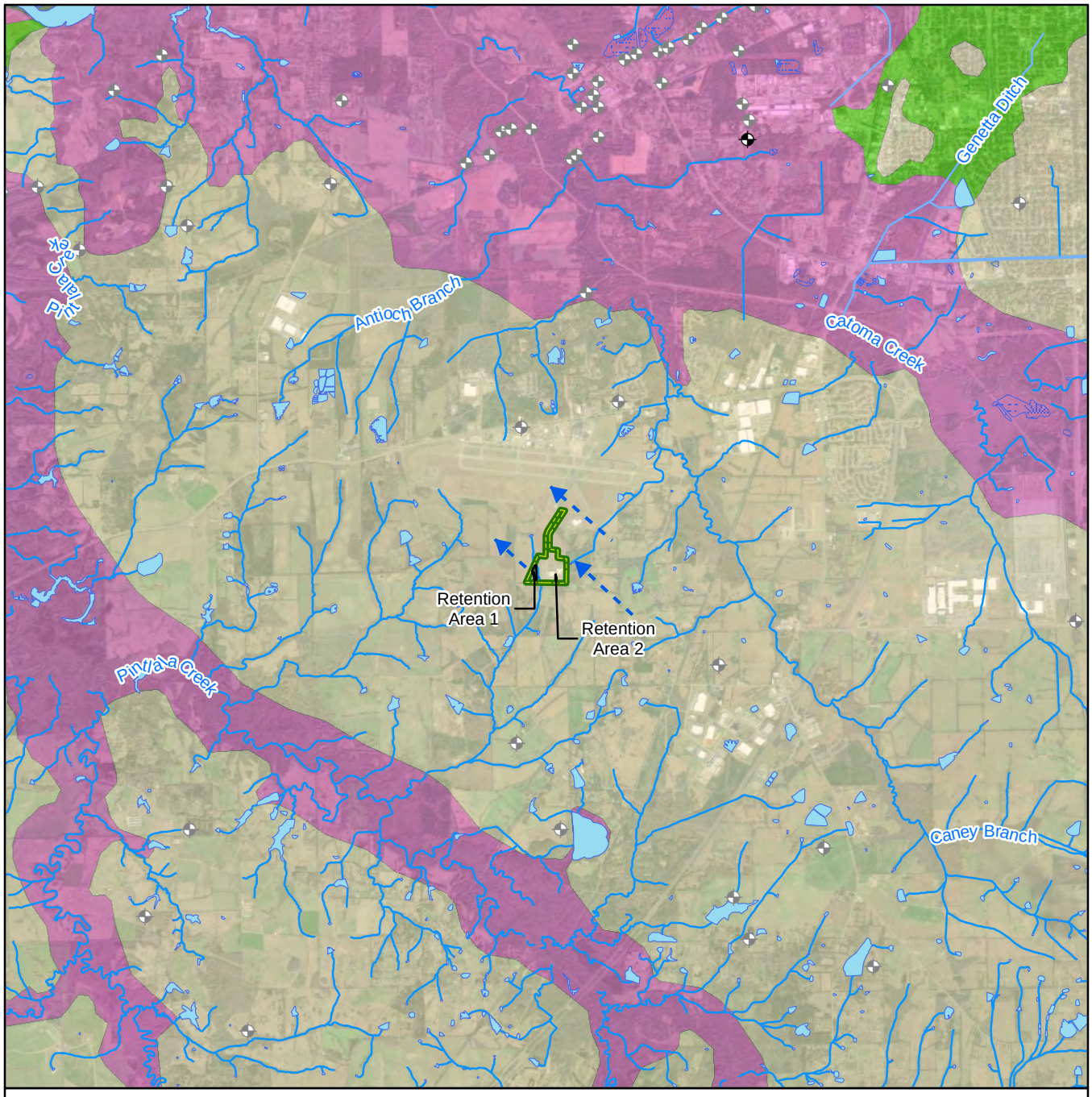

Legend

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

Geology

- Alluvial and Low Terrace Deposits
- Mooreville Chalk
- Eutaw Formation

Well

- USGS Active Monitoring Well
- USGS Inactive Monitoring Well

0 0.75 1.5 3 Miles

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Groundwater Features

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Figure 1-2

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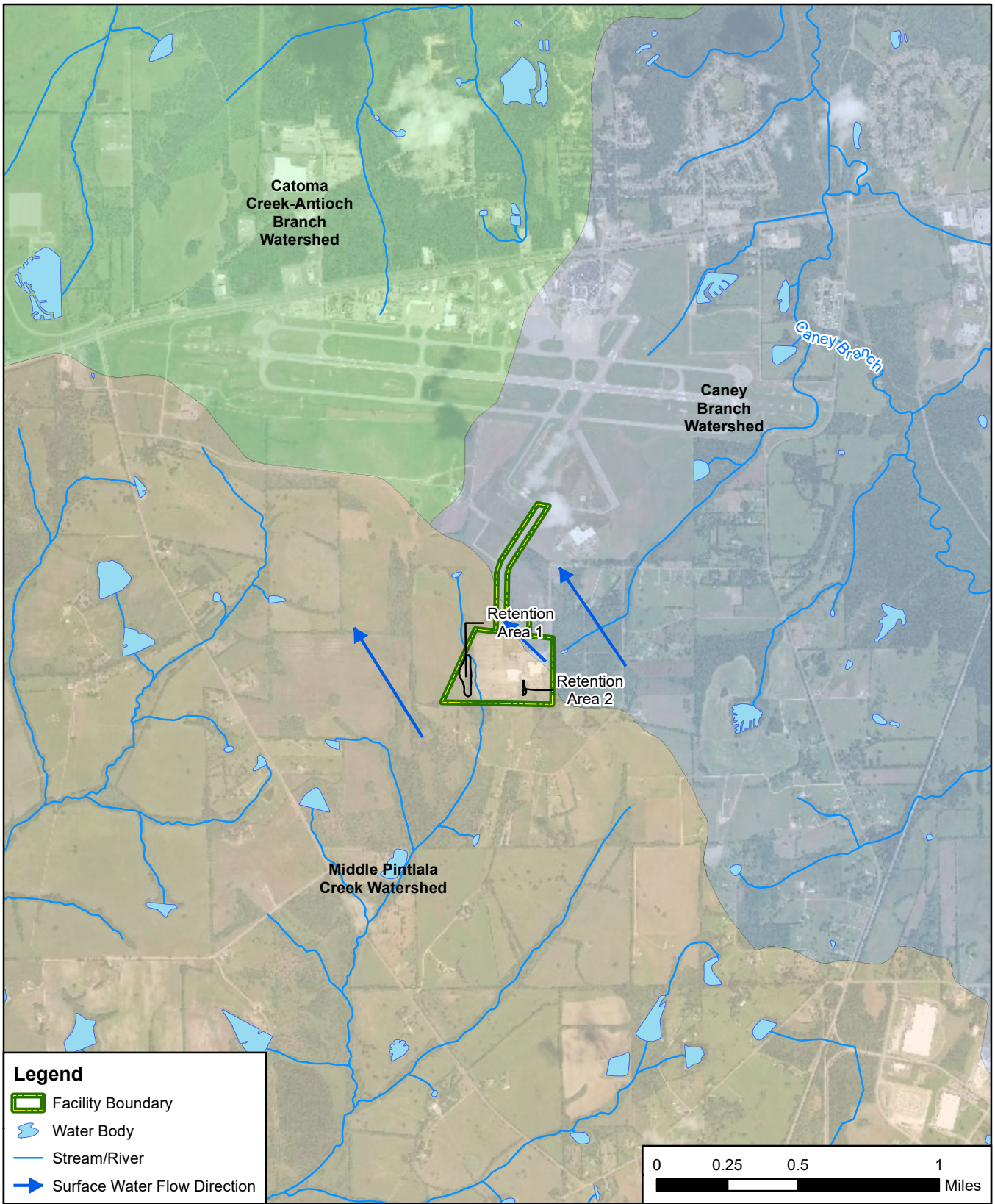

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

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**. Based on interviews conducted during this PA, ALARNG personnel with knowledge of the property dating back to 2000 confirmed that no fire training occurred during their operation of the subject property. Features indicative of FTAs are not evident in aerial imagery dating back to 1952 and provided in EDR™ report (**Appendix A**).

