FINAL
Preliminary Assessment Report
Jackson Army Aviation Support Facility #1
Jackson, Mississippi

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
AOI	area of interest
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
EDR™	Environmental Data Resources, Inc.™
FTA	fire training area
HA	Health Advisory
NOAA	National Oceanic and Atmospheric Administration
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site Inspection
UCMR3	Unregulated Contaminant Monitoring Rule
US	United States
USACE	United States Army Corps of Engineers
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 Jackson Army Aviation Support Facility (AASF) #1 (also referred to as the "facility"), in Jackson, Mississippi to assess potential PFAS release areas originating from the site and exposure pathways to receptors. AASF #1 was leased by the Military Department, State of Mississippi from the City of Jackson, Mississippi on 8 March 1972, and it occupies a 30.40-acre tract of land within the Hawkins Field Airport. Prior to leasing, the field was used by the Air Force for training during World War II. The scope of this PA included the following tasks:

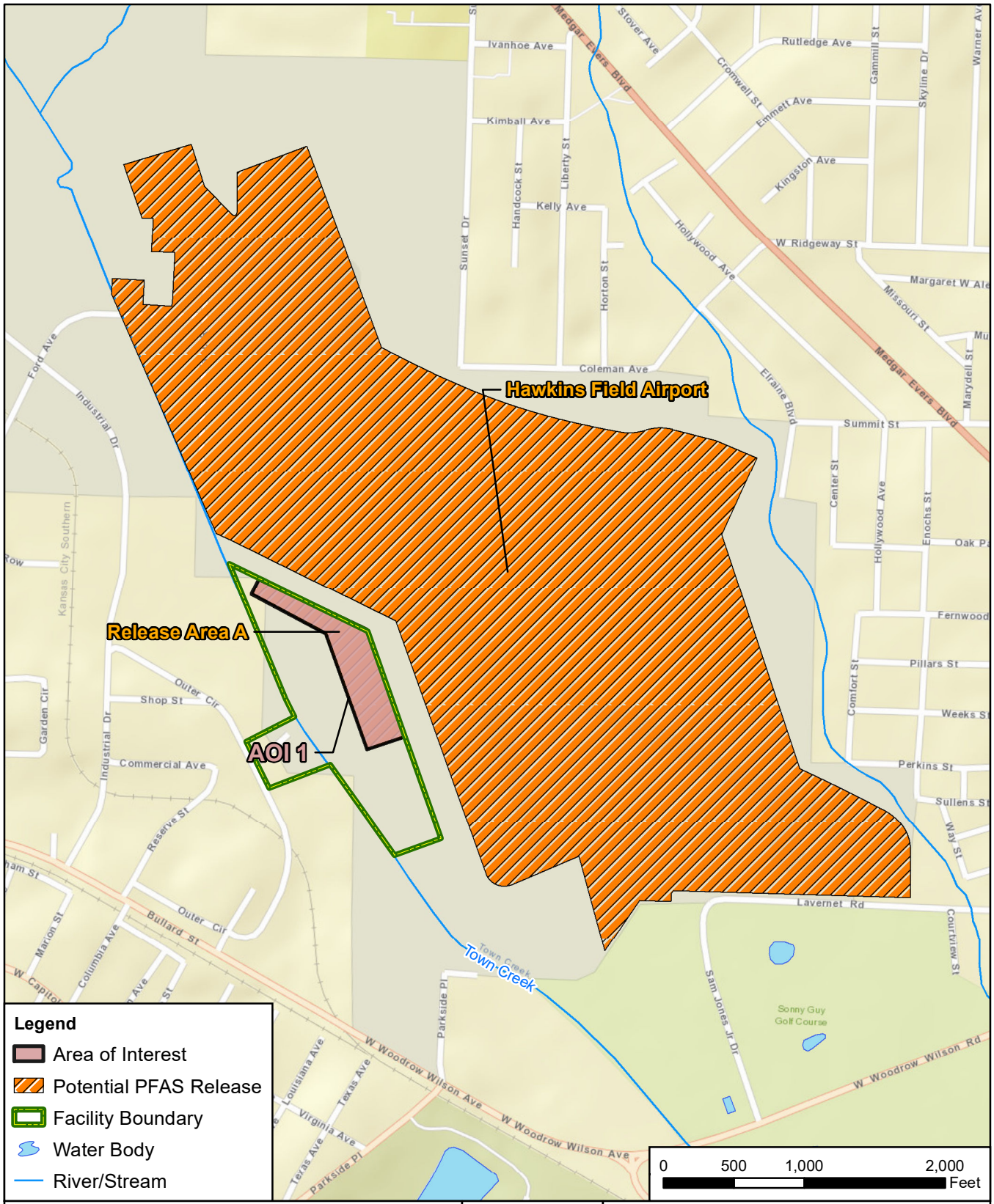
- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a 1-day site visit on 7 March 2019 to complete visual site inspections at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current and former Jackson AASF #1 personnel during in-person interviews conducted on 7 March 2019, including the current Safety Officer and Environmental Compliance Officer;
- Identified an Area of Interest (AOI) 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.

One AOI related to potential PFAS use, release, or storage was identified at the Jackson AASF #1 during the PA. The AOI is shown on **Figure ES-1** and described in **Table ES-1** below:

Table ES-1: AOIs at Jackson AASF #1

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Flight Line	MSARNG	2008 to 2017

Based on potential PFAS releases at this AOI, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for Jackson AASF #1, which presents potential receptors and media impacted, is shown on **Figure ES-2**. Based on the 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 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 UCMR3 but might be detected if analyzed today.



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PROJECT	Preliminary Assessment for PFAS at Jackson AASF #1, MS			
REVISED	7/14/2020	GIS BY	SK	7/14/2020
SCALE	1:12,000	CHK BY	LC	7/14/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/14/2020

Summary of Findings

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12420 Milestone Center Drive
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Figure ES-1

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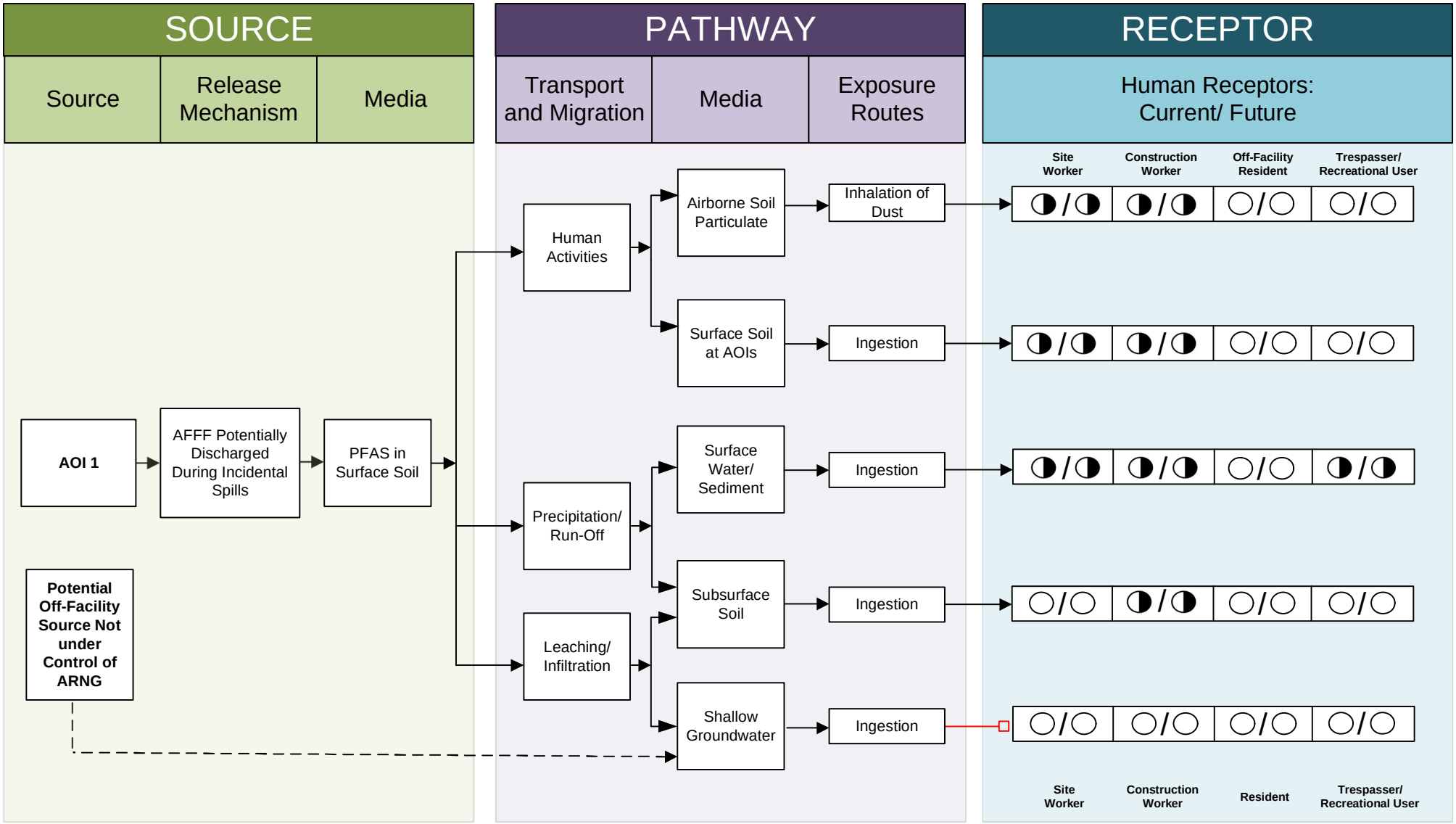


