FINAL
Preliminary Assessment Report Robinson Maneuver Training Center, North Little Rock, Arkansas

Perfluorooctane-Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

March 2020

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Contract Number: W912DR-12-D-0014
Delivery Order: W912DR17F0192

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Acronyms and Abbreviations

<	less than
°F	degrees Fahrenheit
AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFB	Air Force Base
AFFF	aqueous film forming foam
AOC	Area of Concern
AOI	Area of Interest
AR	Arkansas
ARARNG	Arkansas Army National Guard
ARFF	aircraft rescue and firefighting
ARNG	Army National Guard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CRFD	Camp Robinson Fire Department
CSM	conceptual site model
DRMO	Defense Reutilization and Marketing Office
EDR	Environmental Data Resources, Inc.
FTA	fire training area
Genesis	Genesis Environmental Consulting, Inc.
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
RMTA	Robinson Maneuver and Training Area
RMTC	Robinson Maneuver Training Center
SI	Site Inspection
UCMR3	third Unregulated Contaminant Monitoring Rule
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VSI	visual site inspection
WWII	World War II
WWTP	wastewater treatment plant

Executive Summary

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

AECOM completed a PA for PFAS at the current Robinson Maneuver Training Center (RMTC) (also referred to as the "facility") in North Little Rock, Arkansas (AR), to assess potential PFAS release areas and exposure pathways to receptors. The current RMTC is constructed on a parcel of land owned by the Arkansas State Military Department and leased to the Arkansas ARNG (ARARNG). The current agreement expires in 2040. The performance of this PA included the following tasks:

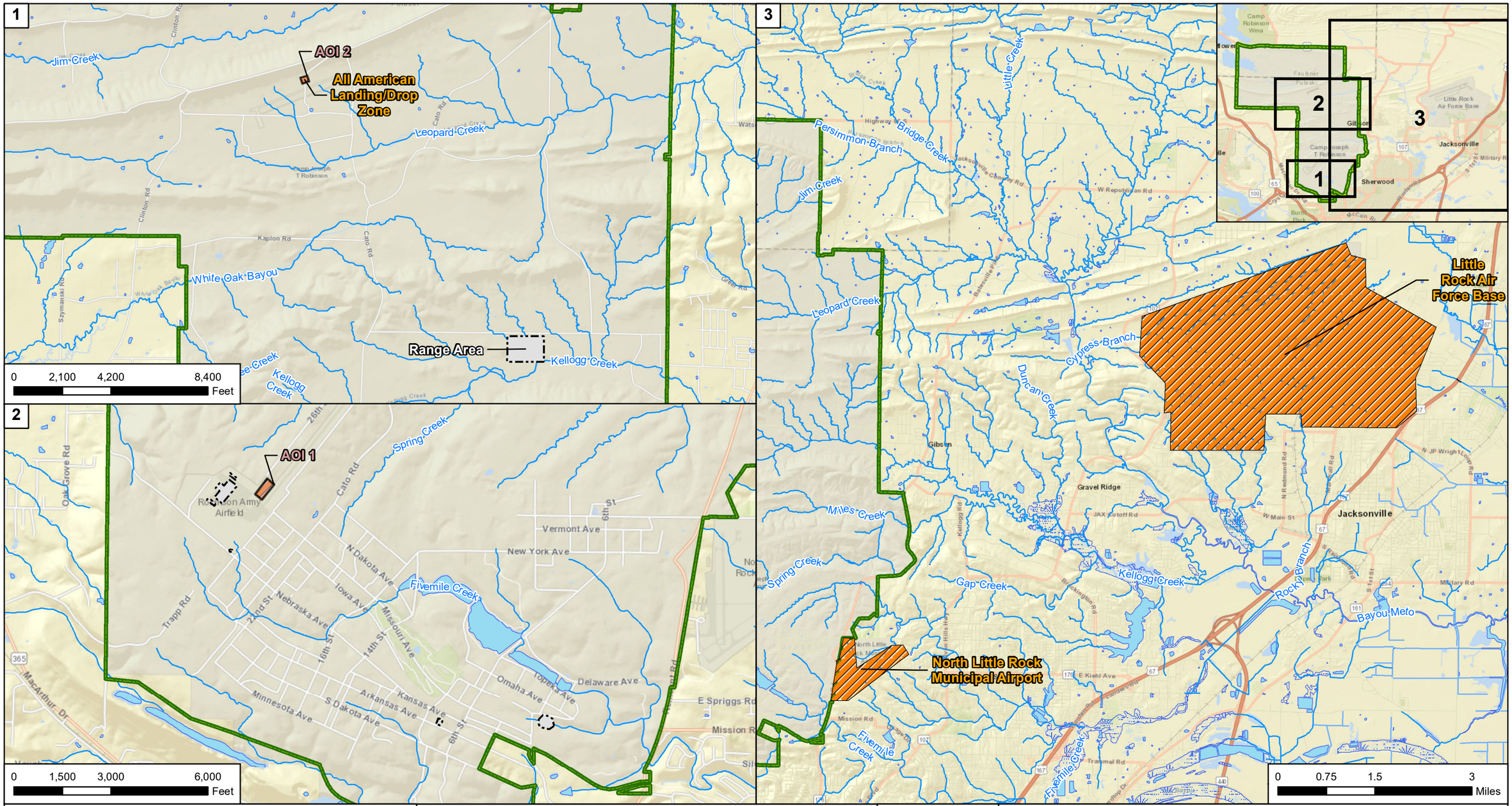
- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR) report packages to obtain information relevant to potential PFAS releases
- Conducted a site visit on 16-17 July 2019
- Interviewed current ARARNG RMTC personnel during the site visit and ARARNG environmental managers and operations staff
- Completed visual site inspections (VSIs) at known or suspected PFAS release locations and documented with photographs
- 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 a potential PFAS release were identified at the current RMTC during the PA. The AOIs are shown on **Figure ES-1** and in **Table ES-1** below:

Table ES-1 AOIs at RMTC

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Echo Pad	ARARNG	As early as 2006 until 2018
AOI 2	All American Landing/Drop Zone	U.S. Air Force	As early as 1996

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



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PROJECT	Preliminary Assessment for PFAS at RMTC, AR			
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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	3/5/2020

Summary of Findings

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Figure ES-1

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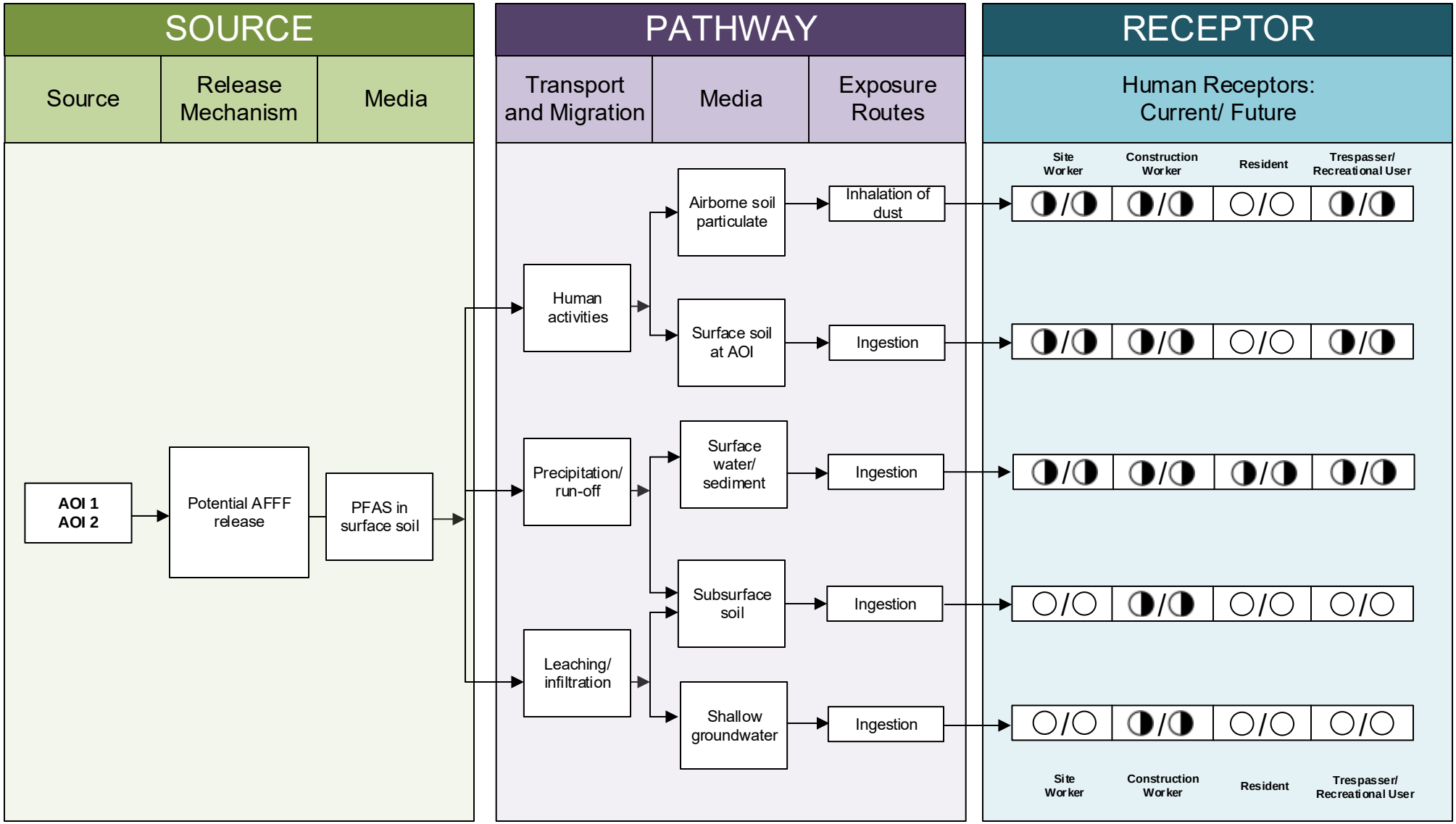


LEGEND

- Flow-chart stops
- Flow-chart continues
- Partial/ possible flow
- Incomplete pathway
- Possible complete pathway
- Complete pathway

Notes:

1. The resident receptor refers to an off-site resident.

2. Current risk practice suggests the exposure pathway for dermal contact is insignificant compared to ingestion, but supporting data is sparse and continues to be studied.

Figure ES-2
Preliminary Conceptual Site Model
RMTC, AR

1. Introduction

1.1 Authority and Purpose

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

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of PFAS compounds in the environment varies. The regulatory framework at both federal and state levels continues to evolve. The US Environmental Protection Agency (USEPA) issued Drinking Water Health Advisories 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 State of Arkansas (AR) does not currently have drinking water standards for PFAS.

This report presents the findings of a PA for PFAS at the current Robinson Maneuver Training Center (RMTC) (also referred to as the “facility”) in North Little Rock, AR, 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 USACE requirements and guidance.