3. Non-Fire Training Areas

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**.

3.1 Hangar Fire Suppression System

The AASF #1 hangar contains a fire suppression system supplied by two 800-gallon tanks filled with 3% AFFF concentrate. The hangar building is equipped with an overhead suppression system as well as floor tanks. The current AFFF suppression system was installed in 1995 and was part of the original hangar construction. According to ALARNG personnel, the 3% AFFF concentrate was replaced with the same concentration between 2006 and 2009. The manufacturer of the historical and current 3% AFFF concentrate could not be ascertained. Additionally, information regarding where the original 3% AFFF concentrate was disposed of was not known by ALARNG personnel and could not be ascertained. Floor drains are located on the north and south ends of the hangar building. These floor drains empty to the oil/water separator which then discharges to the sanitary sewer.

The geographic coordinates of the hangar are 32° 17' 8.9" N; 86° 23' 41.2"W. The two 800-gallon concentrate tanks that supply the AFFF suppression system are located in the mechanical room, off the southeast corner of the hangar building. The geographic coordinates of the mechanical room are 32° 17' 7.9" N; 86° 23' 39.7"W. The locations of the hangar building and mechanical room are depicted on **Figure 3-1**.

The AFFF suppression system was installed in 1995. It is reasonable to assume that an acceptance test was conduct prior to ALARNG accepting the system installation. According to the ALARNG personnel interviewed with knowledge of the property dating back to 2000, a full-scale test of the new system was not conducted, and the system has not been triggered. However, information regarding a full-scale test from 1995 to 2000 could not be ascertained. During the visual inspection, corrosion and rust staining were observed at both AFFF concentrate tanks in the mechanical room, as well as the floor tanks within the hangar building. Corrosion was not evident when observing the overhead suppression system in the hangar building. ALARNG personnel also noted that during the AFFF concentrate replacement between 2006 and 2009, an unknown quantity of concentrate was spilled on the south side of the mechanical room, which consequently killed the grass. During the visual inspection, dead grass was noted outside the mechanical room where the spill had occurred. Photographs are provided in **Appendix C**.

3.2 Hazardous Waste Storage Room

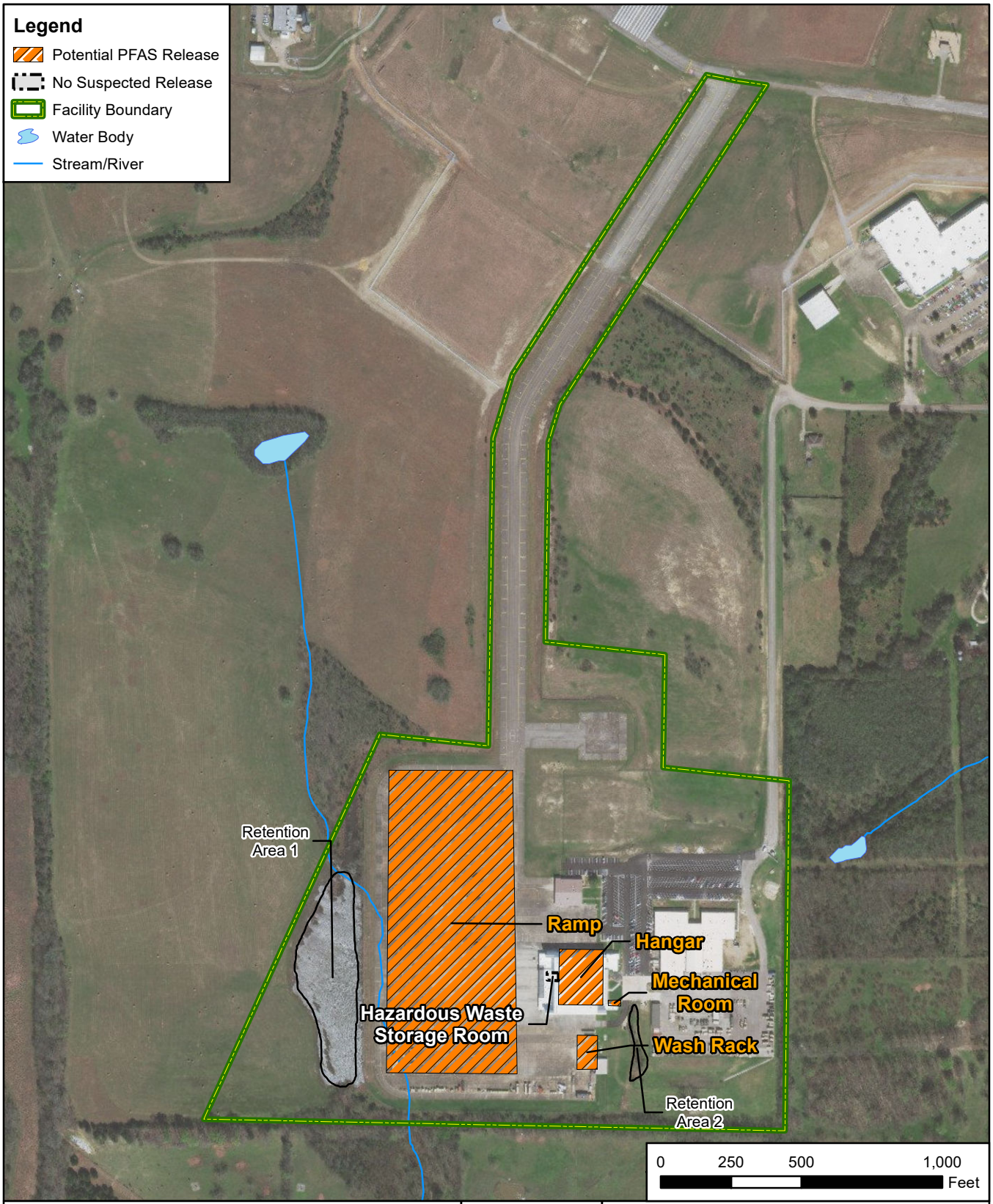
The hazardous waste storage room is located at the west side of the hangar building. Based on aerial imagery, the hazardous waste room was added to the west end of the hangar between 2013 and 2017. The geographic coordinates of the hazardous waste storage room are 32° 17' 8.9" N; 86° 23' 42.3"W. During the PA, ALARNG personnel noted that when the AFFF concentrate was replaced between 2006 and 2009, the contractor responsible for replacement left a 5-gallon jug of 3% AFFF concentrate in the mechanical room. This jug was presumably left in the mechanical room to top off the 800-gallon concentrate tanks discussed above. Prior to the PA visit, ALARNG personnel had relocated the 5-gallon concentrate jug to the hazardous waste storage room. Although, AFFF is not classified as a hazardous waste, ALARNG personnel relocated the 5-gallon concentrate jug to the hazardous waste storage room for waste characterization analyses in preparation for proper disposal. Visual inspection of the 5-gallon concentrate jug indicated corrosion and leakage from the cap; however, the jug's location when leakage occurred is unknown. It was also noted that the 5-gallon concentrate jug had been stored on a secondary containment. Photographs are provided in **Appendix C**.

3.3 Flight Ramp

The flight ramp is located west of the hangar building. The geographic coordinates of the flight ramp are 32° 17' 10.6" N ; 86° 23' 46.5 "W. According to ALARNG personnel with knowledge of the facility dating back to 2000, approximately ten mobile AFFF Tri-Max™ 30 units were staged along the flight ramp from 2001 to 2017. The Tri-Max™ 30 units were replaced in 2017 with the Purple K units that are currently utilized onsite. The Tri-Max™ units were transported offsite to the combined maintenance shop (CSMS) at the Alabama National Guard office in Montgomery, Alabama. According to CSMS personnel, the Tri-Max™ 30 units were received empty. However, information regarding how the Tri-Max™ 30 units were emptied could not be ascertained by ALARNG personnel at the AASF #1 facility. Based on this discrepancy, it may be assumed that the Tri-Max™ 30 units were discharged on the flight ramp prior to transportation to CSMS. Therefore, the flight ramp is a suspected release area. Photographs of this areas are provided in **Appendix C**.