LEGEND

- 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
Jackson AASF #1, MS

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 their facilities that used per- and polyfluoroalkyl substances (PFAS) (a suite of related chemicals), primarily releases of aqueous film forming foam (AFFF) although other sources of PFAS 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 these 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 a lifetime Drinking Water Health Advisory (HA) for PFOA and PFOS in May 2016 (70 parts per trillion combined concentration), but there are currently no promulgated national standards regulating PFAS in drinking water.

This report presents findings of a PA for PFAS-containing materials at the Jackson Army Aviation Support Facility (AASF) #1 (also referred to as the “facility”) in Jackson, Mississippi, 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 Report documents potential locations where PFAS may have been released into the environment at or adjacent to Jackson AASF #1. The term PFAS will be used throughout this report to encompass all PFAS 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 1-day site visit on 7 March 2019 and completed visual site inspections (VSIs) at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current and former Jackson AASF #1 personnel during in-person interviews conducted on 7 March 2019, including the current Safety Officer and current Environmental Compliance Officer;

- Identified an Area of Interest (AOI) 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.

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 potential PFAS transport and receptors at 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

Jackson AASF #1 is a 30.40-acre tract of land within Hawkins Field Airport, located at 365 Shop Street, Jackson, Mississippi 39213. The facility resides in the City of Jackson in Hinds County, situated in the west central area of Mississippi (**Figure 1-1**). AASF #1 is bordered by two Hawkins Field Airport runways, one to the immediate north and east, respectively, industrial properties to the immediate west and northwest, and Interstate 220, approximately 1.1 miles west. Residential properties are present along the outer lying areas of the facility, approximately 0.3-miles to the west and south.

Jackson AASF #1 was leased by the Military Department, State of Mississippi from the City of Jackson, Mississippi on 8 March 1972, and it occupies a 30.40-acre tract of land within the Hawkins Field Airport. The facility provides aviation and maintenance support for aircraft and aviation personnel stationed in the City of Jackson. AASF #1. Prior to leasing, the field was used by the Air Force for training during World War II (lease documents are provided in **Appendix A**).

1.5 Facility Environmental Setting

Jackson AASF #1 is located within the eastern Gulf Coastal Plain of the broader Coastal Plain physiographic region. The region is characterized as low-lying, with extensive tracts of marshy lands and rivers. The rich and deep soils, beset by high rugged hills, flat alluvial plains, narrow valleys, prairies, river lowlands, and pine woods, are naturally well suited for agriculture (Wallenfeldt, 2019). The ecology of the Coastal Plain Uplands in this section of Mississippi is characterized by the Jackson Prairie and South Pine Hills ecoregions.

1.5.1 Geology

Physiographically, Hinds County is within the Mississippi Embayment subsection of the Gulf Coastal Plain, itself a subsection of the Atlantic Coastal Plain. The embayment is separable into two physiographic areas: the lowlands of the Mississippi Alluvial Plain to the east, and the Coastal Plain Uplands in which AASF #1 lies. Soils near AASF #1 are of the Loring-Siwell-Byram system deposited in the Quaternary, described as riverine terrace deposits.

Underlying the soils are the impermeable clays of the Jackson Group, which outcrops as far as Louisiana, Arkansas, and Tennessee and produces a gently rolling topography. Deposited in the late Eocene, the Jackson Group is differentiated in Mississippi between the Moodys Branch Formation and the overlying Yazoo Clay. Normally 20 to 30 feet thick, the Moodys Branch Formation is a highly fossiliferous, glauconitic, sandy marl, and it unconformably overlies the Claiborne Group, which houses the region's main aquifer, the Sparta. Above the Moodys Branch Formation is the Yazoo Clay, a generally calcareous and fossiliferous, dark grey to blue clay formation that is further divided, in ascending order, into the North Creek, Cocoa Sand, Pachuta Marl, and Shubota Members. The Yazoo is typically 350 to 500 feet thick in places where the entire formation is present. The upper contact of the Shubota and the overlying Forest Hill Sand is the Eocene-Oligocene boundary (Cushing et al., 1964).

1.5.2 Hydrogeology

Because of the impermeability and thickness of the Jackson Group, the main public water supply for the City of Jackson draws from the Sparta Aquifer, located within the Mississippi Embayment Aquifer System to the north (Mississippi Department of Environmental Quality, 2010). The Sparta Aquifer is large, supplying sections of Mississippi, Arkansas, Alabama, Louisiana, Tennessee, and small portions of Kentucky and Missouri (McKee & Hays, 2002). To the east of AASF #1, the Mississippi Alluvial Plain is tapped for groundwater, but near facility, the Quaternary terrace deposits are not used for water resources. Additionally, groundwater near AASF #1 is several hundred feet below ground surface (bgs). Groundwater is believed to flow to the southeast, generally following the hydrology (**Figure 1-2**). Based on the USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR3) data, it was indicated that no PFAS were detected in a public water system above the HA within 20 miles of the facility. 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

Hinds County is located within two major drainage basins: the Pearl River and the Big Black River. The divide that separates these basins runs north-south through the eastern one-third of the county.

Jackson AASF #1 is located entirely within the Town Creek-Pearl River Watershed, lying on the western fork of Town Creek (**Figure 1-2**). Town Creek, a tributary of the Pearl River, flows south

along the facility's western border. According to the stormwater pollution prevention plan, outfalls from the facility drainage system empty directly into Town Creek. General surface flow within the Town Creek catchment is southeast.

Additionally, Hanging Moss Creek, Lynch Creek, Carey Creek, and several smaller creeks drain the area in and around the City of Jackson and are tributaries of the Pearl. South of Jackson, the Creeks Trahon, Big Rhodes, Beaverdam, and their tributaries flow eastward into the Pearl.