This PA documents the known fire training areas (FTAs) as well as other locations where PFAS may have been released into the environment at the current RMTC. 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
- Conducted a site visit on 16-17 July 2019
- Interviewed current Arkansas ARNG (ARARNG) RMTC personnel during the site visit and ARARNG environmental managers and operations staff
- Completed visual site inspections (VSIs) at known or suspected PFAS release locations and documented with photographs
- 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:

- **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 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

RMTC occupies approximately 31,900 acres in Pulaski and Faulkner Counties within North Little Rock, Arkansas. The facility is approximately 5 miles north and east of the Arkansas River, 3 miles north of Little Rock, and 4 miles west of Little Rock Air Force Base (AFB). **Figure 1-1** illustrates the location of the current RMTC.

The facility was first established in 1917 as Camp Pike and consisted of 6,000 acres, which was expanded to 48,188 acres during World War II (WWII) and renamed Camp Joseph T. Robinson (Global Security, 2006). Camp Joseph T. Robinson was a basic training facility through WWII and was also used to house German prisoners of war (Global Security, 2006). The facility was declared surplus after WWII and deeded to the Arkansas State Military Department for use as a National Guard facility. After the WWII expansion, approximately 16,300 acres were turned over to various public and private organizations.

Today, renamed RMTC, the facility is used by the ARARNG for professional military education and infantry training.

1.5 Facility Environmental Setting

The following descriptions of the facility environmental setting were provided in the Operational Range Phase II Assessment (URS Group, Inc. and Arcadis, 2013). RMTC is in the northeast edge of the Ouachita Mountain physiographic province and lies on the southeast corner of the Fourche

Mountains. The topography is characterized as hilly, with steep east-west hog-back ridges, which were developed on the limbs of anticlines and synclines formed during the Ouachita orogeny (Robinson Maneuver and Training Area [RMTA], 2001). These ridges also enclose numerous valleys and watersheds. Locally, elevations range from 255 to 590 feet above mean sea level (amsl). The Arkansas River is located immediately south and west of the facility.

1.5.1 Soil

The soils at RMTC are generally very slow to moderately slow permeability and heavily influenced by the surrounding geology; they are composed of clays, silty clays, and some sand (RMTA, 2001). Carnasaw complexes are abundant and include Carnasaw gravelly loam, Carnasaw-Pirum complex, and Carnasaw-Zafra complex (Genesis, 2005). Other soil groups are the Cato loam, Littlefir silt loam, Olmstead silt loam, Pirum fine sandy loam, Psyam silt loam, and Purdham gravelly loam (Genesis Environmental Consulting Inc. [Genesis], 2005). The heavy clays and silt encourage runoff and prevent the development of a significant surface aquifer. The Carnasaw, Littlefir, Pirum, and Purdham soils are dominant on hills and ridges, while the Cato, Psyam, Olmstead, and Maumelle soils are found in valleys and depressions (RMTA, 2001).

1.5.2 Geology

RMTC is located within the Ouachita Mountain physiographic province. The Ouachita Mountains, which rise to 2,130 feet amsl, extend from the northwestern edge of the Mississippi Embayment, approximately 125 miles west, to the Gulf Coastal Plain in western Arkansas and Oklahoma. The Ouachita Mountain province near RMTC is characterized by Pennsylvanian and Paleozoic bedrock formations displayed and folded into east-west trending broad synclines and narrow anticlines (McFarland, 2004). Steep ridges were formed from folding and differential weathering of more resistant sandstones and less resistant shales. To the east and southeast of the facility is the fall line between the Ouachita Mountain province and the Mississippi Alluvial Plain province, which consists of thick Quaternary alluvial layers. The local surface geological formations exposed at RMTC are described below and depicted on **Figure 1-2**.

- Quaternary alluvial deposits: The youngest layer at RMTC comprises Quaternary alluvium deposits of gravels, sands, silts, and clays. These deposits are the result of erosion and reworking of deposits by streams. There are also lenticular and discontinuous Quaternary terrace deposits consisting of unconsolidated gravels, sand, silts, and clays. These layers vary in thickness across the area (Genesis , 2005).
- Atoka Group: Underlying the Quaternary deposits is the Atoka Formation, which is up to 25,000 feet thick and has the largest areal extent of any Paleozoic formation in Arkansas (McFarland, 2004). The Atoka Group is a marine sequence of silty sandstones and black shales (McFarland, 2004). The Atoka Group is subdivided into upper, middle, and lower formations based on the distinct shale and sandstone units. The Atoka Group gradually decreases in thickness to the south and conformably overlies the Johns Valley Shale, which does not outcrop at RMTC. The Atoka Group unconformably overlies the Jackfork Sandstone Group on the facility (Genesis, 2005).
- Jackfork Sandstone Group: The Jackfork Sandstone Group varies in thickness from 3,500 to 6,000 feet. It is a Pennsylvanian-age formation with fine to coarse sandstones, as well as brown silty sandstones and gray-black shales (McFarland, 2004). The Jackfork Sandstone Group has been deformed during mountain building processes similar to other formations in the area. The Jackfork Sandstone is known to host lead- and zinc-bearing quartz veins (Arkansas Geological Survey, 2011).

1.5.3 Hydrogeology

Groundwater on RMTC occurs primarily in fractures, joints, and other openings in the shale and sandstone units. Based on drilling logs from monitoring wells installed at the facility, shallow bedrock can occur from as little as 8 inches to 48 feet below ground surface (Genesis, 2005). The overburden above bedrock generally consists of clay or silty clay, which impedes the development of a significant surface aquifer. The fractures and secondary openings of the sandstone and shale units can yield water; however, wells are generally less than 300 feet deep and produce less than 10 gallons per minute (Genesis, 2005).

The water table generally mimics surface topography, and the approximate flow direction in the upper half of the facility is to the southwest and in the lower half to the northeast, although some local variations exist (Genesis, 2005). This generally correlates with the direction of surface water flow. The facility and the majority of central Arkansas receive potable water from Central Arkansas Water via surface water intakes at Lake Maumelle (URS Group, Inc. and Arcadis, 2013). Groundwater is not used for any purposes at RMTC but may be present at shallow occurrences (less than [<] 6 feet below ground surface) in AOI 1 (Genesis, 2005). Multiple facility monitoring wells surround two operational range areas and are depicted on **Figure 1-2**.

Regional bedrock groundwater quality is considered poor due to the mineral content of surface rock formations (Genesis, 2005). Groundwater is used as a potable water source east of the fall line, which delineates the contact between local bedrock and the thick alluvial deposits of the Mississippi Alluvial Plain province. These alluvial sequences are very thick and yield significant amounts of high-quality groundwater. Several municipalities outside of a 4-mile radius and east of RMTC use these for potable water. However, these wells are drilled into the Sparta aquifer, which is a very deep (600-1,000 feet below ground surface) confined aquifer not hydraulically connected to geologic formations underlying the facility (URS Group, Inc. and Arcadis, 2013). Based on the third Unregulated Contaminant Monitoring Rule (UCMR3) data, it was also indicated that there were no PFAS detections in public water systems above USEPA Health Advisory values within 20 miles of the facility.

1.5.4 Hydrology

There are several streams, both perennial and intermittent, that drain surface water at RMTC. Because of the anticline-syncline structures, surface drainage is circuitous at RMTC (RMTA, 2001). In the northern half of the facility, Clifton Mountain acts as a barrier and directs surface water flow into Jim Creek and Five Mile Creek (and an unnamed smaller tributary), which merge and drain into the wetlands surrounding the 1.5-square-mile Grassy Lake (also known as Clear Lake) (RMTA, 2001). These streams may flow intermittently during drier periods.

South of Clifton Mountain, Leopard Creek drains the eastern half of the facility, and an unnamed stream drains west to Tupelo Gum Pond and a wetland area. White Oak Bayou flows westward and eventually drains into the Arkansas River after passing through several low wetland areas and Devoe Lake. The cantonment area is drained by several small unnamed streams and drainage ditches into Engineers Lake. This lake is drained by Five Mile Creek, which then flows easterly toward Trammel Lake (RMTA, 2001).

Runoff is relatively rapid and excessive when there is heavy rainfall because of shallow bedrock and relatively impermeable clay soils (RMTA, 2001). Shallow groundwater levels are influenced by surface water leakage; however, when compared to the volume of surface water runoff, the shallow clays restrict the infiltration of water. Locally, the streams and creeks exiting RMTC are small, muddy, and slow flowing. Several streams exiting RMTC observed during the Phase I site visit were slow flowing, likely due to the dry weather, and could conceivably stop flowing during drought and near-drought conditions. Off-facility wetland geographic information system data

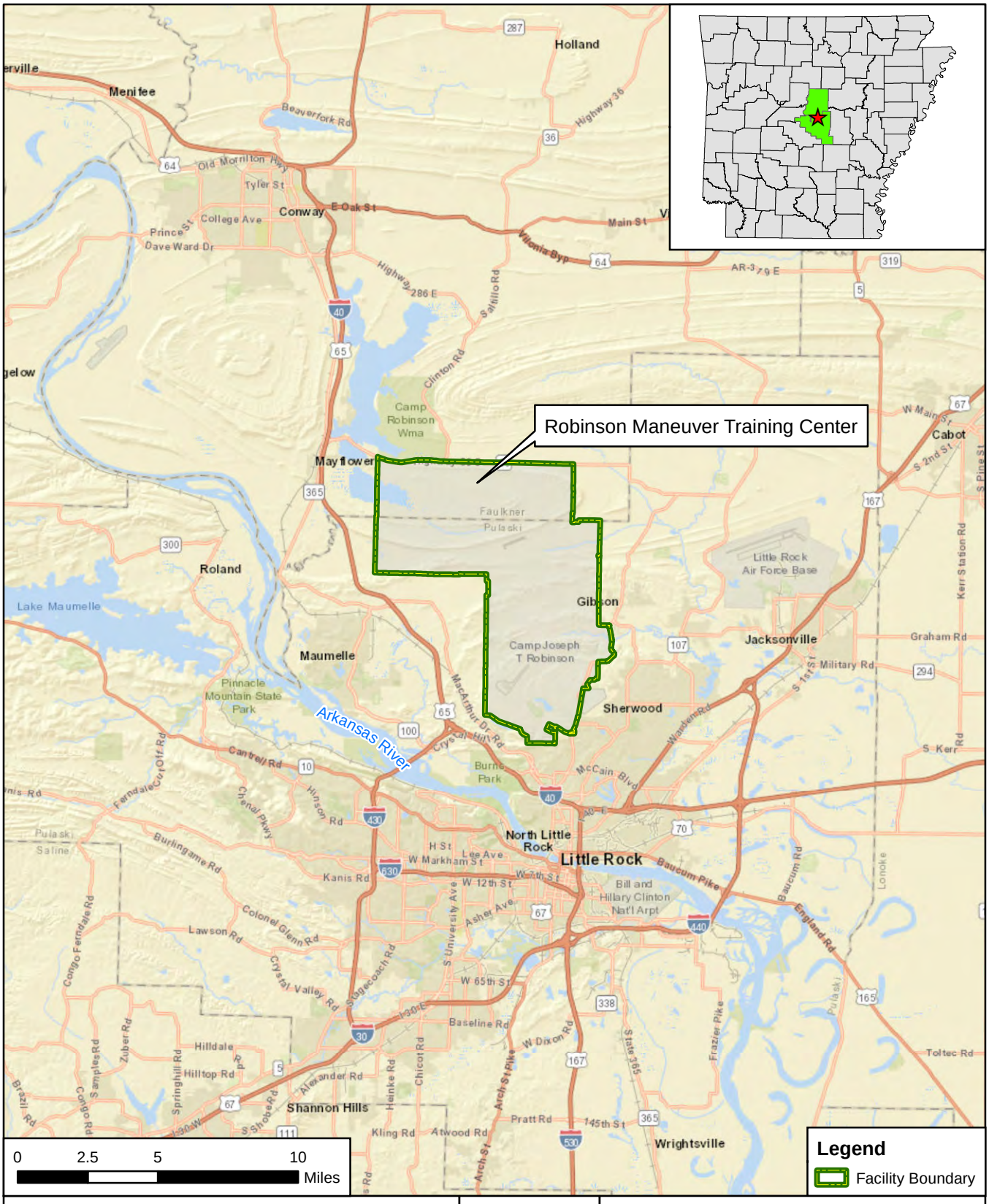
were unavailable from the US Fish and Wildlife Service; however, wetlands data were available from the Arkansas State Transportation Department. There are wetlands around RMTC in localized areas near surface water and to the east on the Arkansas River floodplain. Several sewage disposal ponds are located in the wetlands approximately 4 miles to the southeast of the facility. Kellogg and Woodruff Creeks pass near sewage disposal areas before eventually entering the Arkansas River. Surface water features, including streams and their flow direction, lakes, watersheds, ponds, and wetlands, are shown in **Figure 1-3**.