3.4 Wash Rack

The wash rack is located south of the hangar building and is used to wash aircrafts. The geographic coordinates of the wash rack are 32° 17' 6.2" N; 86° 23' 40.8" W. There is one drain in the center of the wash rack that empties to the oil/water separator and then the municipal stormwater system. According to ALARNG personnel, wastewater from the AASF #1 facility goes to the Cotoma WWTP located approximately 6 miles northwest of the facility. According to ALARNG personnel with knowledge of the facility dating back to 2000, ALARNG used aircraft soap at the wash rack area to simulate firefighting techniques but did not use fire or AFFF for these simulations. As discussed in **Section 3.3**, approximately ten AFFF Tri-Max™ 30 units were historically (from 2001 to 2017) staged along the flight ramp. Although ALARNG personnel stated that only aircraft soap units were used for simulating firefighting techniques, it is reasonable to assume that Tri-Max™ 30 units may have been used. Therefore, there wash rack is considered a suspected release area. During the PA visit, an aircraft was parked in the wash rack area, therefore, photographs of this area could not be provided in this PA.



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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 within the AASF #1 facility during the PA through interviews or document review. The city of Montgomery Fire Department provides fire emergency services for the AASF #1 facility.

5. Adjacent Sources

Two potential off-facility sources of PFAS adjacent to the AASF #1, not under the control of ALARNG, were identified during the PA. These potential off-facility sources include the Interstate Industrial Park and the Montgomery Regional Airport. These potential sources are depicted on **Figure 5-1** and described below.

5.1 Interstate Industrial Park

The Interstate Industrial Park is located approximately 2 miles southeast of the AASF #1 facility. The geographic coordinates for the Interstate Industrial Park are 32° 15' 49.1" N; 86° 21' 56.6" W. The Interstate Industrial Park is a 345-acre industrial park zoned as light industry. Businesses within the Interstate Industrial Park include GenPak, LLC, Hyundai Power Transformers USA, Inc., WestRock, and Viscofan USA, Inc. (Economic Development Partnership of Alabama, 2019). Brief descriptions of these companies are listed below:

- **GenPak, LLC**: GenPak, LLC is a distribution warehouse for containers and packaging for the food service industry (Genpak, 2019).
- **Hyundai Power Transformers USA, Inc**.: Hyundai Power Transformers USA, Inc. produces power transformers including oil immersed transformers, dry type transformers and cast resin transformers (Hyundai Power Transformers USA, 2012).
- **WestRock**: Generally, WestRock produces paper and paper packaging products. The WestRock facility located at the Interstate Industrial Park is a warehouse and distribution center (WestRock, 2019).
- **Viscofan USA, Inc.**: Viscofan produces casings and packaging solutions for the meat industry. Viscofan produces various casing materials including cellulose, collagen, fibrous and plastic (Viscofan, 2019).

The Interstate Industrial Park is situated topographically upgradient to the AASF #1 facility. Details of a release of PFAS containing materials could not be ascertained from public records; therefore, this facility is not considered an off-facility source of AFFF.

5.2 Montgomery Air National Guard Base

The Montgomery Air National Guard Base (ANGB) is located adjacent to the Montgomery Regional Airport and approximately 1.25 miles northwest of the AASF #1 facility. Aircraft support operations at Montgomery ANGB include aircraft fueling and maintenance, aircraft deicing, fire protection and support, ground vehicle fueling and maintenance, and equipment and facilities maintenance (AECOM, 2019).

Previous PA documentation for the Montgomery ANGB indicates that fire training was not performed within the facility boundary. However, an FTA was identified approximately 0.5 miles southeast of the Montgomery ANGB facility and across the East-West Runway on Airport property. According to this PA, fire training took place circa 1989 and 1991 and was conducted jointly with airport authority. During each exercise, an unknown quantity of spent fuel was ignited and extinguished using AFFF (BB&E, Inc., 2019).

A SI was performed from December 2017 to March 2018 at the Montgomery ANGB, in areas deemed as potential release locations (PRLs). A total of six PRLs were investigated during the SI. Results of the SI indicated that PFAS were present in all media sampled at each PRL. Additionally, PFAS detected in base boundary wells indicate that off-base migration of PFAS is

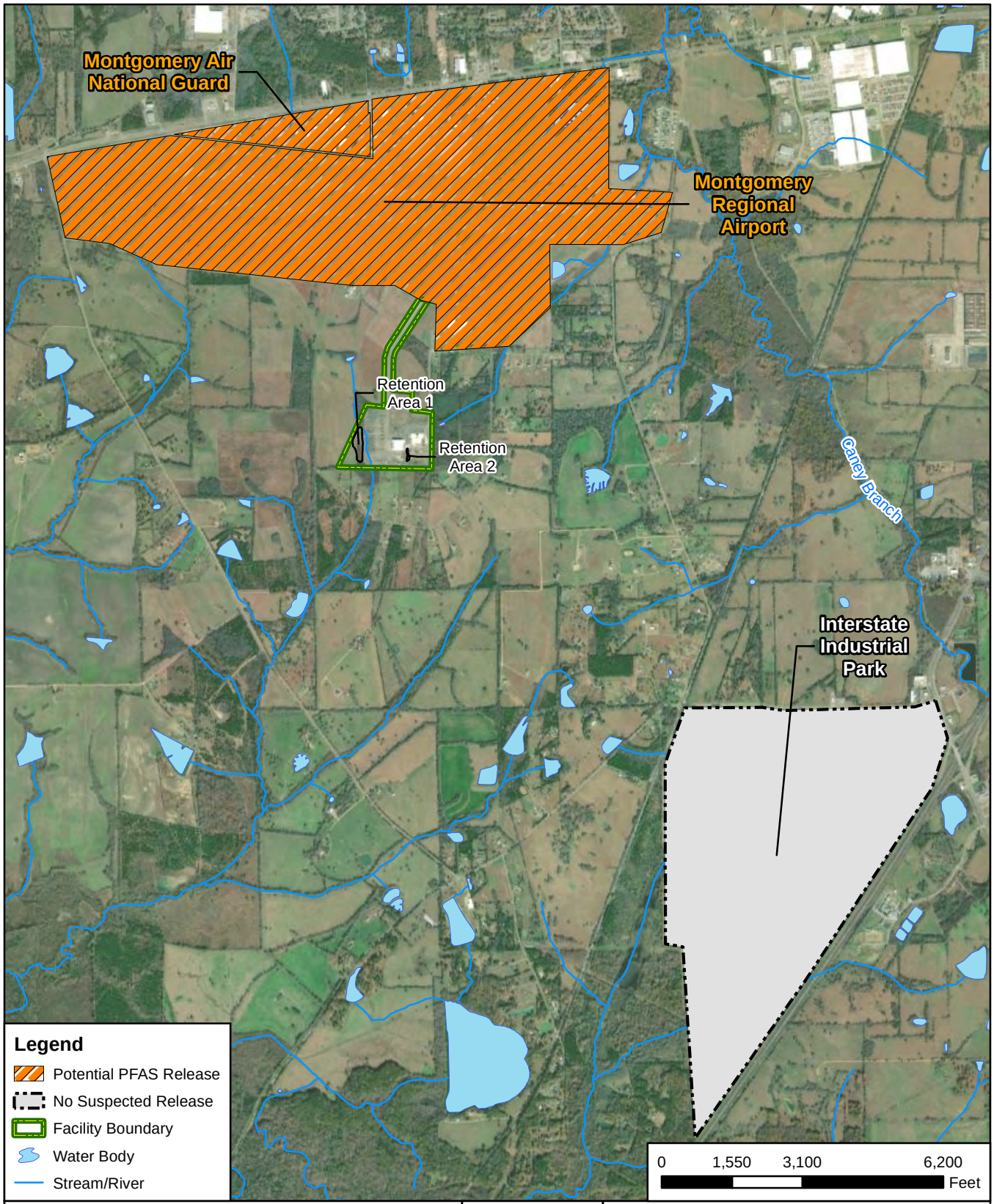
possible (AECOM, 2019). Based on the findings of the SI report, the Montgomery Air National Guard Base is considered an off-facility source of PFAS.