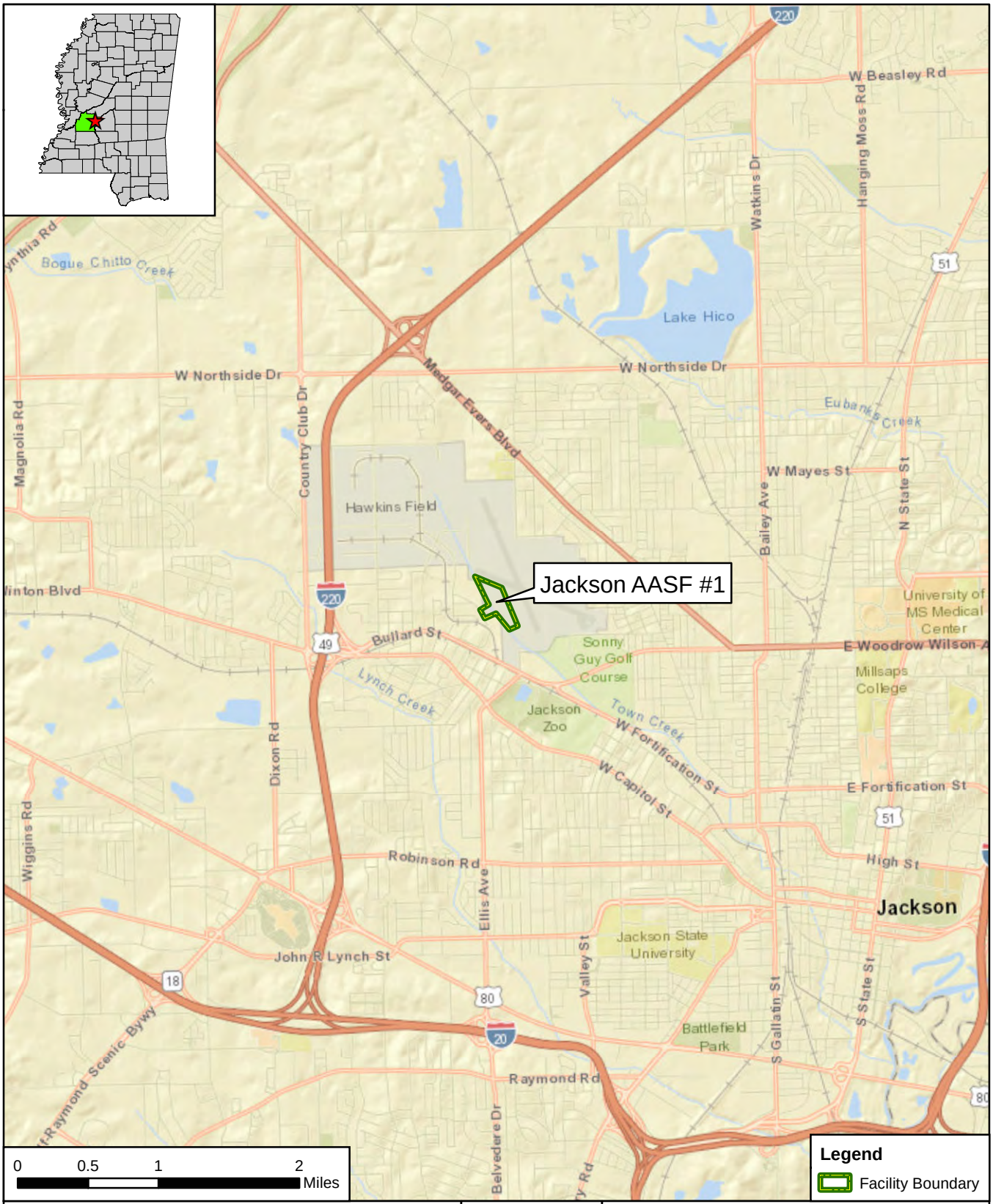
1.5.4 Climate

The climate type in the Jackson area is humid tropical, with an average temperature of 64.5 degrees Fahrenheit (°F). Seasonally, temperature ranges are moderate, with an average summer temperature of 92 °F and an average winter temperature of 38 °F. Summer highs can reach above 97 °F, while winter lows rarely drop below 24 °F. Rainfall varies throughout the year, averaging approximately 3 to 5 inches per month, with a total accumulation of 54 inches annually. Jackson averages 1 inch of snow per year during winter months (National Oceanic and Atmospheric Administration [NOAA], 2017).

1.5.5 Current and Future Land Use

According to the Jackson Township Zoning Map dated August 2016, the facility is located within a special use district, surrounded by a light industrial zone (Jackson Zoning Map, 2016). The AASF building is in its original location, and it has never been relocated or retrofitted. The original water sprinkler system for fire suppression is still in place, and the buildings include offices and large storage areas. The flight facility is used for MSARNG training support and maintenance. Interviews with current personnel indicated that National Guard Bureau classroom training takes place at a location across the street from the AASF. Based on the recollection of interviewees, no outside units have visited the facility to train.

Reasonably anticipated future land use is not expected to change from the current land use described above.



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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	9/11/2019

Facility Location

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12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-1

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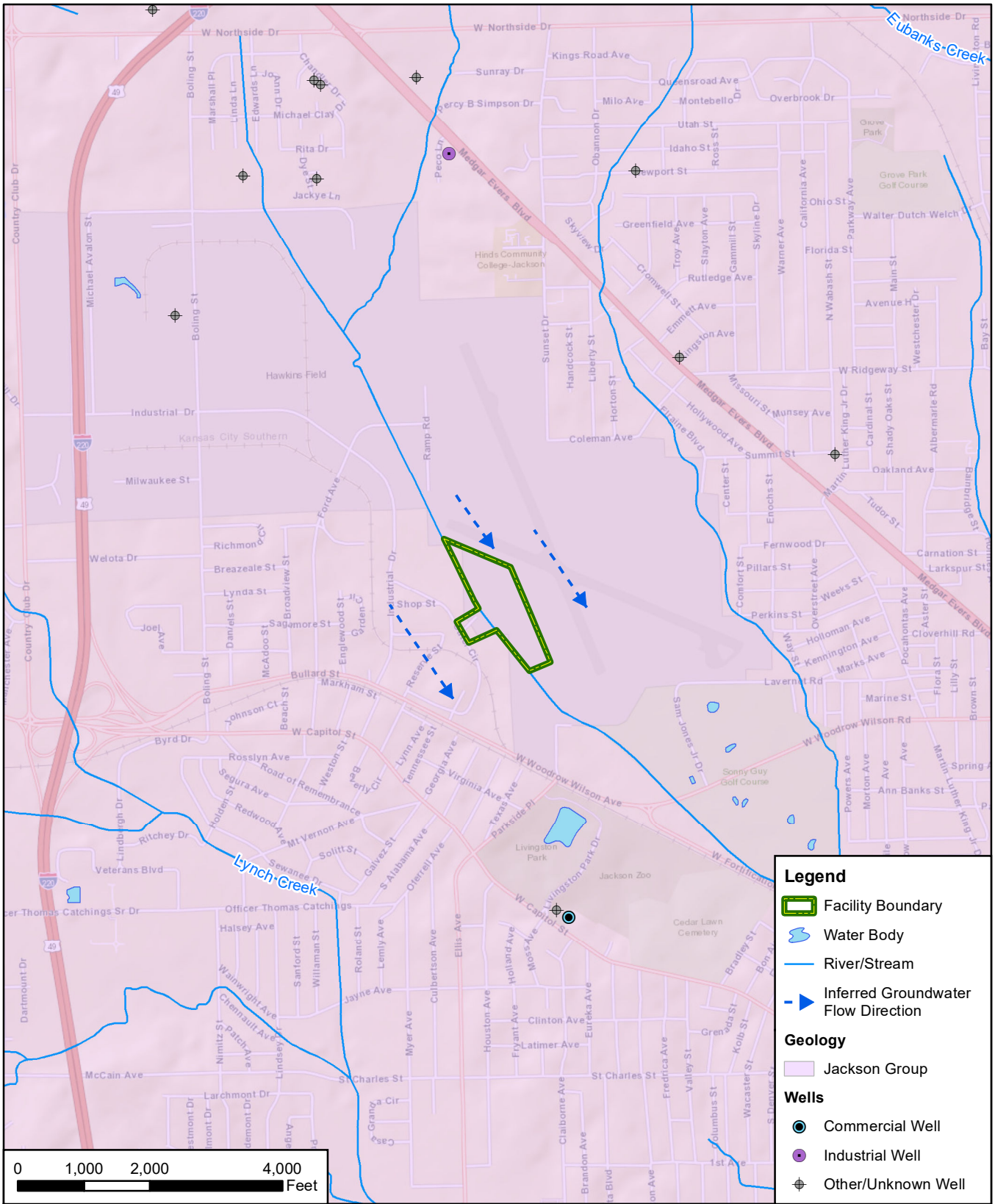