1.5.5 Climate

The climate of the RMTC area is characterized by hot summers and moderately cool winters. The average high temperature for the summer is 91 degrees Fahrenheit (°F), and the average winter low temperature is 35°F. The area receives an average of 50 inches of precipitation throughout the year. Generally, the heaviest rains are in the spring, and the driest months are from July to September, during which minor droughts occasionally occur. Severe thunderstorms and tornadoes can occur during the late spring and early summer months. RMTC receives an average of 4.4 inches of snowfall per year (National Weather Service, 2019).

1.5.6 Current and Future Land Use

The facility is used by the ARARNG for professional military education and infantry training on its three primary range areas. There are 26 areas used for maneuver and training and non-live-fire training. The maneuver and training ranges are north of the cantonment area and cover most of the facility. The Robinson Army Airfield is the military airfield within RMTC, located west of the cantonment area and containing an Army Aviation Support Facility (AASF). RMTC is also used for Arkansas National Guard administrative, logistical, and maintenance directorates. Reasonably anticipated future land use is not anticipated to change from the current land use.



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SCALE	1:316,800	CHK BY	ST	8/22/2019
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	8/22/2019

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Facility Location

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Figure 1-1

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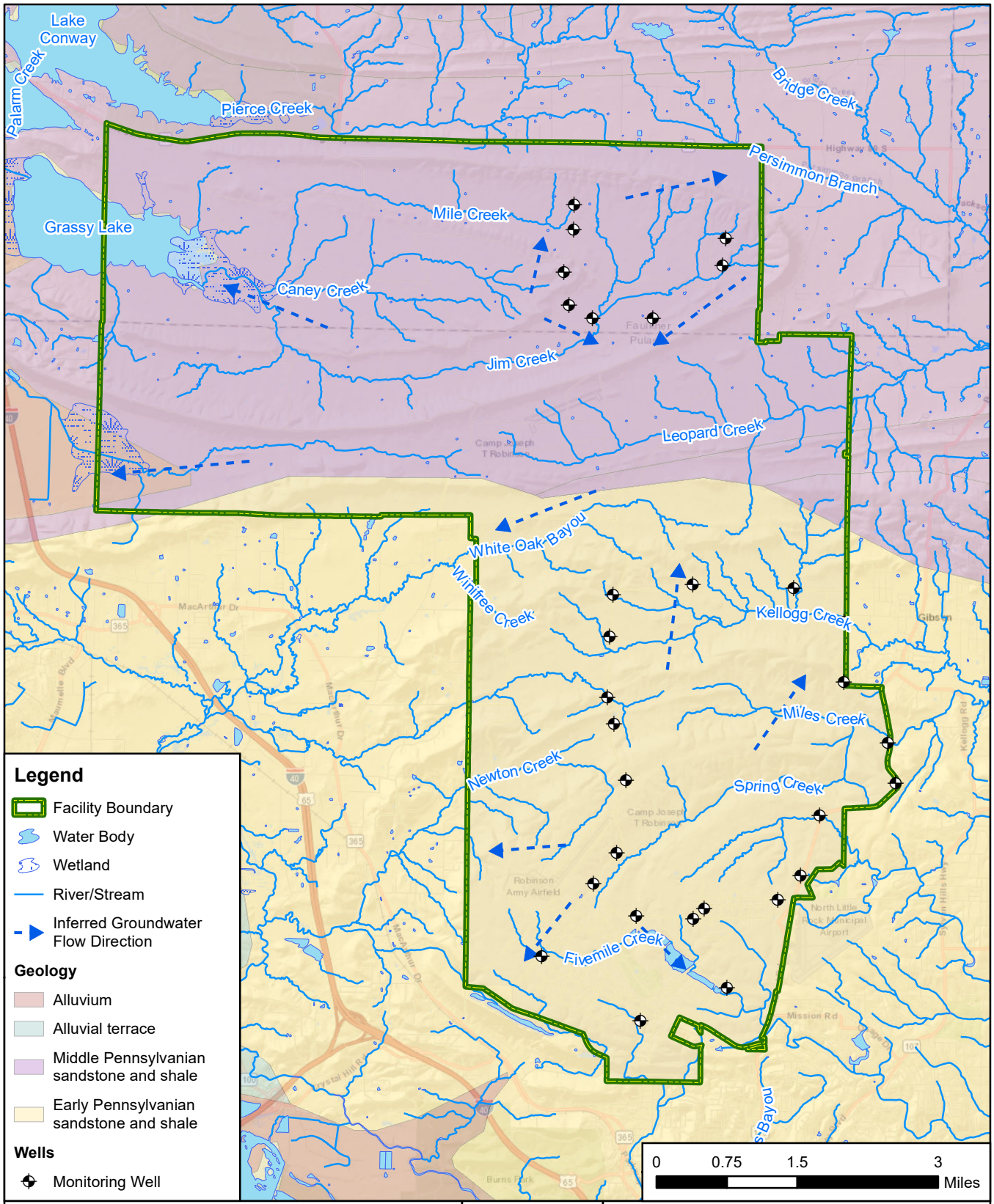

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at RMTC, AR			
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SCALE	1:95,040	CHK BY	ST	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	3/5/2020

Groundwater Features

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Figure 1-2

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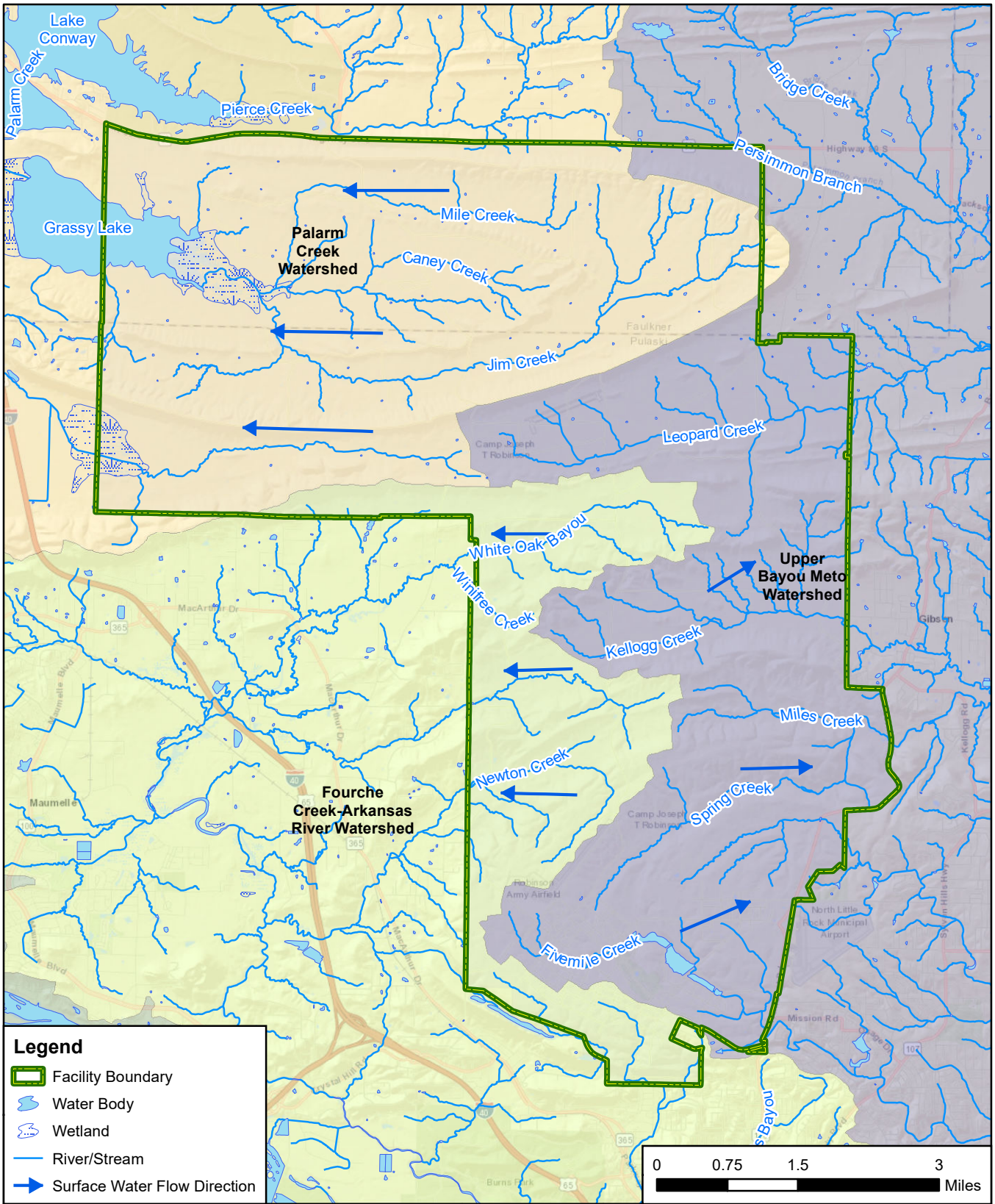

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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	3/5/2020

Surface Water Features

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Figure 1-3

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2. Fire Training Areas

Two FTAs were identified through record reviews and interviews during the PA as described below. The locations of the FTAs are shown on **Figure 2-1**. PA interview and VSI documents are included in **Appendix B**, and photographs are included in **Appendix C**.