5.3 Montgomery Regional Airport

The AASF #1 facility is located within the Montgomery Regional Airport. Multiple Aviation facilities are located within the Mobile Region Airport, including the Montgomery Air National Guard Base (ANGB) (discussed in **Section 5.2**).

As noted above, an FTA was identified approximately 0.5miles southeast of the Montgomery ANGB facility and across the East-West Runway on Airport property and was used from 1989 to 1991. During each exercise, an unknown quantity of spent fuel was ignited and extinguished using AFFF (BB&E, Inc., 2019). Additionally, some hangars at the airport are suspected to be equipped with AFFF suppression systems; however, the use or storage of AFFF in these hangars are unknown. Details of a release could not be ascertained form public records.

The AASF #1 facility is located on the southernmost and topographically upgradient portion of the Montgomery Regional Airport. Based on the use of an FTA on the East-West Runway, general airport practices and the location of AASF #1 facility within the Montgomery Regional Airport property, the Montgomery Regional Airport is considered an off-facility source of PFAS.



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SCALE	1:37,200	CHK BY	BM	8/27/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	8/27/2020

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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 the AASF #1 facility. Locations of the AOIs are shown on **Figure 6-1**. The preliminary CSM for AOI 1 is shown on **Figure 6-2**, and the preliminary CSM for AOI 2 is shown on **Figure 6-3**. The following sections describe the CSM components and the specific preliminary CSMs developed for each AOI. 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 Ground Water Association, 2018).

Known and potential AFFF releases identified at the AASF #1 facility occurred on both surface soil and paved surfaces. Releases to the paved surfaces could have migrated a short distance onto the surrounding surface soil. Ground-disturbing activities in these grassy areas 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; however, drinking water at AASF #1 is provided by the City of Montgomery. The City of Montgomery has groundwater and surface water sources that contribute to 96 million gallons of water per day. Groundwater from City of Montgomery's west and southwest well fields represent approximately one third of that capacity, while surface water from the Tallapoosa River represents approximately two thirds (Water Works and Sanitary Sewer Board of the city of Montgomery, 2018). The Tallapoosa River is located approximately 15 miles northeast of the AASF #1 facility. The west and southwest well fields could not be ascertained from public records. No public supply wells or private drinking water wells exist at the AASF #1 facility or the surrounding area within a 1-mile radius. 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 the AASF #1 facility appears to drain to north and northwest. However, surface water may flow to the low-lying Retention Areas 1 and 2, located southeast of the flight ramp and southwest of the hangar building, respectively. 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 #1 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*. Site workers may also come into contact with surface water in the low-laying Retention Areas 1 and 2 onsite and located southwest of the flight ramp, and southeast of the mechanical room, respectively.

- 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 #1. Off-facility residents may come into contact with groundwater using unregistered, private, domestic wells.*

The preliminary CSMs for AASF #1 indicate which specific receptors could potentially be exposed to PFAS. The preliminary CSM for AOI 1 is shown on **Figure 6-2**, and the preliminary CSM for AOI 2 is shown on **Figure 6-3**.

6.3 AOI 1: Hangar Suppression System and Mechanical Room

AOI 1 encompasses the AFFF fire suppression system within the hangar building and mechanical room. Seepage of AFFF is evident from corrosion identified at the floor tanks in the hangar building. ALARNG personnel use water and mops to clean the floor within the hangar building. Possible releases from the floor boxes within the hangar building could be transported via cleaning and captured by floor drains located on the north and south ends of the hangar building. These floor drains empty to the oil/water separator which then discharges to the sanitary sewer. However, it is possible for minor amounts of AFFF to travel beyond the hangar to the flight ramp on the north and south ends of the building.

Seepage of AFFF is also evident from corrosion identified at the two 800-gallon 3% AFFF concentrate tanks, located in the mechanical room. ALARNG personnel also noted that during the AFFF concentrate replacement between 2006 and 2009, an unknown quantity of concentrate was spilled on the south side of the mechanical room, which consequently killed the grass. Except for the wash rack area, surface water surrounding the hangar drains via sheet flow. The apparent surface water flow direction is toward the north and northwest. However, surface water may flow to the low-lying Retention Areas 1 and 2, located southeast of the flight ramp and southwest of the hangar building, respectively.

Potential PFAS exposure pathways resulting from releases at AOI 1 are described in **Table 6-1**.

Table 6-1: Exposure Pathways at AOI 1

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 site workers, construction workers, and 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 and Wash Rack

AOI 2 encompasses the flight ramp located west of the hangar building. According to ALARNG personnel with knowledge of the facility dating back to 2000, approximately ten mobile AFFF Tri-

Max™ 30 units were staged along the flight ramp from 2001 to 2017. These units were reportedly transported off-site and replaced with mobile Purple K units in 2017; however, there is a discrepancy as to how the Tri-Max™ 30 units were emptied at the AASF #1.. According to CSMS personnel, the Tri-Max™ units were received empty. However, information regarding how the Tri-Max™ 30 units were emptied could not be ascertained by ALARNG personnel at the AASF #1 facility. Based on this discrepancy, it may be assumed that the Tri-Max™ 30 units were discharged on the flight ramp prior to transportation to CSMS.

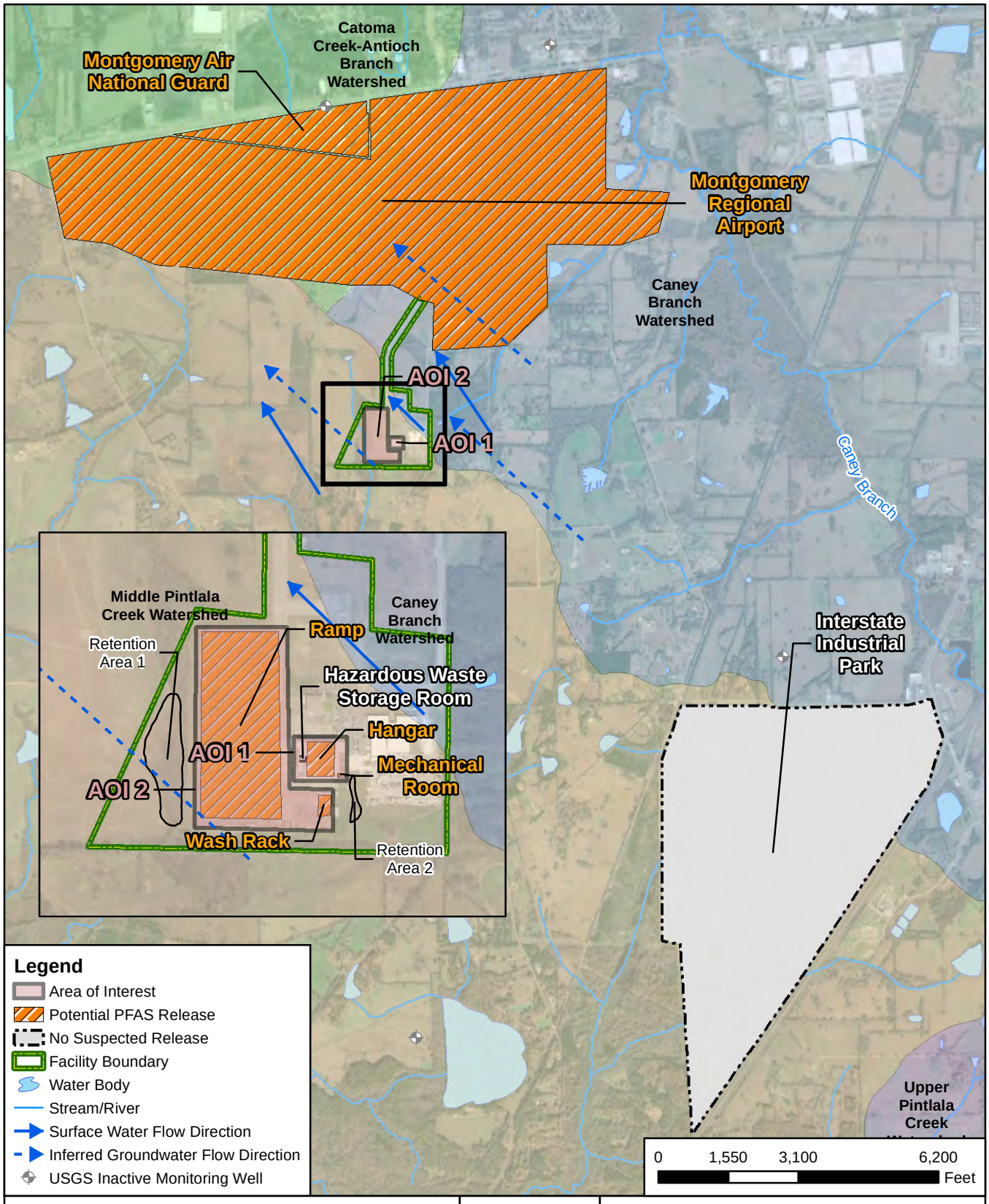
ALARNG personnel also indicated that aircraft soap was used at the the wash rack area to simulate firefighting techniques; however, it is reasonable to assume that Tri-Max™ 30 units may have also been used.