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Groundwater Features

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Figure 1-2

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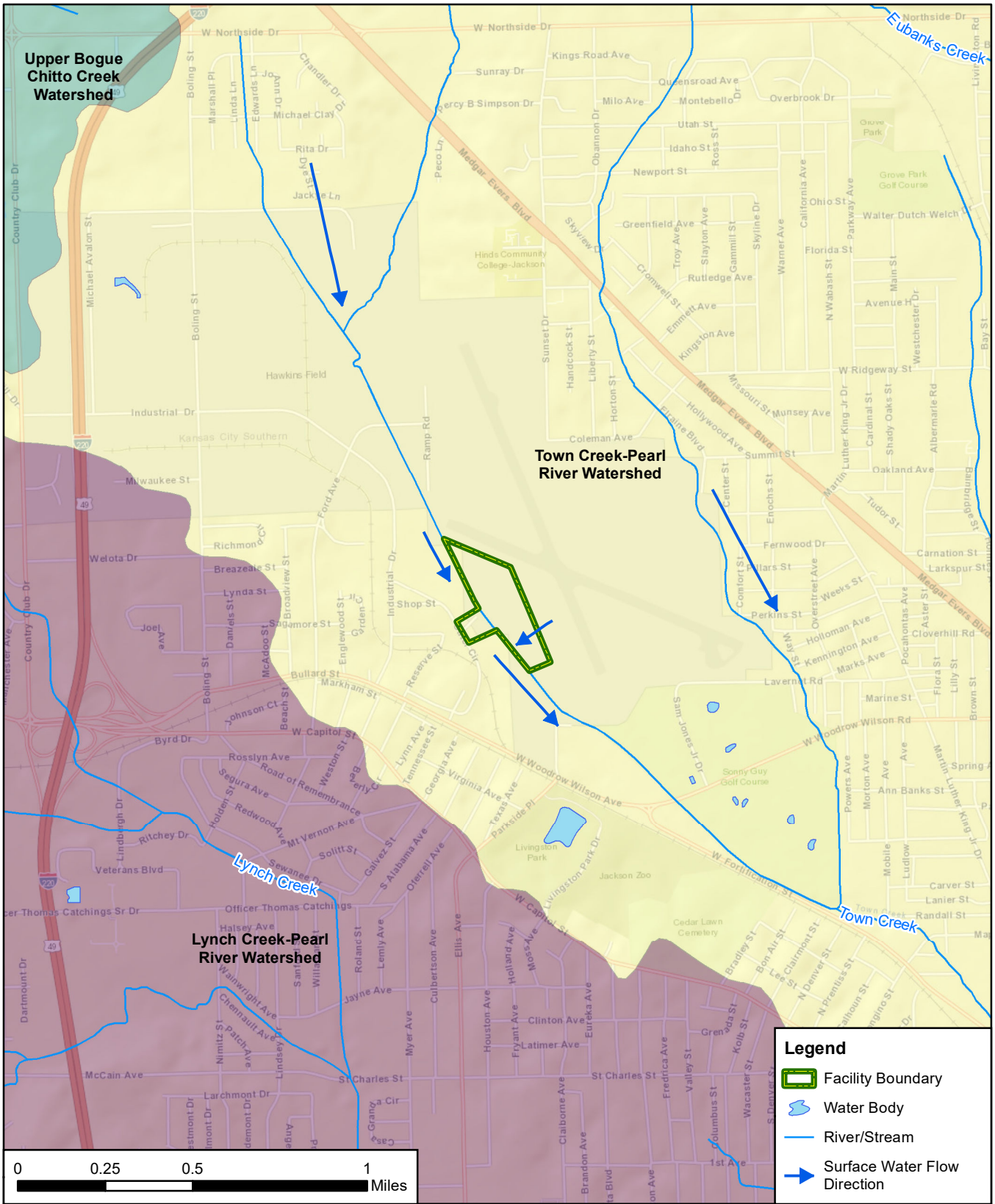

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

No FTAs were identified at Jackson AASF #1 during the PA. According to interviewees (**Appendix B**), firefighting support for the AASF #1 and Hawkins Field is coordinated with the Jackson Fire Department via water trucks; personnel at the facility do not fight fires. Fire training for facility personnel includes viewing training videos and practical training with a water-based training extinguisher. Interviewee knowledge extends to the late 1980s. EDR™ aerial photographs dating back to 1970 (**Appendix C**) do not indicate an FTA at the facility.

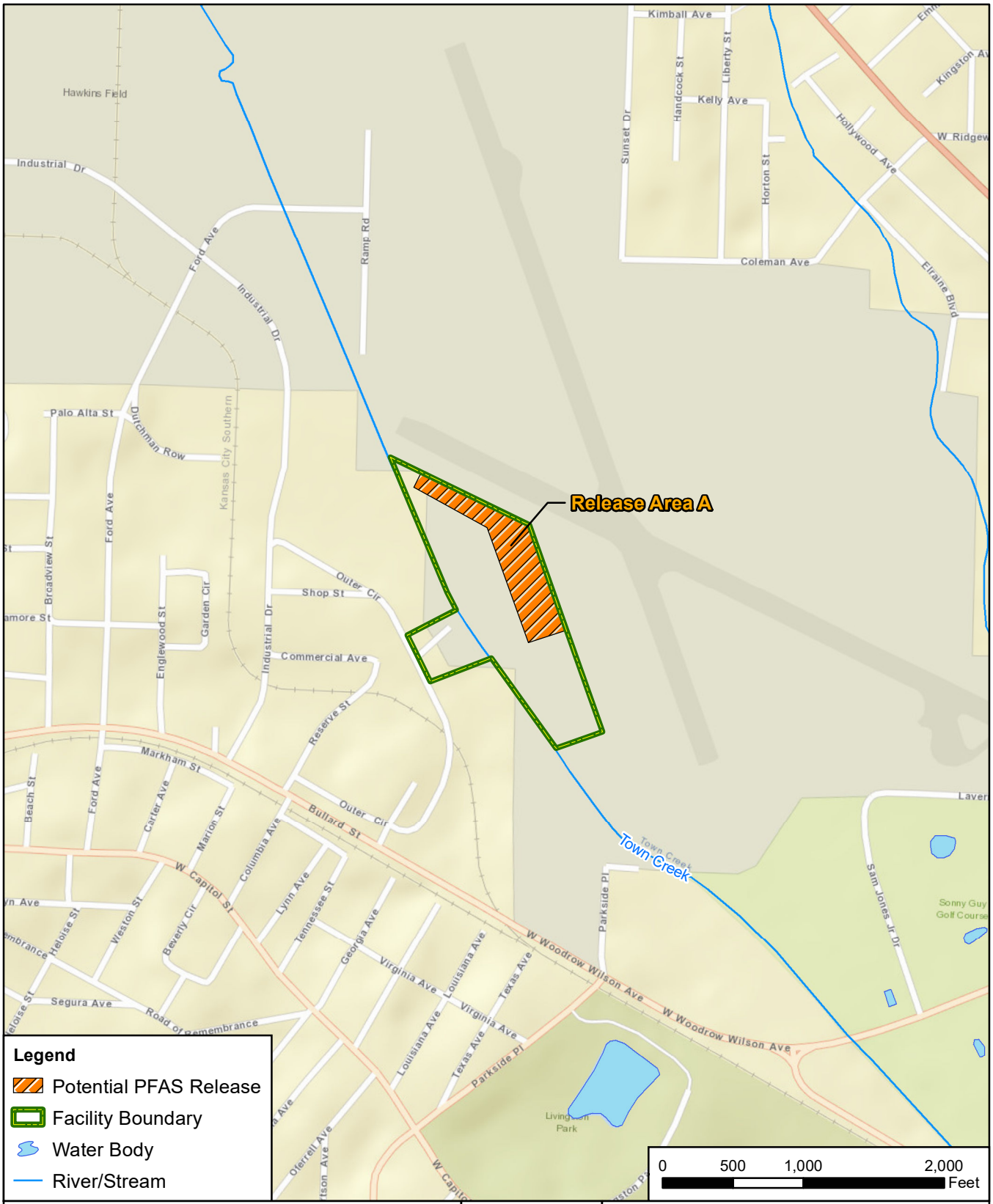
The Jackson Fire Department occasionally trains with AASF #1 personnel. This training includes showing firefighters how to turn aircraft engines off, where fuel tanks are located, and identifying exits and airfield features. No practical exercises are conducted during these trainings, and no foam has ever been used.