2.1 AOC 3

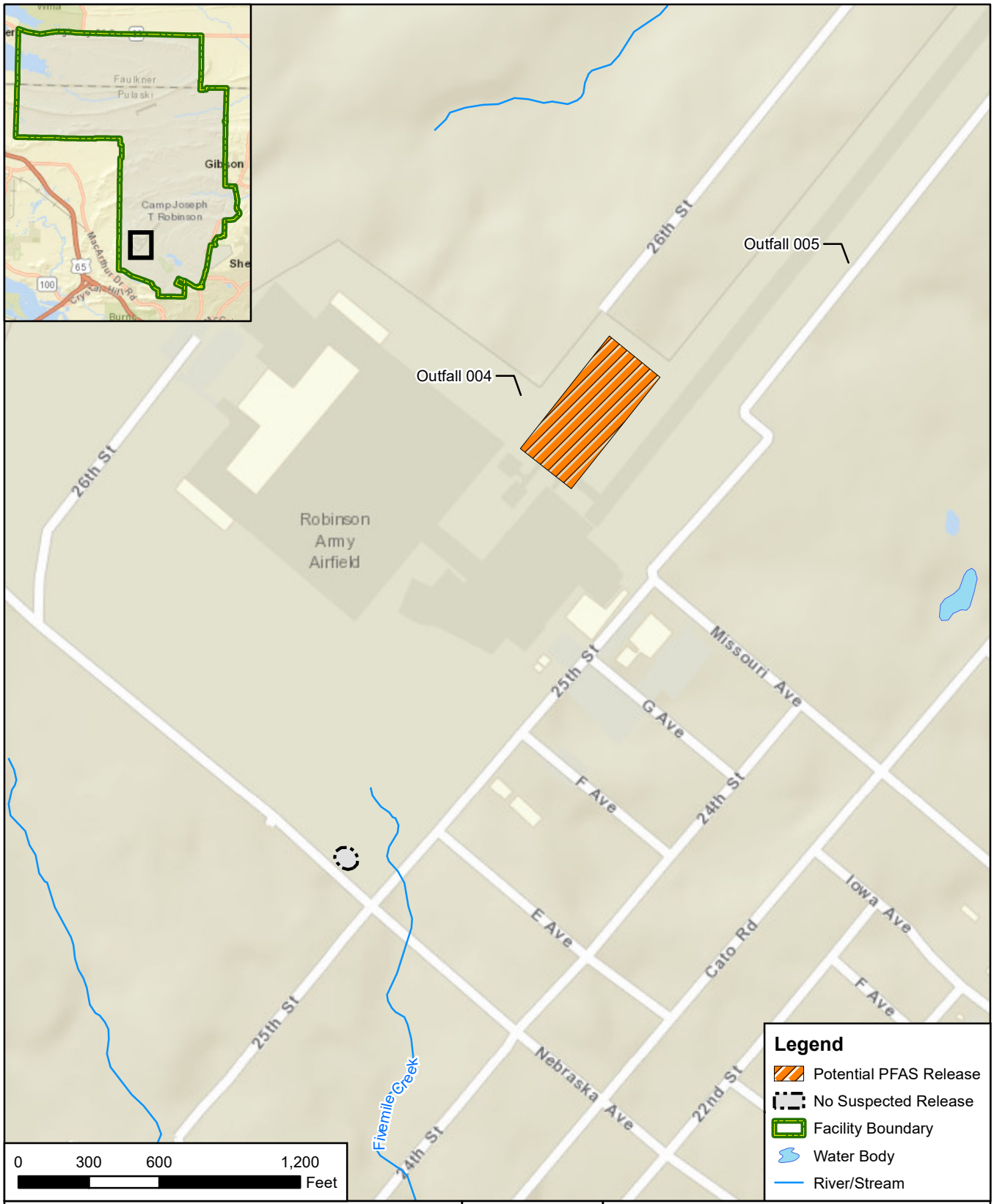
A former FTA (known as Area of Concern [AOC] 3) operated between 1986 and 1990. The FTA was an unlined, manmade depression about 2 feet deep, located at the corner of Nebraska Avenue and 25th Street, just outside the Robinson Army Airfield fence. Fire training activities involved extinguishing wood or JP-4 that was deposited and ignited within the depression area. The RMTC Environmental Deputy Chief witnessed the fire training activities during his tenure extending 28 years and observed only water being used to extinguish the fires. AOC 3 was monitored for petroleum hydrocarbons before receiving formal site closure under the Resource Conservation and Recovery Act program. A soil cover was placed over AOC 3 after its operational usage ceased in approximately 1990 (CH2M Hill, 1996). No vegetative stress or soil erosion was observed during the VSI of the approximate area.

2.2 Echo Pad

The Echo Pad is an approximately 4-acre aircraft, asphalt ramp/pad located at the Robinson Army Airfield. The pad was historically used for aircraft parking and fire training activities but is currently unused. The AASF Fire Chief reported that 3% AFFF of varying brands was used during the fire training activities. Activities at the Echo Pad involved extinguishing live burns, pump and roll exercises, and nozzle testing on mock vehicles at an approximately annual frequency. The most recent event using AFFF was a nozzle testing exercise that occurred in November 2018. Prior to that event, fire training did not occur in the past five years, and the last large-scale fire training event occurred approximately 13 years ago, when the AASF Fire Chief started his tenure at the facility. It is unknown when fire training activities began and what might have occurred prior to the tenure of the AASF Fire Chief.

During a large-scale fire training event, personnel would spray the entire pad with AFFF. An estimated 45 gallons of AFFF would be discharged from an old firetruck with a 60-gallon foam tank capacity. Typically, smaller-scale fire training events involved discharging AFFF in short bursts from the nozzle. All AFFF discharged on the Echo Pad was typically hosed down afterwards with water, and the runoff would drain radially from the pad.

During the VSI of the Echo Pad, multiple cracks were observed throughout the pavement. A mock vehicle and Conex box were also observed stationed at the northern corner of the Echo Pad, where it was indicated that personnel would practice target spraying of the firehose. Drainage swales surround most of the Echo Pad and connect to Outfalls 004 and 005, which drain northeast to tributary creeks of the Arkansas River (Military Department of Arkansas, 2018).



CLIENT	ARNG			
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SCALE	1:7,200	CHK BY	ST	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	3/5/2020

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Fire Training Areas

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Figure 2-1

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3. Non-Fire Training Areas

Five 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 the non-FTAs are shown on **Figure 3-1**.

3.1 Buildings 70200/70201 – Fire Station

The Camp Robinson Fire Department (CRFD) occupies two buildings (Buildings 70200 and 70201) within the cantonment area. Various fire response vehicles are housed within the two buildings. According to the CRFD Fire Chief, whose tenure extends 17 years, AFFF has never been stored within Buildings 70200 and 70201, and only Class A foam of the brand Chemguard was observed during the VSI. The CRFD Fire Chief stated that only Fire Engine 500, stationed at Building 70200, may contain AFFF within its 5-gallon capacity foam tank, and it has not been known to leak AFFF. Neither fire training activities nor nozzle testing have occurred with any fire response vehicles stationed in Buildings 70200 and 70201.

3.2 All American Landing/Drop Zone

The All American Landing/Drop Zone is an approximately 471-acre property leased to the Department of the Air Force since 1996. The leasing document for the All American Landing/Drop Zone is included in **Appendix A**. The property contains two adjacent runways and is used by the Little Rock AFB for touch-and-go landing exercises. One Little Rock AFB firetruck with a 210-gallon AFFF capacity and one water tender are typically stationed in a gravel parking area along the northern runway during touch-and-go exercises. Both the CRFD Fire Chief and Little Rock AFB Fire Chief stated that no activities or emergency responses involving AFFF discharge by either the Little Rock AFB or CRFD have occurred within the area. The Little Rock AFB Fire Chief additionally stated he has not observed any AFFF leakage from the firetruck during his tenure of 32 years. However, according to the 2015 PFAS PA report for Little Rock AFB, the Little Rock AFB firetrucks have been known to occasionally leak AFFF due to corrosive nature of the material (HydroGeologic, Inc., 2015).

3.3 Building 28002

Building 28002 is an aircraft hangar located at the Robinson Army Airfield. The building has a fire suppression system connected to two 1,100-gallon tanks containing 3% AFFF of the brand Ansulite.

Annual testing on the fire suppression system is performed by a contractor and involves equipment checks of pressure gauges. No false trips have occurred since the building construction and installment of the system in 2006. The AFFF tanks were serviced most recently in January 2019, when the contractor changed out the contents of the tank from 3% AFFF foam to Ansulite 3% AFFF Mil Spec C6 Foam. The work order for this foam replacement is included in **Appendix A**.

During the VSI, the fire suppression system tank room was found to have an active drip leak of AFFF from an overhead pipe. The AFFF was pooled in the area surrounding the AFFF tank. However, the spillage remained contained within the room as there were no floor drains or cracks in the concrete floor. Repair services were requested by RMTC and the day following the site visit (18 July 2019), a contractor used a suction truck to remove all the waste AFFF and capped off the leaking pipe.

3.4 Building 2800 – AASF

Building 2800 is the AASF located at the Robinson Army Airfield. The building serves as a hangar and fire station and is equipped with an AFFF fire suppression system. The fire suppression system is connected to a 1,400-gallon tank containing 3% AFFF of the brand Ansulite.

According to the AASF Fire Chief, two aircraft rescue and firefighting (ARFF) vehicles contain 3% AFFF of varying brands and remain parked at the AASF fire station. Vehicles ARFF-1 and ARFF-2 have foam capacity tanks of 100 gallons and 30 gallons, respectively. These vehicles were reportedly filled with AFFF in front of the fire station. Minimal spills occasionally occurred in the process of refilling the ARFF vehicles; however, the AASF Fire Chief stated that spill pads were always placed underneath the vehicles when being serviced. The spill pads were double-bagged and then disposed into a dumpster.

Annual testing on the fire suppression system is performed by a contractor and involves equipment checks of pressure gauges. No false trips have occurred since the building construction and installment of the system in 2006. The AFFF tank was serviced most recently in January 2019, when the contractor changed out the contents of the tank from 3% AFFF foam to Ansulite 3% AFFF Mil Spec C6 Foam. The work order for this foam replacement is included in **Appendix A**.