As described above, surface water on the flight ramp drains via sheet flow towards the north and northwest. However, surface water could also drain to the low-lying Retention Areas 1 and 2, located southwest of the flight ramp, and southeast of the mechanical room, respectively. There is also one storm drain within the wash rack that empties to the oil/water separator and then the sanitary sewer. Assuming the Tri-Max™ 30 units were emptied on the flight ramp and wash rack, AFFF foam would have traveled in in a manner similar to surface water flow.

Potential PFAS exposure pathways resulting from releases at AOI 2 are described in **Table 6-2**.

Table 6-2: Exposure Pathways at AOI 2

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 site workers, construction workers, and off-facility recreational users via ingestion
Groundwater	Considered a potentially complete pathway to construction workers and off-facility residents via ingestion



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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	8/27/2020

Areas of Interest

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Figure 6-1

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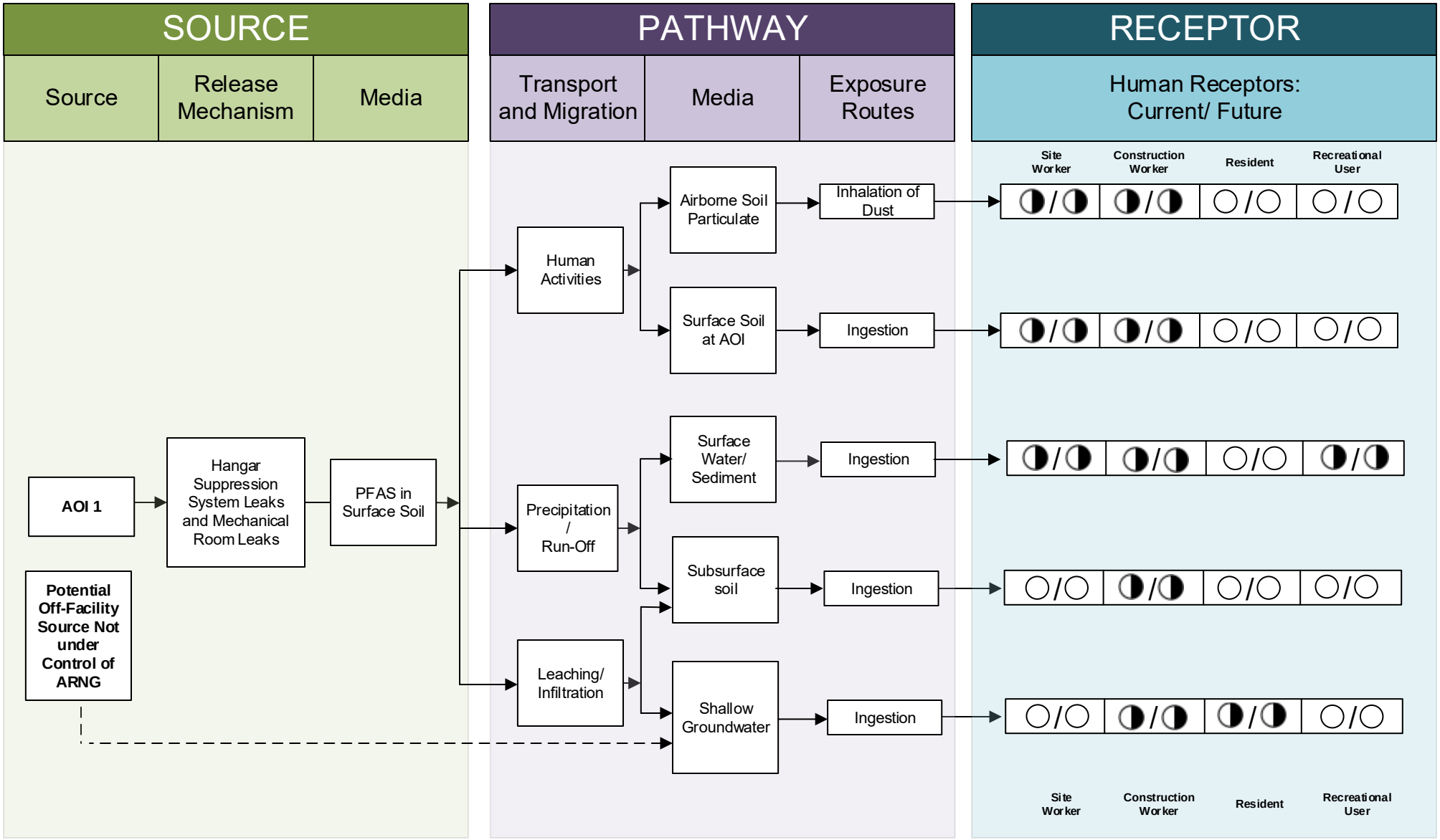
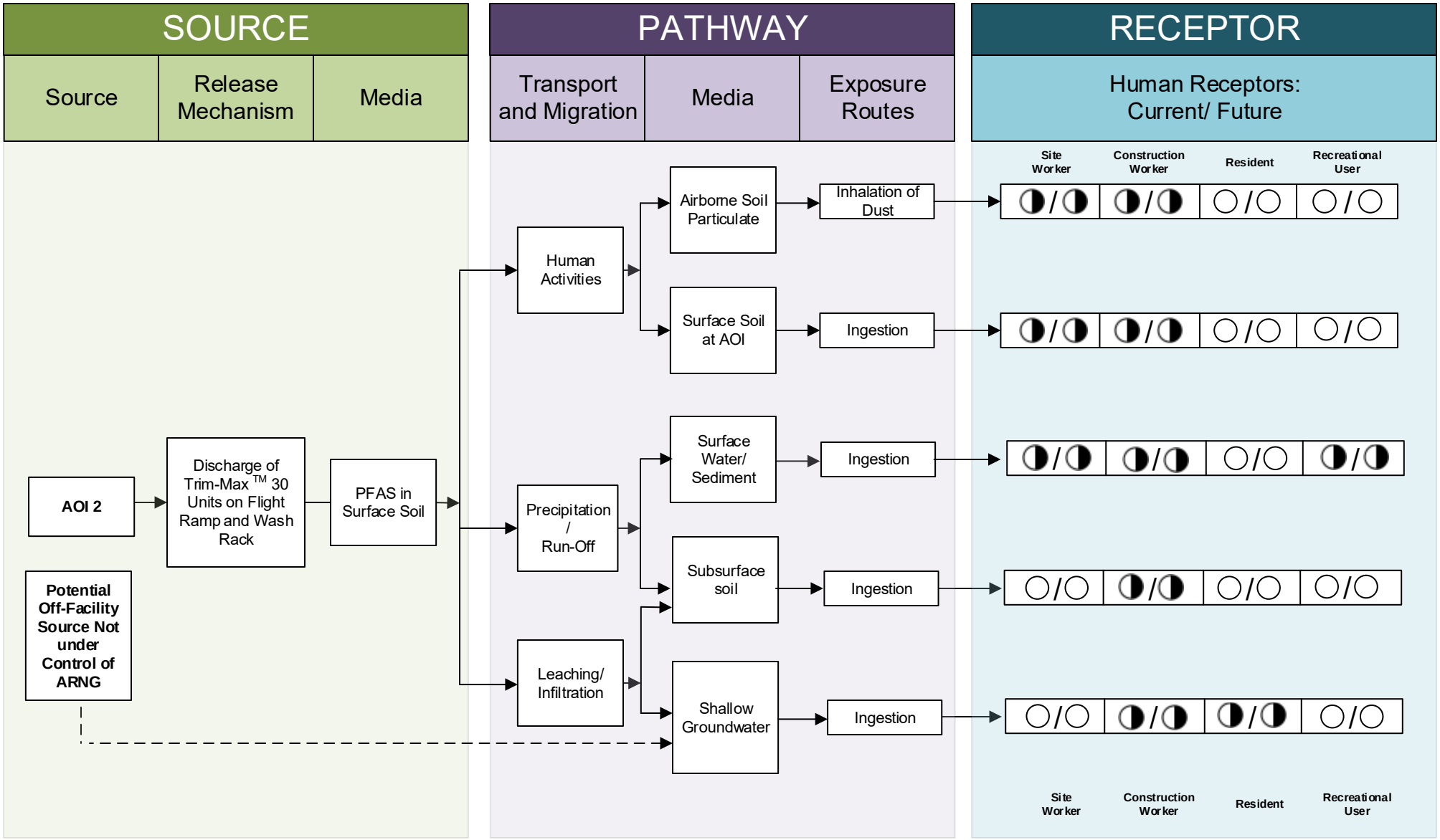