3. Non-Fire Training Areas

In addition to FTAs, the PA evaluated areas where PFAS-containing materials may have been used, stored, or disposed. This may include buildings with fire suppression systems, paint booths, AFFF storage areas, and areas of compliance demonstrations. Information obtained on these features during the PA are included in **Appendices A** and **B**. One non-FTA was identified at Jackson AASF #1 during the PA; however, activities at the facility between 1972 and approximately 1988 are not known. A description of the non-FTA is presented below, and the location of the non-FTA is shown on **Figure 3-1**.

3.1 Release Area A – Flight Line

An interviewee recalled that starting in approximately 2008 or 2009, an unknown number of Tri-Max™ units were present at the facility's Flight Line (Release Area A) for approximately 6 to 8 years. Although the number of units were not known, AASF #1 is required to have at least one portable extinguisher for every two aircraft. No information was provided on the volume or type of foam used in the extinguishers. Interviewees indicated there were never any instances of discharge, testing, or refilling of the units at AASF #1. The units were serviced off-site by a private company. Prior to the acquisition of the Tri-Max™ units, the portable extinguishers were wheeled carbon dioxide units. After 6 to 8 years of use, the facility replaced the Tri-Max™ units with 13 portable dry chemical, Class-BC extinguishers (**Appendix C**). At the time of the PA, no information was available regarding the final disposition of the Tri-Max™ units. Common practice would be to send the units to Camp Shelby for disposal; however, it is unknown if such a transfer occurred or if unit contents were drained/removed prior to shipment or disposal. Because AFFF may have historically been stored at AASF #1, there is a potential for incidental releases to have occurred. The approximate location of Release Area A is seen on **Figure 3-1**.



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SCALE	1:12,000	CHK BY	LC	7/14/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/14/2020

Non-Fire Training Areas

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Figure 3-1

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4. Emergency Response Areas

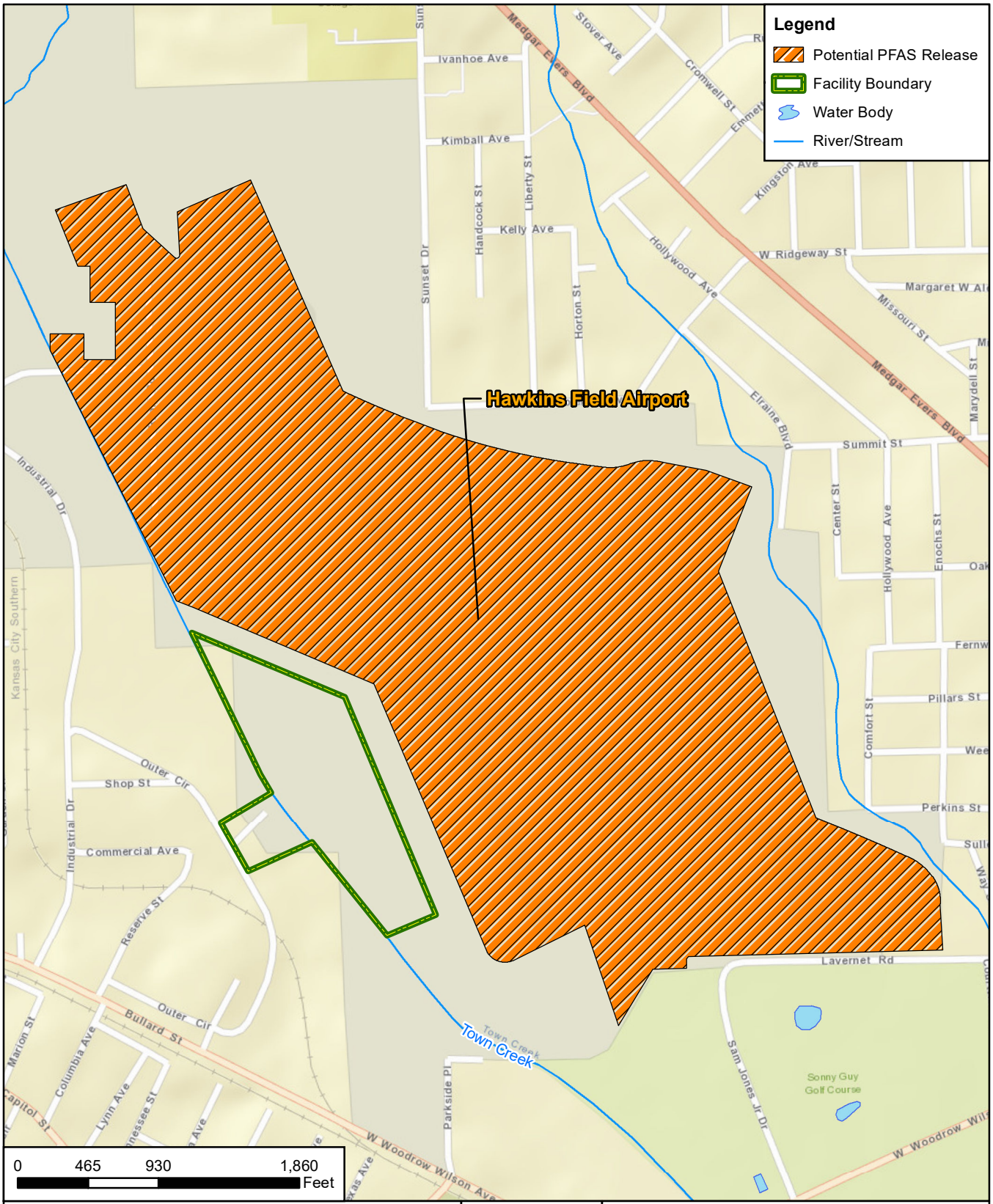
No instances of emergency response were identified at Jackson AASF #1 during the PA. Current personnel stated during interviews that historically there was a crash at Hawkins Field, but there was no fire associated with the incident; therefore, no suppressants or foam were used. Coordination of firefighting support via water trucks is made with the Jackson Fire Department but there has been no need for response as of the date of the PA interviews (**Appendix B**).

5. Adjacent Sources

One potential PFAS source adjacent to Jackson AASF #1 was identified during the PA through interviews (**Appendix B**), online research, review of reports, and the EDR™ Report (**Appendix A**).

5.1 Hawkins Field Airport

Jackson AASF #1 is located on the grounds of the Hawkins Field Airport (**Figure 5-1**). Personnel at the airport and nearby municipal fire departments were not interviewed during this PA. It is not known if AFFF is currently or historically used or stored at the airport. Because the presence of AFFF at the airport cannot be confirmed, Hawkins Field Airport has been identified as a potential off-site PFAS source area.