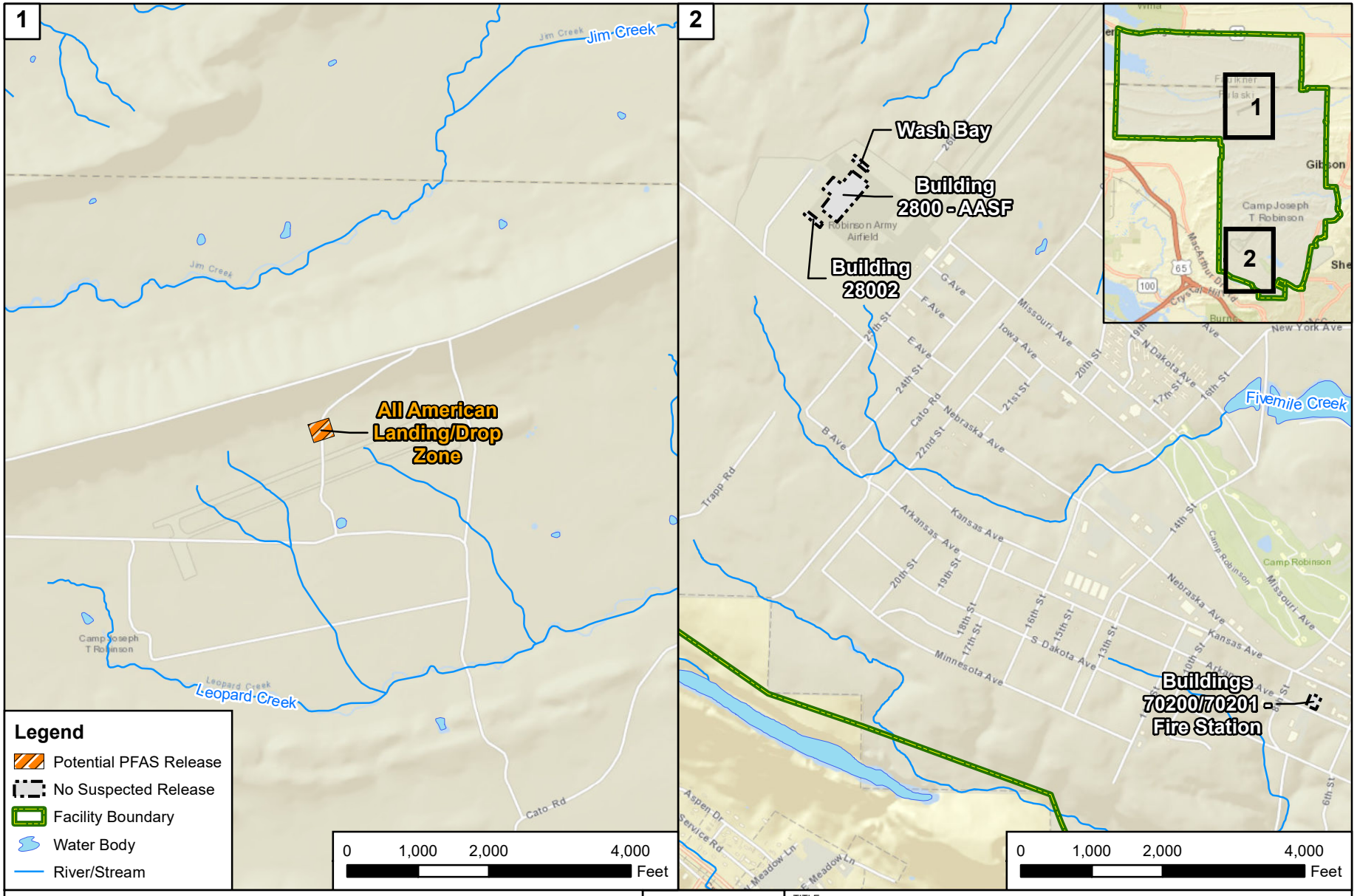
During the VSI, rust staining with white residue were observed on the concrete floor of the fire suppression system tank room, leading into a floor drain. RMTC personnel stated that the staining was most likely from water leaks, but an AFFF leak was possible. The floor drain is connected to the facility wastewater treatment plant (WWTP). All fire extinguishers observed within the building and in the immediate vicinity of the building were dry chemical fire extinguishers (non-AFFF).

3.5 Wash Bay

The Wash Bay is located at the Robinson Army Airfield. The building contains a wash rack and is reportedly the site where all the AFFF 5-gallon buckets were historically and currently stored for the entire facility. An AFFF tote weighing 2,150 pounds was also received from the Little Rock AFB and stored temporarily in the Wash Bay. The tote was turned in unused shortly afterwards in August 2017 to the Defense Reutilization and Marketing Office (DRMO). The waste manifest for this disposal is included in **Appendix A**.

The AASF Fire Chief estimated that about 210 gallons of 3% AFFF have been acquired over time and stored either in 5-gallon buckets or in ARFF vehicles. Miscellaneous 3% AFFF brands in small quantities were often turned into DRMO unused to avoid mixing different brands of AFFF together. The AFFF buckets were not known to have leaked or spilled in the Wash Bay and were only used to refill the ARFF vehicles at Building 2800.

During the VSI, eight 5-gallon buckets of Class A foam were observed in storage at the Wash Bay. There was no evidence of AFFF storage despite reports of current storage.



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PROJECT	Preliminary Assessment for PFAS at RMTC, AR			
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SCALE	1:24,000	CHK BY	ST	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	3/5/2020

TITLE

Non-Fire Training Areas

AECOM

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Figure 3-1

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4. Emergency Response Areas

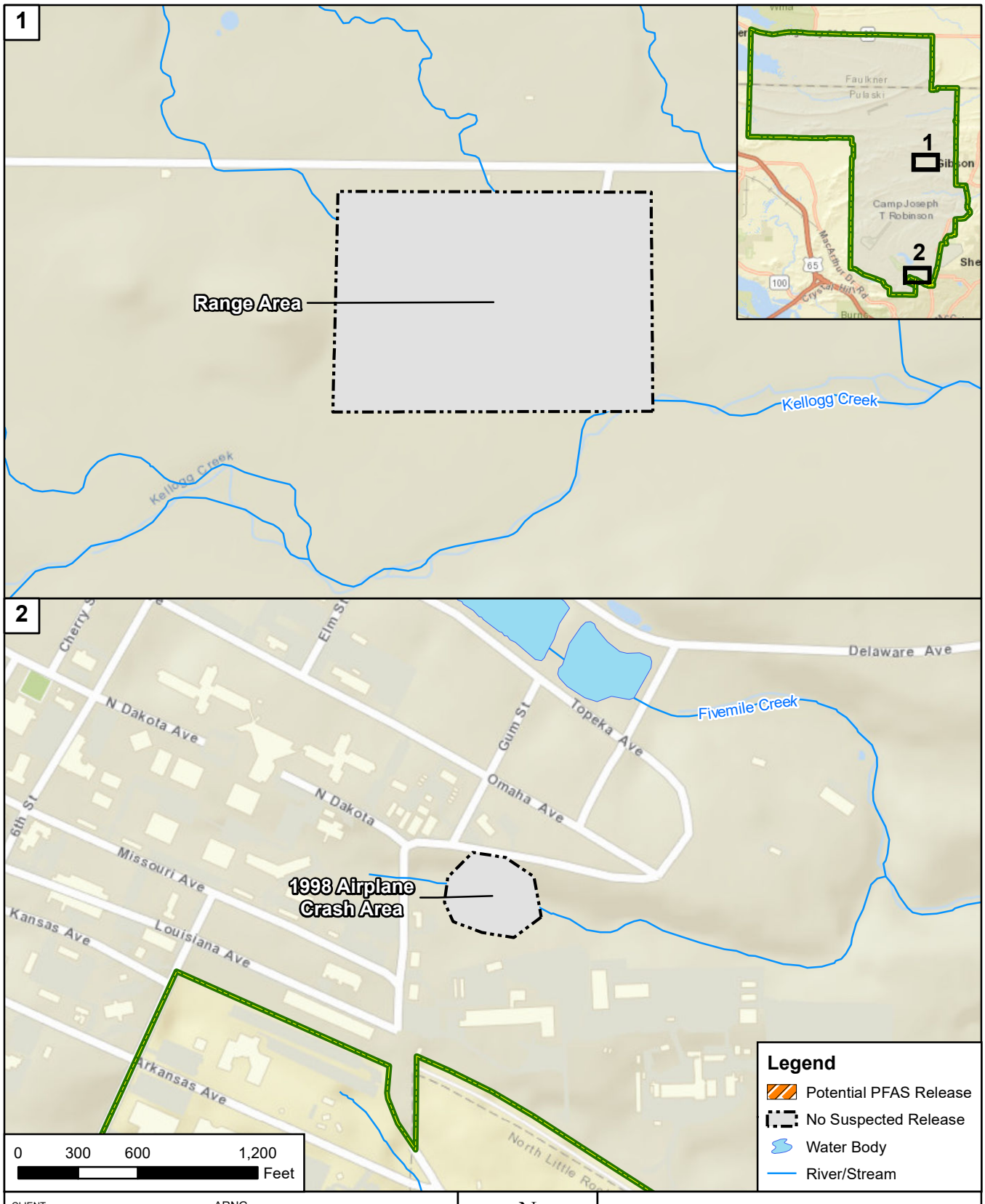
Emergency responses to crashes sometimes require flame suppression, which may result in the release of PFAS to the environment in the form of AFFF. Two emergency response areas were identified within the current RMTC facility during the PA through interviews with RMTC personnel. Emergency services for the facility are provided by the CRFD, although informal mutual aid agreements exist with the municipal fire departments. The emergency response areas are shown on **Figure 4-1**.

4.1 1998 Airplane Crash Area

On 26 March 1998, a private, experimental airplane crashed into a wooded area near Military Road in the RMTC cantonment area. Both municipal and RMTC first responders responded to the scene (National Transportation Safety Board, n.d.). According to the CRFD Fire Chief, who was familiar with the incident, the crash was responded to with only water. AFFF is not suspected to be used in the incident.