LEGEND

- 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
AOI 1
Hangar Suppression System and Mechanical Room



LEGEND

- 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 6-3
Preliminary Conceptual Site Model
AOI 2
Flight Ramp and Wash Rack

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 AASF #1. 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 #1 during the PA (**Figure 7-1**) and are shown in **Table 7-1** below:

Table 7-1: AOIs at AASF #1

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Hangar Fire Suppression System and Mechanical Room	ALARNG	1995 to Present
AOI 2	Flight Ramp and Wash Rack	ALARNG	2001 to 2017

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 AOI 1 and AOI 2 are shown on **Figures 6-2** and **6-3**, which presents the potential receptors and media impacted.

The following areas discussed in **Section 2** through **Section 5** were determined to have no suspected release (**Table 7-2**):

Table 7-2 No Suspected Release Areas

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
Hazardous Waste Storage Room	ALARNG	ALARNG personnel relocated the 5-gallon concentrate jug to the hazardous waste storage room from the mechanical room. The jug was stored on a secondary containment pending analyses for proper disposal. During the visual inspection, there was no evidence of a release in the Hazardous Waste Storage Room.

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 facility. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept by the facility or available during the PA on the use of PFAS in training, firefighting, or other non-traditional activities, or on its disposition.

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 were 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	The AASF #1 facility was constructed circa 1995, and ALARNG personnel did not have firsthand knowledge of the facility prior to 2000.
AOI 2	The AASF #1 facility was constructed circa 1995, and ALARNG personnel did not have firsthand knowledge of the facility prior to 2000. According to CSMS personnel, the Tri-Max™ 30 units were received empty. However, information regarding how the Tri-Max™ 30 units were emptied could not be ascertained by ALARNG personnel at the AASF #1 facility. Based on this discrepancy, it may be assumed that the Tri-Max™ 30 units were discharged on the flight ramp prior to transportation to CSMS. ALARNG personnel reportedly used aircraft soap to simulate firefighting techniques at the wash rack. With the historical presence of Tri-Max™ 30 units on the Flight Ramp, it can be assumed that these units may have also been used at the Wash Rack.

7.3 Potential Future Actions

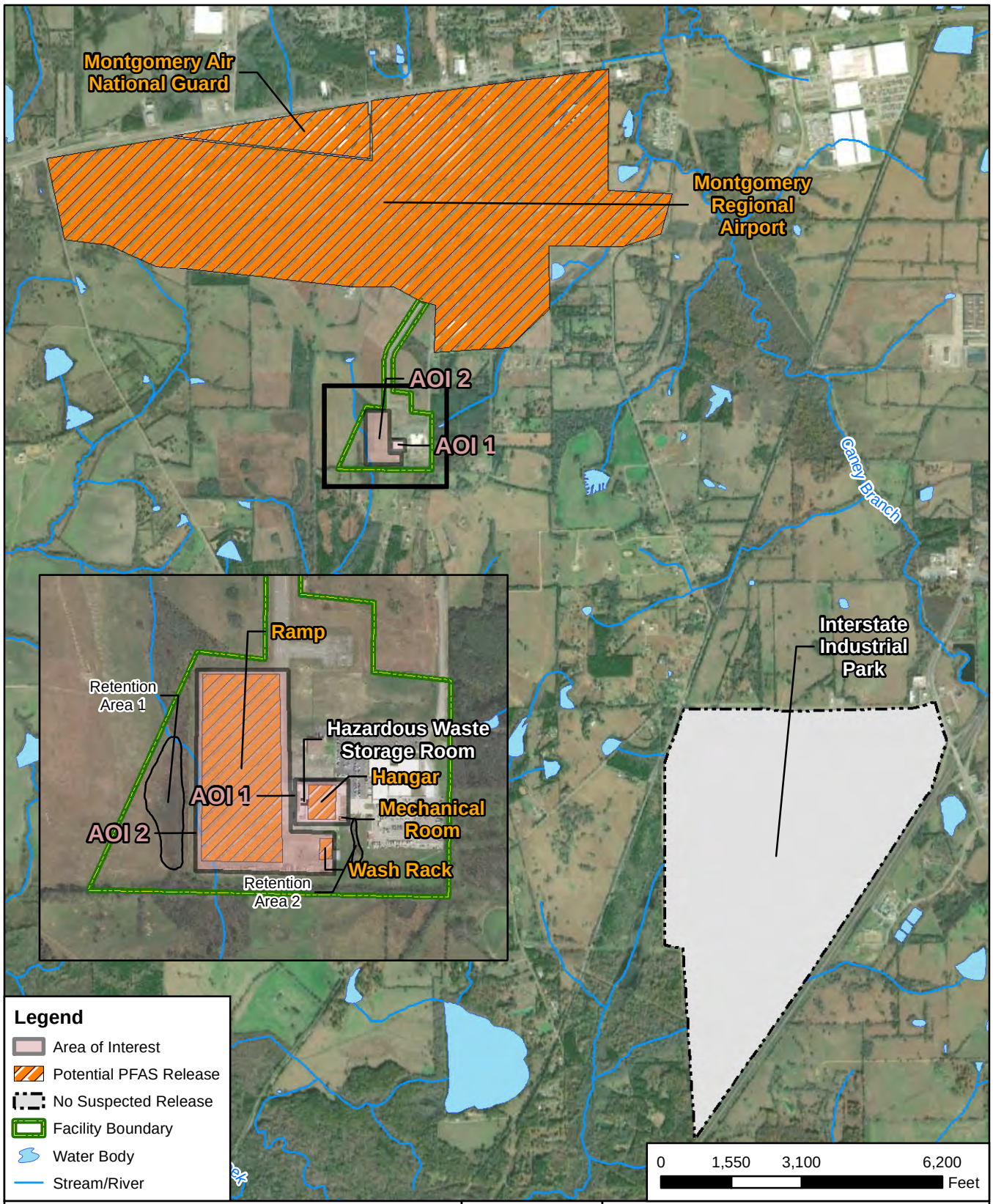
Interviews with personnel whose knowledge of the facility date back to 2000 indicate that ALARNG activity may have resulted in potential PFAS releases at the AASF #1. Based on the preliminary CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil and groundwater at these 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.