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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/14/2020

Adjacent Source

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Figure 5-1

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6. Preliminary Conceptual Site Model

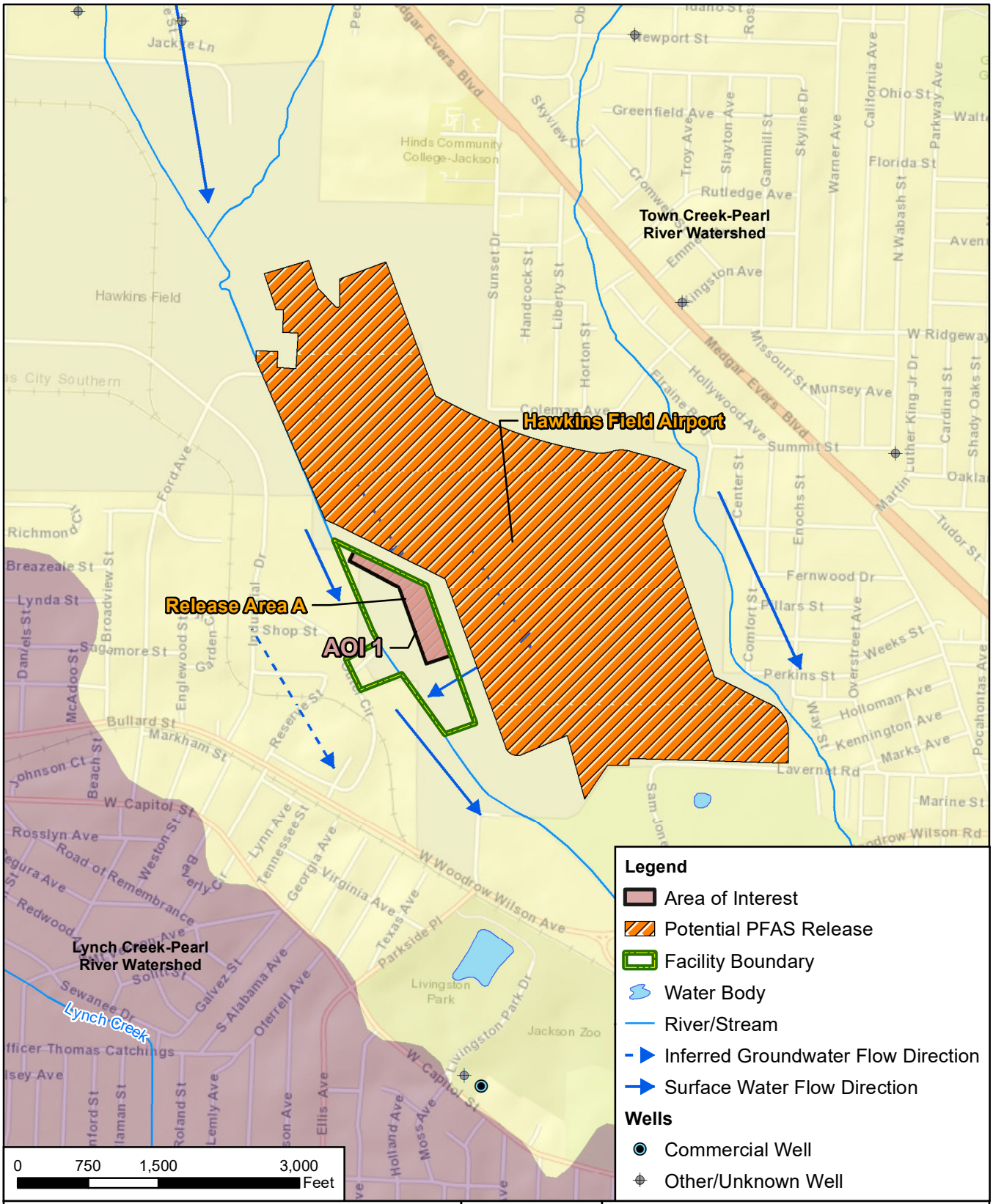
Based on the PA findings, one AOI was identified at Jackson AASF #1. The location of the AOI is shown on **Figure 6-1**. The following sections describe the CSM components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

6.1 AOI 1 – Release Area A

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). Receptors at Jackson AASF #1 include site workers, construction workers, trespassers, and off-facility recreational users. The preliminary CSM for the AOI indicates which specific receptors could potentially be exposed to PFAS and is shown in **Figure 6-1**.

Potential AFFF releases identified at Jackson AASF #1 may have 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 surface soil as well as beneath the pavement may result in site worker and construction worker exposure to surface soils via ingestion and inhalation. PFAS may have also infiltrated from surface soil to the subsurface, and ground-disturbing activities to subsurface soil could result in construction worker exposure.

PFAS are water soluble and can migrate readily from soil to groundwater via leaching. However, the facility is underlain by uppermost Quaternary terrace deposits, which are not sourced for water resources. The underlying clays of the Jackson Group are highly impermeable and thick, making the depth to groundwater several hundred feet bgs. Lastly, drinking water at the City of Jackson is sourced from the Sparta Aquifer to the north of the facility. Consequently, groundwater exposure pathways are incomplete. Storm water runoff at the facility drains into Town Creek, which flows southeast into the Pearl River, and may result in potential exposure via ingestion of surface water and sediment to site workers, construction workers, trespassers, and off-site recreational users.



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Area of Interest

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Figure 6-1

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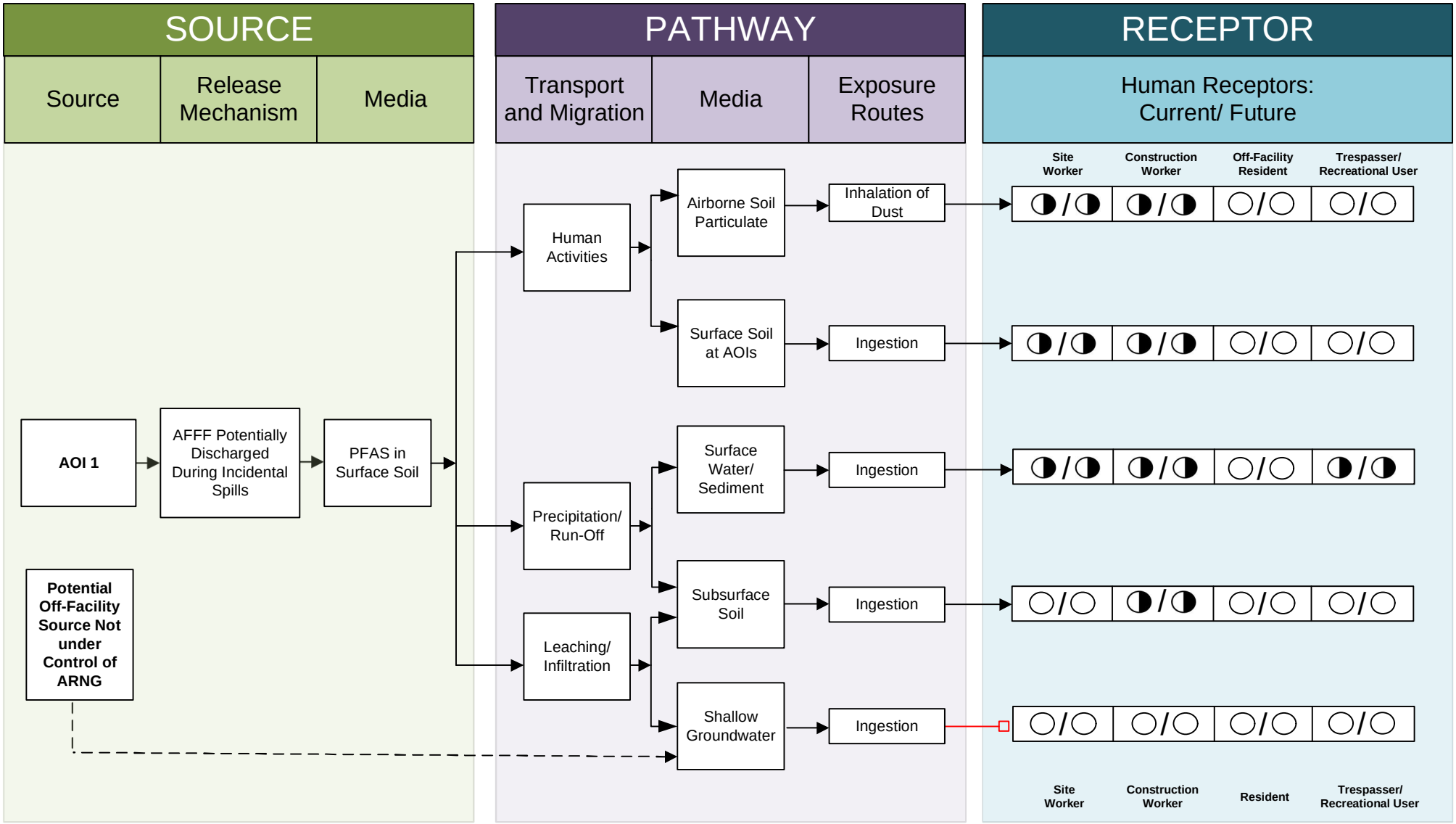