4.2 Range Area

The CRFD Fire Chief reported that prescribed burn exercises would periodically occur within the RMTC property and typically require only passive monitoring of the activities by the CRFD. However, during an exercise in 2018 at the Range Area, some leaves beneath a nearby wooden bench caught on fire. The fire was extinguished with only minimal amounts of Class A foam, and water was used to control the surrounding burn area. No AFFF was used in the response.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at RMTC, AR			
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SCALE	1:8,400	CHK BY	ST	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	3/5/2020

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Emergency Response Areas

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Figure 4-1

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5. Adjacent Sources

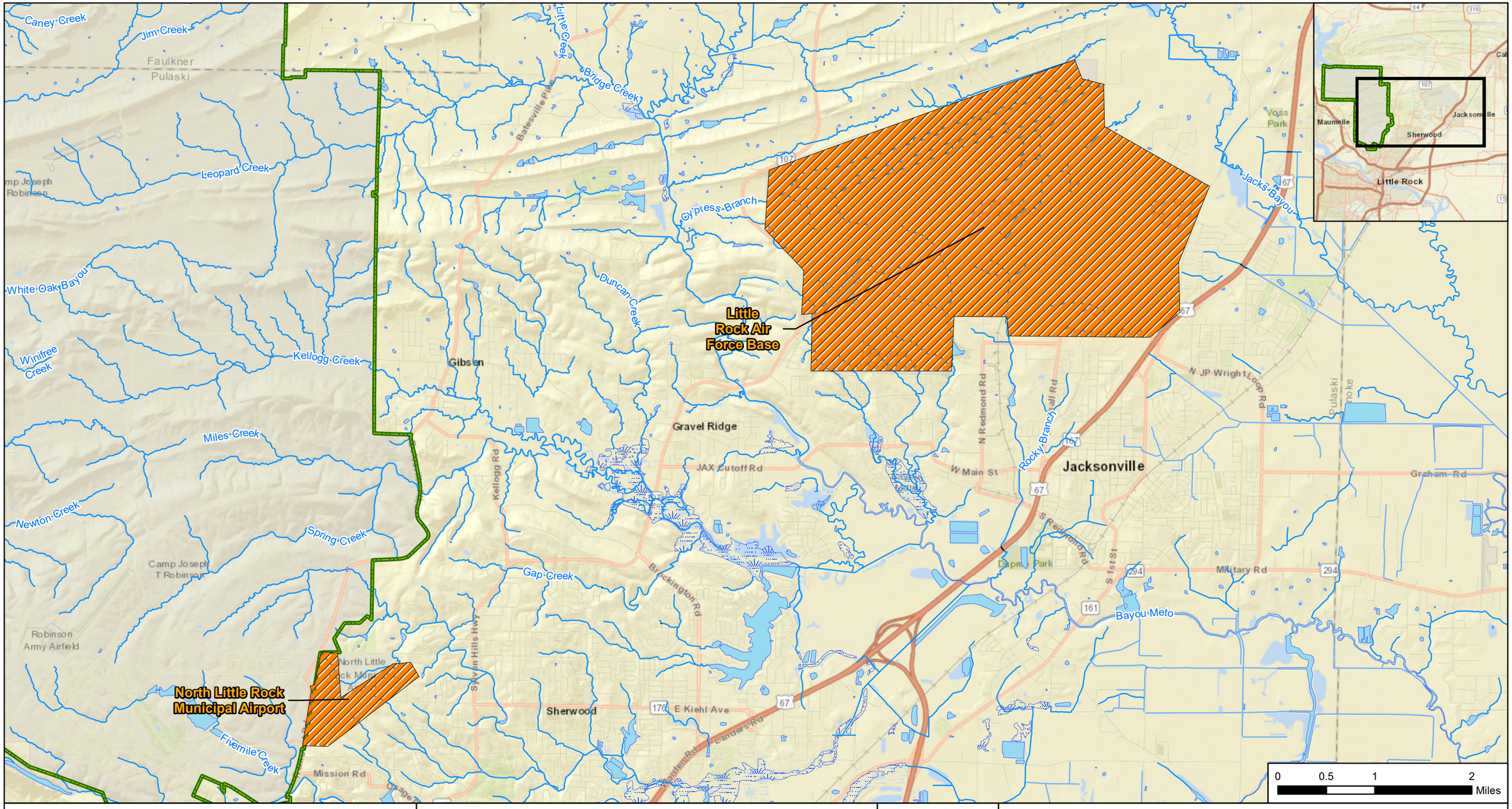
Two potential off-facility sources of PFAS adjacent to the current RMTC, not under the control of the ARARNG, were identified during the PA. A description of each adjacent source is presented below, and the adjacent sources are shown on **Figure 5-1**.

5.1 Little Rock Air Force Base

Little Rock AFB is located approximately 4 miles east of RMTC and occupies 6,128 acres in Pulaski County. Operations related to the use and/or storage of AFFF have historically occurred at various locations in Little Rock AFB. A 2015 PFAS PA report for Little Rock AFB recommended 13 locations for additional PFAS investigation based on the findings of the PA (HydroGeologic, Inc., 2015). The Little Rock AFB PFAS PA report is included in **Appendix A**.

5.2 North Little Rock Municipal Airport

The North Little Rock Municipal Airport is located immediately east of the RMTC cantonment area. North Little Rock Municipal Airport personnel were not interviewed during the PA because the focus of the assessment was to evaluate potential PFAS related activities and sources at ARARNG properties. Therefore, it is not known if AFFF is used or stored at the airport currently or historically. However, because AFFF is commonly used at airports, the North Little Rock Municipal Airport has been identified as a potential off-site PFAS source area.



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PROJECT	Preliminary Assessment for PFAS at RMTC, AR			
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SCALE	1:63,360	CHK BY	JZ	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	3/5/2020

Potential PFAS Release
Facility Boundary
Water Body
Wetland
River/Stream
Canal/Ditch

N

Adjacent Sources

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Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, there were one FTA and one non-FTA where AFFF may have been incidentally spilled or discharged to the ground surface. As such, these AOIs may be potential PFAS source areas. The AOIs and CSMs for the AOIs are shown on **Figure 6-1** and **Figure 6-2**, respectively. The following AOIs were identified as potential PFAS source areas:

- AOI 1 – Echo Pad
- AOI 2 – All American Landing/Drop Zone

The following sections describe the CSM components and the specific CSMs developed for the AOIs. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological studies (National Ground Water Association, 2018). Receptors at the current RMTC include site workers, construction workers, residents, recreational users, and trespassers. The preliminary CSM for the current RMTC indicates which specific receptors could potentially be exposed to PFAS.

6.1 AOI 1: Echo Pad

AOI 1 is the Echo Pad, an approximately 4-acre aircraft, asphalt ramp/pad located at the Robinson Army Airfield. The Echo Pad was used for fire training activities that may have resulted in a potential AFFF release.

Due to the existing pavement condition of the Echo Pad, PFAS releases may have migrated through the pavement cracks and into the underlying soil. The Echo Pad is also surrounded by unpaved surfaces and drainage swales, thus, expended AFFF may have run off the pavement into surface soil and swales. PFAS are water soluble and can migrate readily from soil to groundwater.

The drainage swales that surround most of the Echo Pad are connected to Outfalls 004 and 005, which drain to tributary creeks of the Arkansas River. Outfall 004 drains to Newton Creek and White Oak before intersecting with the Arkansas River, located 14 miles away. Outfall 005 drains to Spring Creek, Miles Creek, Kellogg Creek, and Bayou Meto before intersecting with the Arkansas River. Site workers, construction workers, residents, recreational users may be exposed to PFAS in surface water and sediment via ingestion of surface water and sediment in the Arkansas River and its tributaries. The Arkansas River is additionally used for recreational fishing, which may potentially present another exposure pathway to PFAS via ingestion.

Ground-disturbing activities to surface soil at AOI 1 could result in site worker, construction worker, and trespasser exposure to potential PFAS contamination via inhalation of dust or ingestion of surface soil. Ground-disturbing activities to subsurface soil could result in construction worker exposure via ingestion of subsurface soil. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete.

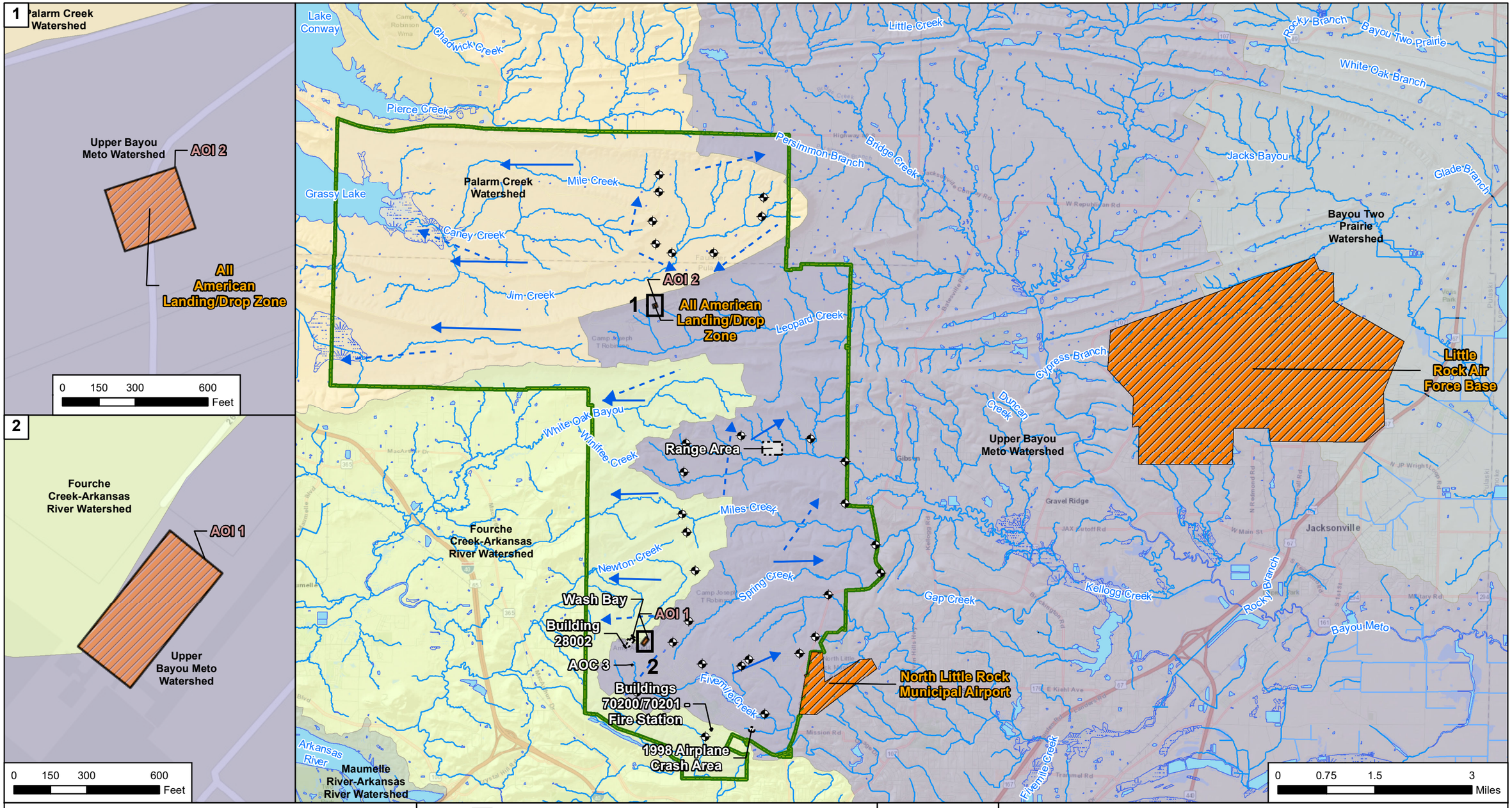
There are no public water supply wells located within 5 miles of AOI 1, and no potable surface water intakes within 15 miles of AOI 1. The facility and the majority of central Arkansas receive potable water from Central Arkansas Water via surface water intakes at Lake Maumelle (URS Group, Inc. and Arcadis, 2013). Groundwater is not used for any purposes at RMTC but may be

present at shallow occurrences (< 6 feet below ground surface) in AOI 1. An artesian monitoring well (SAMW-4) was discovered approximately 1-2 miles northeast of AOI 1 (Genesis, 2005). Therefore, the exposure pathway for groundwater to the site worker, resident, and trespasser receptors are considered incomplete but potentially complete for construction workers working in subsurface conditions.