Table 7-4: PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1 Hangar Fire Suppression System and Mechanical Room	32° 17' 8.9" N;86° 23' 41.2"W	Evidence of seepage from the suppression system was documented during the visual inspection. ALARNG personnel also described a release of 3% AFFF concentrate at the south side of the mechanical room.	Proceed to an SI, focus on soil, groundwater, surface water, and sediment.
AOI 2 Flight Ramp and Wash Rack	32° 17' 10.6" N; 86° 23' 46.5 "W	Mobile Tri-Max™ 30 units were staged on the flight ramp from 2001 to 2017. AASF #1 personnel reported that the Tri-Max™ 30 units were not discharged on the ramp. However, CSMS	Proceed to an SI, focus on soil, groundwater, surface water, and sediment.

		personnel report that the Tri-Max™ 30 units were received at CSMS empty. These units may have also been used at the Wash Rack.	

ARNG will evaluate the need for an SI at AASF #1 based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources.



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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	8/27/2020

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Summary of Findings

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Figure 7-1

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Appendix A
Data Resources

Data resources will be provided separately on CD. Data resources for AASF #1 RW Shepherd include:

Geologic Documents

- 1963 Geology and Ground-water Resources of Montgomery County, Alabama, Geological Survey of Alabama.
- 2002 Water in Alabama (Including Basic Water Data), Geological Survey of Alabama

Environmental Data Resources, Inc.™ Geocheck Report

- 2019 Environmental Data Resources, Inc.™ Geocheck Report for AASF #1 RW Shepherd, Montgomery, Alabama

Miscellaneous Documents

- 2017 Final PFC Site Inspection Work Plan, Montgomery Air National Guard Base, Montgomery, Alabama
- 2019 Final Site Inspection Report, Air National Guard Phase II, Regional Site Inspection for Per-and Polyfluoroalkyl Substances
- 2019 Water Quality Report, Water Works and Sanitary Sewer Board of the city of Montgomery

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 4/10/19 08:17

Interviewee: Please see PA Sign-in Sheet **Title:** Same as above **Phone Number:** As above **Email:** N/A	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.
   - Major [redacted] (Logistics Management office) had the most knowledge during back to 2014.
   - [redacted] (Quality Assurance) at the facility since 2000.
   - [redacted] (Supply Supervisor) at the facility ~~since~~ for 6 weeks.
2. Where can I find previous facility ownership information?

   According to Montgomery County property appraiser, the AASF #1 is located on parcel 14 03 07 4 000 001.000 which is owned by the Montgomery Airport Authority. under Airport Authority ownership 10/1/1998. 160 Acres. Property constructed in 1995.
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 on Aircrafts in Hangar
   Fire Training Areas None
   Firefighting (Active Fire) None
   Crash None onsite
   Fire Suppression Systems (Hangers/Dining Facilities) overhead in Hangar
   Fire Protection at Fueling Stations N/A
   Non-Technical/Recreational/ Pest Management N/A
   Metals Plating Facility N/A
   Waterproofing Uniforms (Laundry Facilities) NA
   Other ~~Historic~~ Trimal units on Base but replaced in 2017 with Purple K units.
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?

   The Hanger is equipped with an AFFF Suppression system overhead + with Floor tanks containing 3% AFFF. 2 tanks in mechanical Room show signs of leaks. System installed in 1995 when building was constructed. Initial test unknown. No knowledge of testing by ARNG. No knowledge of tests by a Contractor. ARNG staff monitored some material spilled out side mechanical room ~~kelled~~ grass

PA Interview Questionnaire - Environmental Manager

Facility: AASF#1
Interviewer: [redacted]
Date/Time: 4/10/19 08:17

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 3%. AFFF. System installed ≈ 1995. Foam was replaced by a contractor ≈ 2006-2009.

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

AL ARNG did not have knowledge of procurement. Change out of foam happened ≈ 2006-2009.

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)?

3% AFFF according to Tags in the Floor Boxes located in Hanger.

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?

AFFF Stored in 2 800 gal tanks in mechanical room. Contains 3% AFFF Concentrate. one 5-gal container of 3% mil spec AFFF in the Hazardous waste Storage area. Believed to be left from contractor during foam change?

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?

AL ARNG did not have knowledge of FTAs onsite. mentioned that ALARNG did not have FTAs.

PA Interview Questionnaire - Environmental Manager

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 4/10/19 0817

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?

NA. ALARNG states they did not have FTAS.

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?

None.

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

No FTAS on or off site.

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?

N/A

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?

ALARNG personnel manned a twin engine plane crashed behind the destruction Center (Not at the site or site vicinity) and the plane burned. no noted use of AFFF.

PA Interview Questionnaire - Environmental Manager

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 4/10/19.

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?

No written record of spills. anecdotal evidence of spilling AFFF concentrate outside of maintenance building when changing foam 3 2008-2009. Killed grass. Also, noted corrosion at flour tanks & 800 gal concentrate tanks. 5 gal AFFF tank in Hay waste room shows signs of corrosion.

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?

Fire Department at the Montgomery Airport to the North.

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)?

Tags on flour boxes indicate a test date of 1/10/2008. Its reported that AASF #10 had 10 Trimax units on the RAMP. Those units were used from 2001 to 2017 & switched with Purple K units. Trimax units transported to USPFO warehouse at ALARNG HQ Montgomery. Personnel at Montgomery warehouse [redacted] say units were received empty. ALARNG said they used Aircraft soap to train at wash rack.

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

N/A

PA Interview Questionnaire - Environmental Manager

Facility: AASF # 1
Interviewer: [redacted]
Date/Time: 4/10/19 CDT

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 available.

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

None available.

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?

No

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.?

NO

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?

unknown vendor.

PA Interview Questionnaire - Environmental Manager

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 4/10/19 0615

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

None

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: 4/10/19 06:17

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

Source/Release Information

Site Name / Area Name / Unique ID: AASF # 1 Hangar

Site / Area Acreage:

Historic Site Use (Brief Description): Storage + maintenance of Aircrafts

Current Site Use (Brief Description): Same as above

Physical barriers or access restrictions: within AASF Property.

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):

overhead system + floor foam tanks since ≈ 1995. Evidence of corrosion on floor tanks.

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

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

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

3a. Indicate what businesses are located near the site

Montgomery Municipal Airport to the North

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

4a. If yes, provide a description of the airport/flightline tenants:

Air National Guard, Box Aviation, Inc, Montgomery Aviation, Delta Cargo

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% AFFF Concentrate in 2 800 gal tanks & floor tanks in hanger.

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

Tag on floor Boxes indicate last test date of 1/10/2008. Foam replaced 3 2006-2009. ALARNG staff did not have info on tests. Indicate NO full scale tests.

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

last replacement = 2006-2009

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 Oil water Seperator which go to Sanitary Sewer.

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

ALARNG staff noted Sheet flow to retention area to the west noted drainage ditch south east of maintence building. Montgomery Airport is topographically lower & Creeks in area drain to the Alabama River.

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

2a. If so, please note observation and location:

Only one drainage ditch noted Southeast of maintenance building / mechanical room

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

3a. If so, please note the location:

4. Are surface water intakes located near the site? Y / (N)

4a. If so, please note the location:

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.

Not according to ~~the~~ UCMR 3 Data.

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

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): Not since construction in 1995. Airfield to the north shown in Aerial imagery from 1952. facility constructed 1995. no noted developments since 1995.

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

2a. If not vegetated, briefly describe the site/area composition:

Surrounding the flight line + Hanger + office buildings, area is vegitated.

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:

Retention Pond west of Hanger.

Receptor Information

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

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

Guard Gate at entrance.

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:

Possibility of trespassers

3. Are residential areas located near the site? (Y) N

3a. If so, please note the location/distance:

South of the Site, topographically upgradient + ≈ 1.8 miles north

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

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

≈ 3 miles NE.

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

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
1	4/10/19 Hangar	unknown Direction. Typical Foam Tank
2	4/10/19 Hangar	unknown Direction. Inspection tag on foam tank
3	4/10/19 Hangar	unknown Direction. Corrosion from leaking foam tank
4	4/10/19 Hangar	overhead Suppression System
5	4/10/19 Hangar	Floor Drain
6	4/10/19 Mechanical Room	2 600-gallon 3% AFFF Concentrate tanks.