LEGEND

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

Notes:
1. The resident 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 Flight Line
Jackson AASF #1, MS

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 Jackson AASF #1. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

One AOI related to potential PFAS releases was identified during the PA. A summary of the AOI is shown in **Table 7-1**, and its location is shown on **Figure 7-1**.

Table 7-1: AOIs at Jackson AASF #1

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Release Area A	MSARNG	2008 to 2017

Based on potential PFAS releases at AOI 1, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for the AOI, which presents the potential receptors and media impacted, is shown in **Figure 6-2**.

7.2 Uncertainty

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, in general, records were not typically kept by the facility or available during the PA on the use of PFAS in training, firefighting, 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 is vague or conflicts 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 potential storage of PFAS were reviewed, current personnel were interviewed, multiple persons were interviewed for the same potential source area, and the facility was visually inspected. **Table 7-2** summarizes the uncertainties associated with the PA:

Table 7-2: Sources of Uncertainty

Area of Interest	Source of Uncertainty
AOI 1: Release Area A	The type, number, and volume of Tri-Max™ units formerly located at the AASF #1's Flight Line are unknown as is their final disposition. It is unknown if the contents of the Tri-Max™ units were emptied prior to being removed from the facility.

Hawkins Field Airport	Firefighting personnel for the City of Jackson were not interviewed. Therefore, it is unknown if AFFF is used, stored, or trained with at Hawkins Field Airport.
General	Interviewee tenure dates back to approximately 1987/1988. Activities at the facility between 1972 and approximately 1988 are not known.

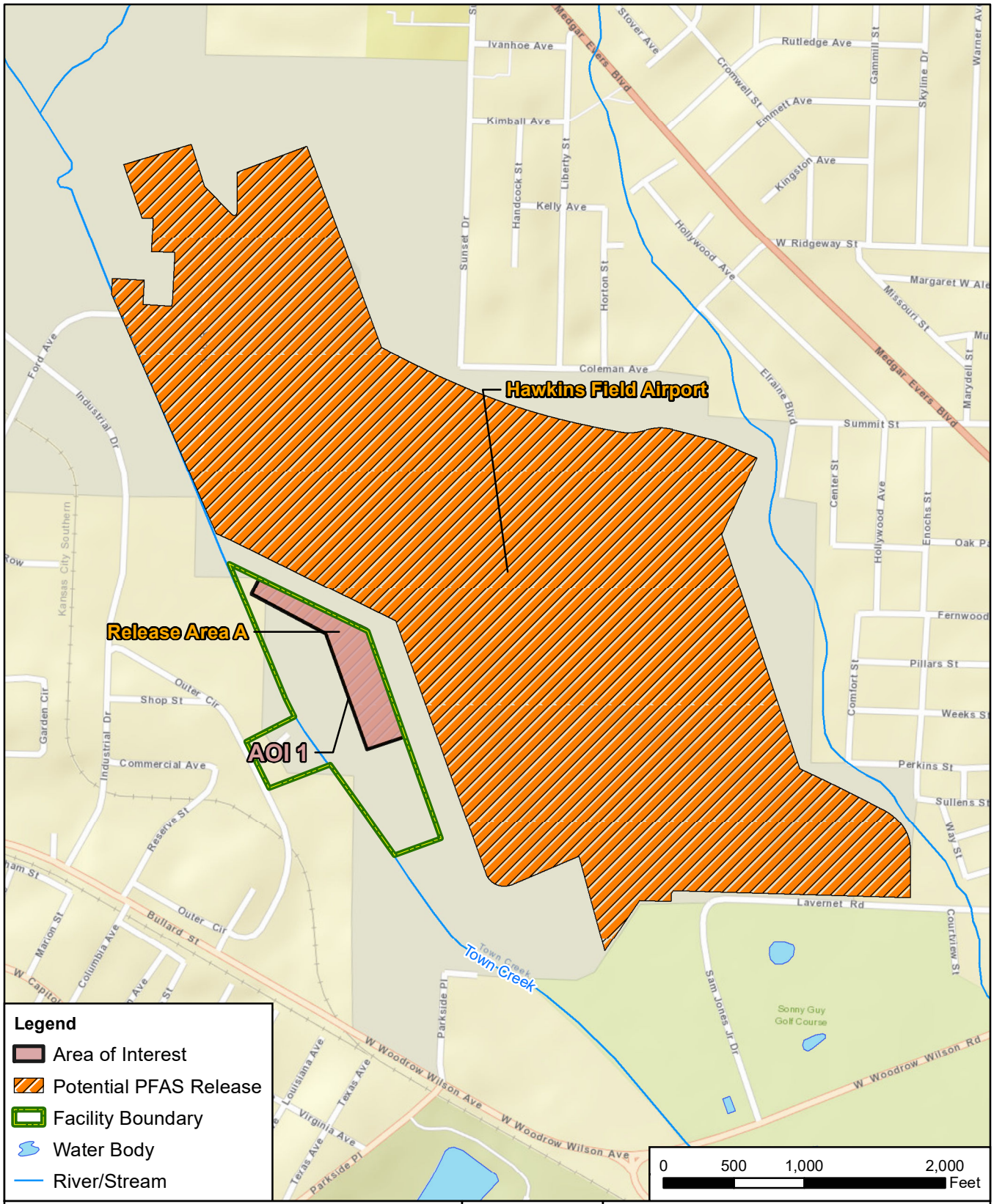
7.3 Potential Future Actions

Interviews with current MSARNG facility staff, whose first-hand knowledge at Jackson AASF #1 span 1987 to present, indicate that ARNG activities may have resulted in a potential PFAS release at one AOI identified during the PA. Based on the preliminary CSM developed for this AOI, there is potential for receptors to be exposed to PFAS contamination in soil, surface water, and sediment. **Table 7-3** summarizes the rationale used to determine if the AOI should be considered for further investigation under the CERCLA process and undergo an SI.

Table 7-3: PA Findings Summary

Area of Interest	Rationale	Potential Future Action
AOI 1: Release Area A	Tri-Max™ units stored along the Flight Line	Proceed to SI, focus on soil, surface water, and sediment

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



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Jackson AASF #1, MS			
REVISED	7/14/2020	GIS BY	SK	7/14/2020
SCALE	1:12,000	CHK BY	LC	7/14/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/14/2020

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

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8. References

Cushing, E.M., Boswell, E.H., Hosman, R.L. 1964. *General Geology of the Mississippi Embayment*, *Water Resources of the Mississippi Embayment.* Geological Survey Professional Paper 448-B, United States Geological Survey (USGS), Department of Interior (DOI).

Jackson Zoning Map. City of Jackson, Mississippi, August 2016, www.jacksongis.maps.arcgis.com/apps/view.

McKee, P.W. & Hays, P.D. 2002. *The Sparta Aquifer: A Sustainable Water Resource?* Fact Sheet FS-111-02, USGS, DOI.

Mississippi Department of Environmental Quality. 2010. *Annual Drinking Water Report.* City of Jackson Maddox Road Well System. Public Water Supply Identification Number MS0250012. June 17, 2011.