6.2 AOI 2: All American Landing/Drop Zone

AOI 2: All American Landing/Drop Zone is the property leased to the Department of the Air Force since 1996. One Little Rock AFB firetruck containing AFFF is typically stationed at the gravel parking area located along the northern runway. The firetruck may have leaked AFFF onto the ground in the gravel parking area.

The gravelly surface of the parking area and surrounding unpaved surfaces facilitate migration of PFAS into the subsurface. PFAS are water soluble and can migrate readily from soil to groundwater. PFAS may also be captured in surface water runoff. AOI 2 is located within the Upper Bayou Meto Watershed. Surface water drains southeasterly and eventually reaches the Arkansas River. The pathways and receptors for AOI 2 are the same as described in **Section 6.1**. The preliminary CSM for AOI 2 is shown on **Figure 6-2**.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at RMTC, AR			
REVISED	3/5/2020	GIS BY	SK	3/5/2020
SCALE	1:95,040	CHK BY	JZ	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	3/5/2020

- Area of Interest
- Potential PFAS Release
- No Suspected Release
- Facility Boundary
- Water Body
- Wetland
- River/Stream
- Canal/Ditch
- Surface Water Flow Direction
- Inferred Groundwater Flow Direction
- Monitoring Well

N

Area of Interest

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Figure 6-1

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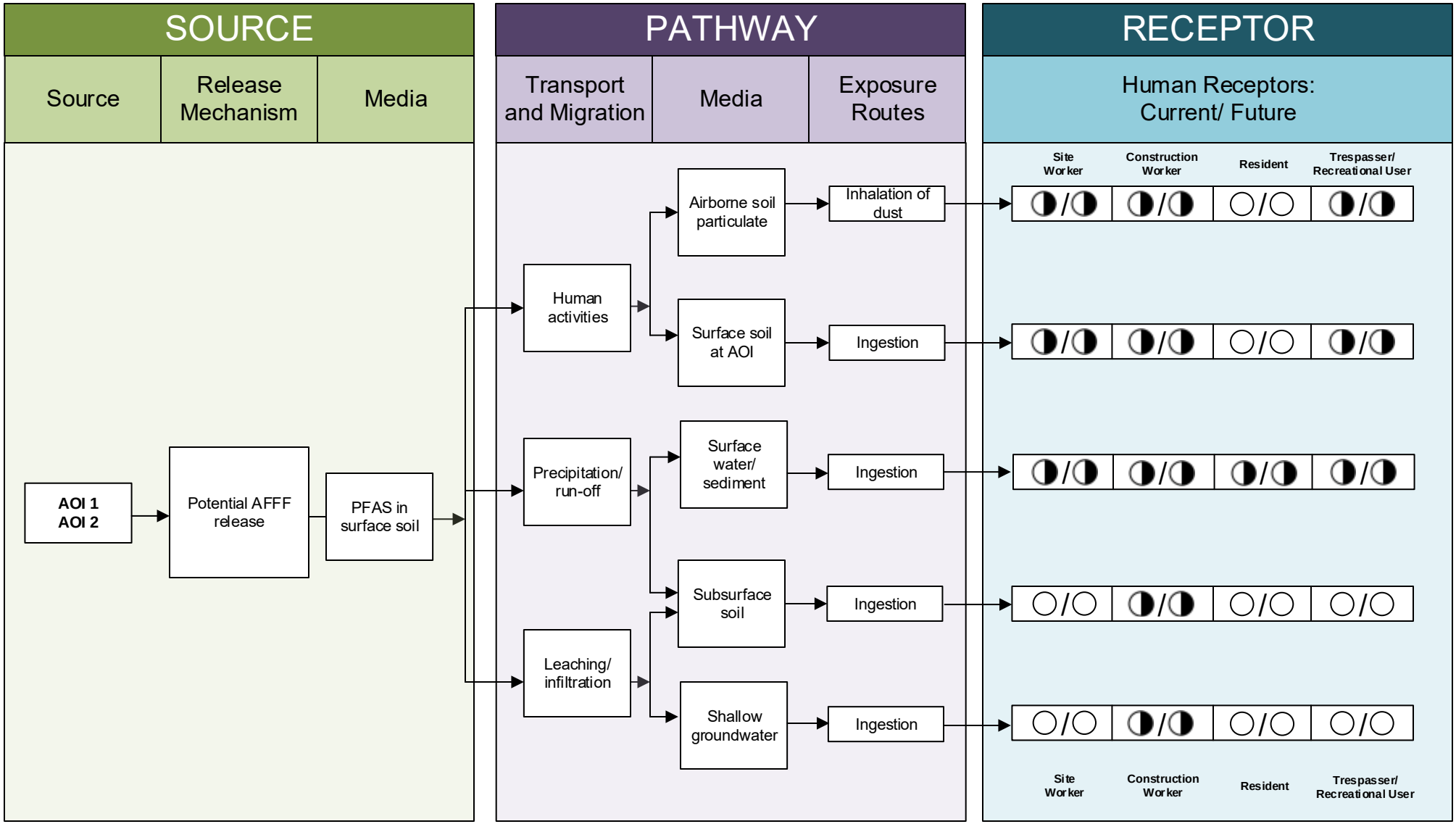


LEGEND

- Flow-chart stops
- Flow-chart continues
- Partial/ possible flow
- Incomplete pathway
- Possible complete pathway
- Complete pathway

Notes:

1. The resident receptor refers to an off-site resident.

2. Current risk practice suggests the exposure pathway for dermal contact is insignificant compared to ingestion, but supporting data is sparse and continues to be studied.

Figure 6-2
Preliminary Conceptual Site Model
RMTC, AR

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 current RMTC. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Two AOIs related to potential PFAS release were identified (**Table 7-1**) at the current RMTC during the PA (**Figure 7-1**):

Table 7-1 AOIs at RMTC

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Echo Pad	ARARNG	As early as 2006 until 2018
AOI 2	All American Landing/Drop Zone	U.S. Air Force	As early as 1996

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 the current RMTC is shown on **Figure 6-2**, 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 No Suspected Releases, RMTC

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
AOC 3	ARARNG	Interviewees indicated that only water was used during training events.
Buildings 70200/70201 – Fire Station	ARARNG	Interviewees indicated that AFFF was only stored in one firetruck at Building 70200 but was never used or spilled near the area.
Building 28002	ARARNG	Although the fire suppression tank was actively leaking AFFF at the time of the VSI, the spillage was properly contained and cleaned the following day. A potential PFAS release to the environment at Building 28002 is not suspected.
Building 2800 - AASF	ARARNG	It could not be confirmed if AFFF leaked into the floor drains of the tank room, and any AFFF discharge would most likely be minimal. In addition, the floor drains connect to the facility WWTP, so a potential PFAS release to the environment at Building 2800 – AASF is not suspected. Minimal spillage of AFFF may have occurred when refilling the ARFF vehicles parked at Building 2800; however, any spillage was

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
		captured by spill pads and then disposed into a dumpster.
Wash Bay	ARARNG	Only 5-gallon buckets of Class A foam (non-AFFF) were found stored in the Wash Bay during the VSI. Interviewees reported that there were no spills or leaks from the buckets.
1998 Airplane Crash Area		Interviewees indicated that only water was used in the emergency response incident.
Range Area	ARARNG	Interviewees indicated that only water and Class A foam were used in the emergency response incident.

Two potential off-facility sources of PFAS were considered in the local area surrounding the current RMTC through interviews or review of previous environmental investigations, including the Little Rock AFB, where PFAS has already been investigated in a PA. The two adjacent sources are located in the inferred downgradient groundwater and surface water flow path and are not expected to have impacts on environmental media at the RMTC.

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 predominantly based on the information provided during interviews with personnel who had direct knowledge of PFAS use at the facility. Sometimes the provided information was vague or conflicted with site observations. 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.

The following **Table 7-3** summarizes the uncertainties associated with the PA:

Table 7-3 Summary of Uncertainties

Area of Interest	Source of Uncertainty
AOI 1: Echo Pad	It is unknown if the fire training activities involved AFFF or some other type of firefighting foam. The AASF Fire Chief indicated that all the remaining AFFF was stored in the Wash Bay, but there was no evidence of AFFF storage at the AASF.

	It is unknown when fire training activities began and what might have occurred prior to the tenure of the AASF Fire Chief (extending 13 years).
AOI 2: All American Landing/Drop Zone	It is unknown if the Little Rock AFB firetruck parked at the All American Landing/Drop Zone actually leaked AFFF, although the problem of leaking firetrucks was systematic due to the corrosive nature of AFFF. The Little Rock AFB Fire Chief, whose knowledge extends 32 years, did not observe any AFFF leakage from the firetruck in the area. However, AFFF leakages from firetrucks have been reported at Little Rock AFB (HydroGeologic, Inc., 2015).
AOC 3	The RMTC Environmental Deputy Chief stated with first-hand knowledge that no fire training activities with AFFF occurred at AOC 3. However, it unknown what occurred before his tenure (extending 28 years).
Building 2800 – AASF	It is unknown if there was a leak of AFFF from the fire suppression system tank. Rust staining with white residue was observed on the concrete floor of the tank room. RMTC personnel stated the staining was most likely from water leaks, but an AFFF leak was possible.
Wash Bay	The AASF and CRFD Fire Chiefs indicated that all the remaining AFFF was stored in 5-gallon buckets at the Wash Bay. However, aside from the AFFF fire suppression system tanks, there was no AFFF storage observed during the VSI. Only Class A foam (non-AFFF) of the brands Chemguard and National Foam was observed in the Wash Bay.