Visual Survey Inspection Log

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
7	4/10/19 Mechanical Room	Evidence of Corrosion on Concentrate tanks
8	4/10/19 Mechanical Room	Evidence of leaking Concentrate tank.
9	4/10/19 Mechanical Room	Typical floor drain in mechanical room.
10	4/10/19 Mechanical Room	Looking NW. ALARM noted fed grass water AFFF System
11	4/10/19 Haz-waste Room	Lettuce 5-gal 3% AFFF Concentrate Container.
12	4/10/19 Ramp area	looking west at mobile Purple K units.

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name:

Why has this location been identified as a site? use of AFFF in fire suppression system.

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

Montgomery Municipal Airport located to the North.

Training Events

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

If so, how often? N/A

How much material was used? Is it documented? N/A

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? According to FLARNG SW flows west.

Average rainfall?

Any flooding during rainy season? none reported

Direct or indirect pathway to ditches? retention area due west of Hanger. Drainage ditch SE of mechanical room.

Direct or indirect pathway to larger bodies of water? Catoma Creek 2mi N of Site.

Does surface water pond any place on site? retention area west of Hanger. ≈ 600 feet.

Any impoundment areas or retention ponds? 800 feet west of Hanger.

Any NPDES location points near the site? unknown

How does surface water drain on and around the flight line? Sheet flows to the west.

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Assumed North - Northwest

Depth to groundwater? ~

Uses (agricultural, drinking water, irrigation)?

Any groundwater treatment systems? None

Any groundwater monitoring well locations near the site? none

Is groundwater used for drinking water? No drinking water wells in the vicinity

Are there drinking water supply wells on installation? none

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? 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? None used by ALARNG. Historical use of any kind would have flowed west to pond and all drain a wash rack.

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?

No testing ever.

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker Yes Surface water / Surface Sediment

Construction Worker Yes Surface water, Sediment, Subsurface Soil, GW.

Recreational User trespasser Surface Soil / water.

Residential No locked fenced & No water / gw wells.

Child no.

Ecological No

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

None. Residential to the South (no water wells) Mixed commercial & residential to the North.

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 #1 RW Shepherd	Montgomery, Alabama

Photograph No. 1

Description:

Unknown direction

Typical AFFF foam tank on hangar floor

Photo date 4/10/19

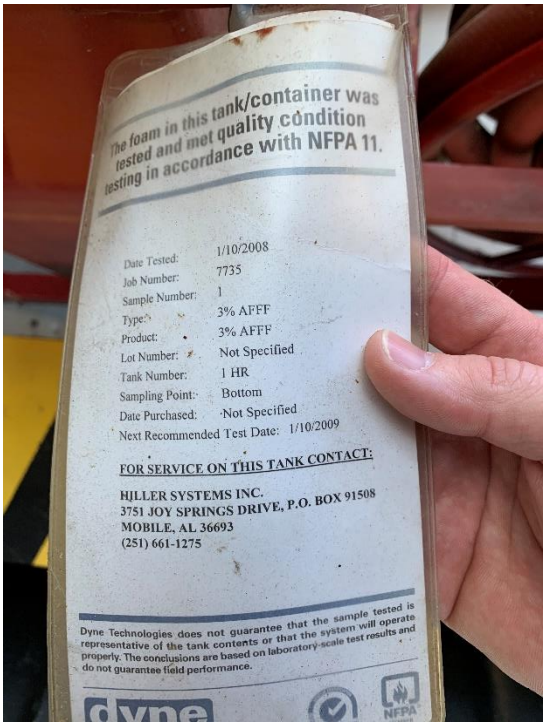
Photograph No. 2

Description:

Unknown direction

Inspection tag on AFFF foam tank in hangar

Photo Date: 4/10/19



APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #1 RW Shepherd	Montgomery, Alabama

Photograph No. 3

Description:

Unknown direction

Corrosion from leaking AFFF foam tank in hangar

Photo Date: 4/10/19

Photograph No. 4

Description:

Unknown Direction

General overhead suppression system in hangar

Photo Date: 4/10/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #1 RW Shepherd	Montgomery, Alabama

Photograph No. 5

Description:

Unknown direction

Typical floor drain in hangar. Floor drains located on the north and south sides of hangar building

Photo Date: 4/10/19

Photograph No. 6

Description:

Unknown direction

2 800-gallon 3% AFFF concentrate tanks in mechanical room

Photo Date: 4/10/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #1 RW Shepherd	Montgomery, Alabama

Photograph No. 7

Description:

Unknown direction

Evidence of corrosion of 800-gallon AFFF concentrate tanks in mechanical room

Photo Date: 4/10/19

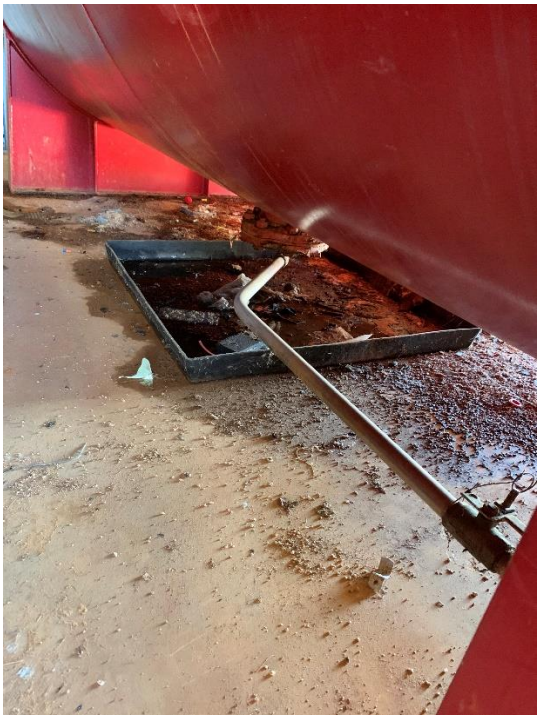
Photograph No. 8

Description:

Unknown direction

Evidence of leaking from of 800-gallon AFFF concentrate tanks in mechanical room

Photo Date: 4/10/19



APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	AASF #1 RW Shepherd	Montgomery, Alabama

Photograph No. 9

Description:

Unknown direction

Typical floor drains in mechanical room

Photo Date: 4/10/19

Photograph No. 10

Description:

Looking Northwest

Dead grass thought top be associated with AFFF release at south side of mechanical room

Photo Date: 4/10/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	RW Shepperd AASF #1	Montgomery, Alabama

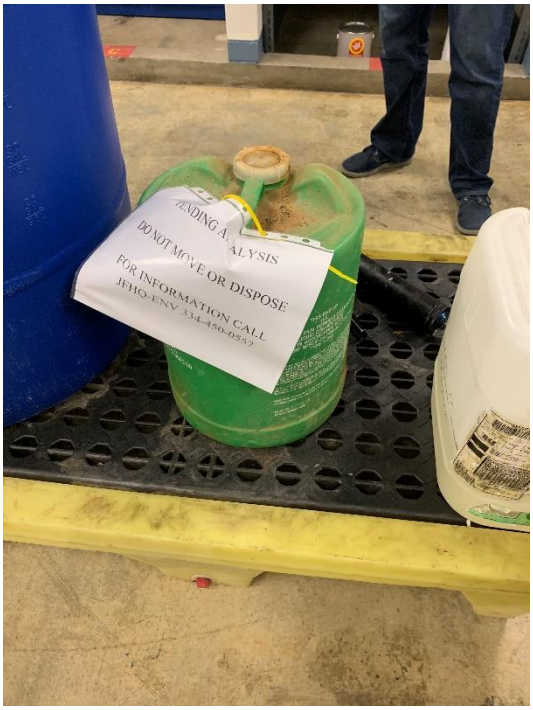
Photograph No. 51

Description:

Unknown direction

5-gallon jug containing 3% AFFF concentrate in hazardous waste storage room

Photo date 4/10/19



Photograph No.12

Description:

Looking west

Mobile Purple K units on the flight ramp

Photo Date: 4/10/19