National Ground Water Association. 2018. *Groundwater and PFAS: State of Knowledge and Practice*. January.

National Oceanic and Atmospheric Administration (NOAA). “Jackson Climate Records.” *National Weather Service*, NOAA's National Weather Service, 23 June 2017, www.weather.gov/jan/climatejan.

United States Environmental Protection Agency. 1991. *Guidance for Performing Preliminary Assessments under CERCLA.* September.

Wallenfeldt, J., Burrus, J.N., and Sansing, D.G. *Magnolia State*. Encyclopedia Britannica, Inc., 5 February 2019, www.britannica.com/place/Mississippi-state.

Appendix A

Data Resources

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

Previous Investigations Completed

- 2019 The EDR Radius Map™ Report with GeoCheck®; Aerial Photo Decade Package; & Certified Sanborn Map Report; Target Property Jackson AASF, 365 Shop Street, Jackson, MS 46176.
- 2017 Jackson AASF Storm Water Pollution Prevention Plan (SWPPP), Volumes I & II
- 1972 Amendment to Lease Agreement, Jackson Municipal Airport Authority

Appendix B

Preliminary Assessment Documentation

Appendix B.1

Interview Records

PA Interview Questionnaire - Other

Facility: AASF 1 Jackson, MS
Interviewer: [redacted]
Date/Time: 7 March 2019 @ 0800

Interviewee: See Below **Title:** **Phone Number:** **Email:**	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? Y or **N**

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

[redacted], Safety Officer, since 1987 or 1988

[redacted], Environmental Compliance Officer, 5 years

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

Facility Background: Flight Facility, training support, and maintenance. Also provides NGB Army classroom training at a location across the street from the AASF. No outside units visit the facility to train in anyone's memory. The AASF was established in 1972/73 – its current location is the original location (never located elsewhere). Prior to MSARNG establishment of the AASF, historically, the airfield was used by the Air Force for training during WWII.

There is no suppression system in the hangar. Soldiers at the facility do not fight fires. The Jackson fire department (municipal) supports the AASF and Hawkins Field in emergencies. There have been no fires to date. Interviewees noted that there was a crash at Hawkins Field but that there was no fire associated with it (thus no foam).

Fire training at the facility includes watching videos and practical training with a water based training extinguisher. The Jackson FD comes in to train with AASF personnel – this includes showing the Jackson FD how to turn the engines off, where fuel tanks are, running though where exits and airfield are. No practical exercises are conducted – no foam ever used.

Facility is required to have portable fire extinguisher units for the helipads – approximately 1 for every 2 helicopters. Currently they have 13 units, all dry chemical.

Starting in approximately 2008/2009, an unknown number of Trimax units were present at the facility for approximately 6-8 years. Although the number of units is unknown, there would have been 1 unit for every 2 aircraft. There were never any instances of discharge of the units. Servicing occurred off-site by a private company. The units were never refilled. The Trimax units

Known Uses
Use
Procurement
Disposition
Storage (Mixed)
Storage (Solution)
Inventory, Off-Spec
Containment
SOP on Filling
Leaking Vehicles
Nozzle and Suppression System Testing
Dining Facilities
Vehicle Washing
Ramp Washing
Fuel Spill Washing and Fueling Stations
Chrome Plating or Waterproofing

were replaced with the dry chem portable they have today. Prior to the Trimax, the units were wheeled CO_2 units.

No on-site fuel point. Fuel is brought in on a Heavy Expanded Mobility Tactical Truck (HEMTT) – 2,500 gal capacity.

The facility kitchen range has an overhead suppression system (same as McCain's) – K-Class suppression system (potassium carbonate based).

No known adjacent sources – no tanker crashes, no chrome plating, no waterproofing. There is an ethanol factory north of the facility on Industrial Drive (large facility). Other tenets at Hawkins Field are not known.

Appendix B.2

Visual Site Inspection Checklists

Visual Site Inspection Checklist

(s) of people performing VSI: [redacted]

Recorded by:

ARNG Contact:

Date and Time: 7 March, 2019

Method of visit (walking, driving, adjacent):

Source/Release Information

Site Name / Area Name / Unique ID: Jackson AASF

Site / Area Acreage: 30.40 Acres

Historic Site Use (Brief Description): AASF

Current Site Use (Brief Description): AASF

Physical barriers or access restrictions: minimal, some fences

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):

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

Airport

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

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

Jackson Municipal

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:

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

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

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

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

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

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

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.

likely some @ airport.

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):

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

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

3. Does the site or area exhibit evidence of erosion? Y / (N)

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water? Y / (N)

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

Receptor Information

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

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

Guard Post

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:

~½ W/SW

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

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

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

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

stream directly behind

Appendix B.3

Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Jackson AASF

Why has this location been identified as a site?

Tri-Maxes used to be here.

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

Airport

Training Events

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

If so, how often?

How much material was used? Is it documented?

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? West into stream

Average rainfall?

Any flooding during rainy season?

Direct or indirect pathway to ditches?

Direct or indirect pathway to larger bodies of water? Stream emptying to Pearl River

Does surface water pond any place on site? No.

Any impoundment areas or retention ponds?

Any NPDES location points near the site?

How does surface water drain on and around the flight line? Through drainage ditches

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? N/A.

Depth to groundwater? > 300 ft.

Uses (agricultural, drinking water, irrigation)?

Any groundwater treatment systems? No.

Any groundwater monitoring well locations near the site? No.

Is groundwater used for drinking water? No.

Are there drinking water supply wells on installation? No.

Do they serve off-post populations? No.

Are there off-post drinking water wells downgradient No.

Waste Water Treatment Plant:

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

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

Do we understand the fate of sludge waste?

Is surface water from potential contaminated sites treated?

Equipment Rinse Water

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

presumably into drains/ ditches.

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. off-site / third party.

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker ✓

Construction Worker ✓

Recreational User

Residential

Child

Ecological ✓

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

Documentation

Ask for Engineering drawings (if applicable).

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

Appendix C
Photographic Log

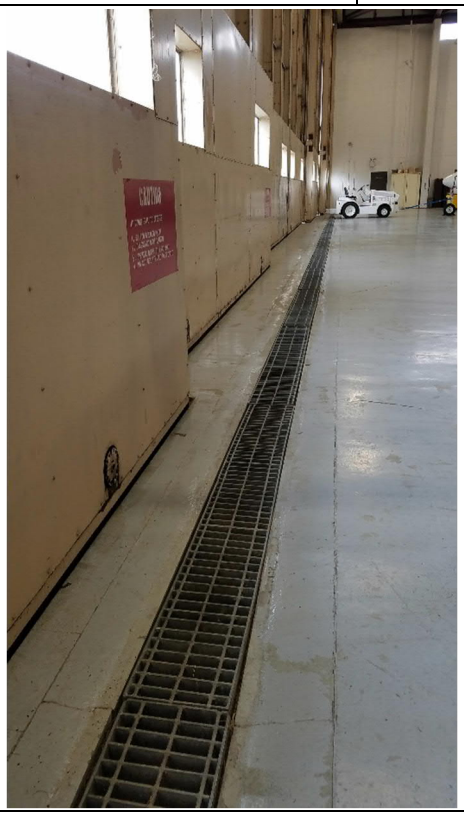
APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Jackson ASSF	Jackson, Mississippi

Photograph No. 1

Description:

Floor drains within the AASF hangar.



Photograph No. 2

Description:

Fire extinguisher in hallway.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Jackson ASSF	Jackson, Mississippi

Photograph No. 3

Description:

Cooking Range Hood with PyroChem fire K-Class suppression system sprinklers (potassium carbonate based).

Photograph No. 4

Description:

On the flight line facing North

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Jackson ASSF	Jackson, Mississippi

Photograph No. 5

Description:

On the flight line facing West

Photograph No. 6

Description:

On the flight line facing South

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Jackson ASSF	Jackson, Mississippi

Photograph No. 7

Description

Close up of flight line portable fire extinguisher.