7.3 Potential Future Actions

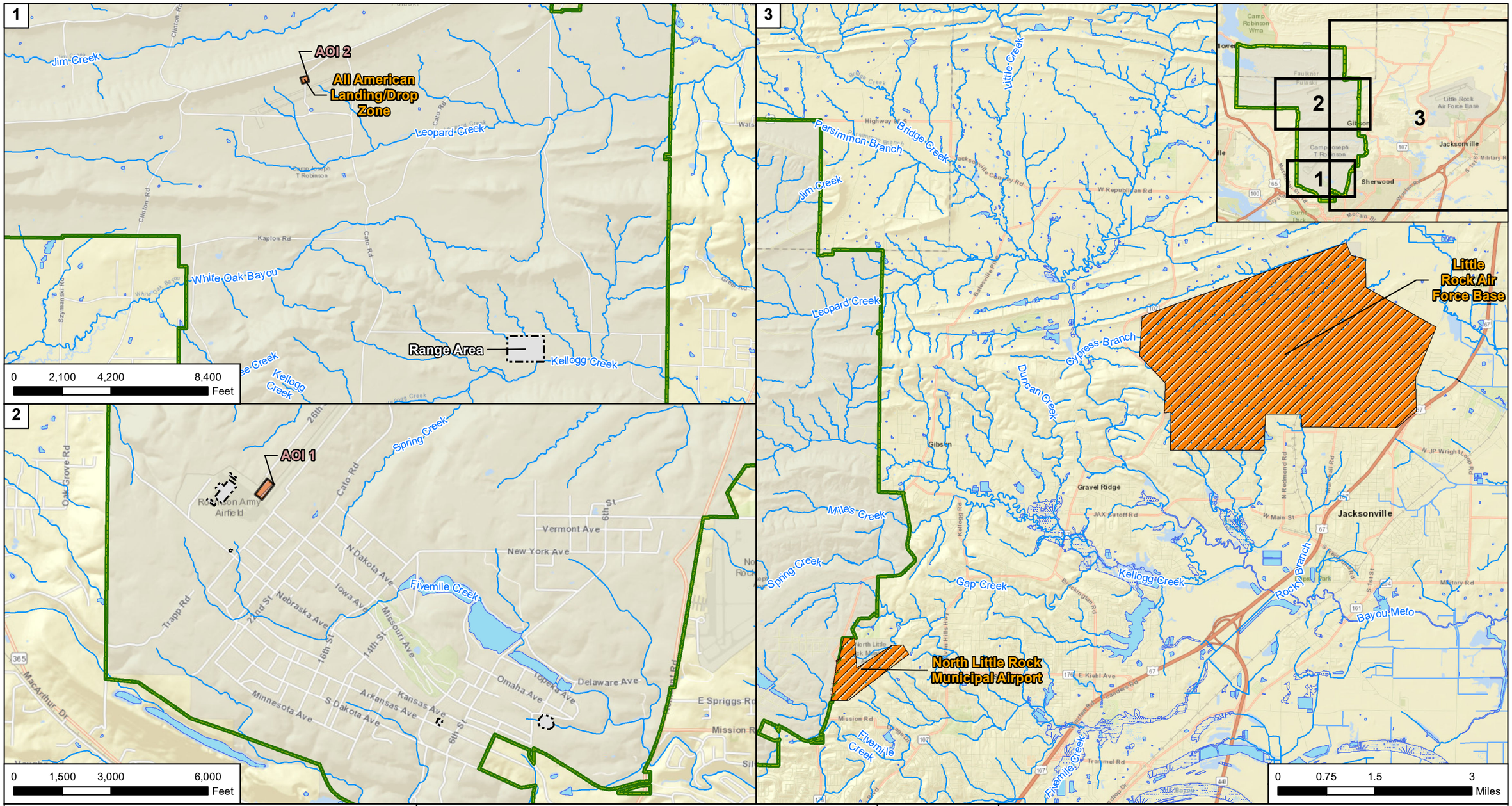
Based on the documented absence (1991 to present) of the use or release of AFFF from AOC 3; Buildings 70200/70201, 28002, and 2800; the Wash Bay; the 1998 Airplane Crash Area; and the Range Area, evidence does not indicate that current or former ARNG activities having contributed PFAS contamination in media at these locations. These locations will not move forward in the CERCLA process.

Interviews and records (covering 1991 to present) indicate that current or former ARNG activities may have resulted in potential PFAS releases at the AOIs identified during the PA. Based on the preliminary CSM developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in media at the AOIs. **Table 7-4** summarizes the rationale used to determine if the AOIs 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: Echo Pad	34°50'36.8"N; 92°18'16.8"W	Confirmed location of fire training area with AFFF usage by interviewee with direct knowledge	Proceed to an SI, focus on soil, groundwater, surface water, sediment
AOI 2: All American Landing/Drop Zone	34°55'08.1"N; 92°18'05.0"W	The Little Rock AFB firetrucks were prone to AFFF leakage, so it is possible that the firetruck parked at the All American Landing/Drop Zone may have leaked AFFF.	Proceed to an SI, focus on soil, groundwater, surface water, sediment

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



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SCALE	1:95,040	CHK BY	JZ	3/5/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	3/5/2020

Area of Interest
Potential PFAS Release
No Suspected Release
Facility Boundary
Water Body
Wetland
River/Stream
Canal/Ditch

N

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 RMTC include:

AR ARNG Leasing Information

- Department of the Air Force, Air Combat Command, Land Lease No. USAF-ACC-NKAK-5-96-002

Environmental Data Resources, Inc. Geocheck Report

- 2019 Environmental Data Resources, Inc. Geocheck Report for RMTC, AR

Little Rock Air Force Base PFAS Investigations

- 2015 Final Preliminary Assessment for Perfluorinated Compounds at Little Rock Air Force Base, Little Rock, Arkansas

Previous Investigations Completed at RMTC

- 2003 Report of Water Quality of Streams and Lakes – Robinson Maneuver Training Area, Camp Joseph T. Robinson, North Little Rock, Arkansas
- 2005 Hydrogeologic Investigation Report, Camp Joseph T. Robinson
- 2008 Draft Final Operational Range Assessment Program Phase I Qualitative Assessment report, Camp Joseph T. Robinson, Arkansas
- 2013 Operational Range Assessment Phase II Report, Robinson Maneuver Training Center, Arkansas Army National Guard

RMTC AFFF Waste Manifests

- Uniform Hazardous Waste Manifest – Manifest Tracking Number #015718297 JJK

RMTC Material Safety Data Sheets

- Material Safety Data Sheet – Chemguard 6% AFFF C-601MS

RMTC Site Maps

- Arkansas Army National Guard, Army Aviation Support Facility Drain Path Schematics
- Army Aviation Support Facility Storm Water Map

RMTC Stormwater Pollution Prevention Plan

- 2018 Stormwater Pollution Prevention Plan Analytical Results
- 2019 Stormwater Pollution Prevention Plan Analytical Results
- 2019 Stormwater Pollution Prevention Plan for Industrial Activity, Military Department of Arkansas, Robinson Maneuver Training Center, Army Aviation Support Facility

RMTC Work Orders

- NGB Form 420-R, AASF Fire Suppression Foam Replacement, Project #05180030

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility:____RMTC_____
Interviewer:____ST_____
Date/Time:___7/17/19 @ 0830__

Interviewee:_[redacted]_____ **Title:_ENV Deputy Chief_____** **Phone Number:_[redacted]____** **Email:_[redacted]_____**	Can your name/role be used in the PA Report? Yes Can you recommend anyone we can interview? Yes, [redacted] - retired AASF Fire Chief

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

State ENV Specialist
Training Site ENV Specialist
Environmental Section Deputy Chief
28 years total

2. Where can I find previous facility ownership information?

Cultural Resource MGR- [redacted]

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

Maintenance
Fire Training Areas
Firefighting (Active Fire)
Crash
Fire Suppression Systems (Hangers/Dining Facilities) – **used AFFF in hanger system since 2006**
Fire Protection at Fueling Stations
Non-Technical/Recreational/ Pest Management
Metals Plating Facility
Waterproofing Uniforms (Laundry Facilities)
Other -**None that I know of**

Regarding the All American Zone, there is no known AFFF usage there. The place has been leased to the AFB since the 90s and the yare trying to build a fire crash/response facility there. A lease agreement is available.

4. Fill out CSM Information worksheet with the Environmental Manager. **No definition of CSM**

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?
   1. Yes
   2. Annual
   3. Annual
   4. Yes

PA Interview Questionnaire - Environmental Manager

Facility:____RMTC_____
Interviewer:____ST_____
Date/Time:___7/17/19 @ 0830__

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?

AFFF

JAN 2019

Tank has been refilled (changed out foam and/or topped off) because it is possible there were leaks. The contractor is responsible for this action.

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

Procured with federal funds through purchase request
No

They did not historically track usage because it hasn't been a concern until recently.

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)?
   AFFF 3%
   Ansulite 3% AFC-F-A

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?

Tanks
(2) 1,100 gal
(1) 1,400 gal
Concentrate

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?
    (1) Fire Training Area (AOC-3)

Inactive used from 1986-1990
No AFFF was known to be used
JP4 on wood

This is the area near the staged helicopter on the AASF. AOC-3 was a live burn pit and became a site of environmental investigation where they sampled for diesel/petroleum products. They monitored the site for several years, and then the site received formal closure. [redacted] was present when they did some of the exercises and recalls them only using water to put out fire from wooden pallets. He does not recall seeing them use any foam at the burn pit or seeing storage of the foam in the old facility. If the AFFF was present at the facility, it would be in small amounts (5-gallon buckets).

PA Interview Questionnaire - Environmental Manager

Facility:____RMTC_____
Interviewer:____ST_____
Date/Time:___7/17/19 @ 0830__

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?

None known used

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 known

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

None known

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?

None Known

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?

None known

PA Interview Questionnaire - Environmental Manager

Facility:____RMTC_____
Interviewer:____ST_____
Date/Time:___7/17/19 @ 0830__

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?

Yes
No
No

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

No

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?

See [redacted] –Fire Chief [redacted]

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)?

AASF hanger flood suppression system
Small amount stored in 5 gal buckets at AASF – all turned in unused

Environmental office deals with all waste turned in from airfield. There has been minimal amount turned in aside from the AFFF tote they received from the AFB

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

None

PA Interview Questionnaire - Environmental Manager

Facility:____RMTC_____
Interviewer:____ST_____
Date/Time:___7/17/19 @ 0830__

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?

Yes

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

Past studies RFI, hydrologic study
DCSEN Environmental office

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?

All AFFF turned in DRMO
Bulk Flood system changed out by contractor

PA Interview Questionnaire - Environmental Manager

Facility:____RMTC_____
Interviewer:____ST_____
Date/Time:___7/17/19 @ 0830__

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?
[redacted] - retired AASF Fire Chief – [redacted] - has been in poor health

PA Interview Questionnaire – Fire Station

Facility:____RMTC_____
Interviewer:___ST_____
Date/Time:___7/17/19 @ 0730_

Interviewee: [redacted] **and** [redacted] **Title:____AASF Team Leader_____** **Phone Number:**[redacted] **Email:**[redacted]	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? Y or N _____Y_____

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

Over 12 years at AASF and Asst. Fire Chief

~13 years at AASF

2. What can you tell us about the history of 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 (e.g., ramp washing) - no
Fire Training Areas- 12 years
Firefighting (Active Fire) - no
Crash - no
Fire Suppression Systems (Hangers/Dining Facilities)AASF- Airfield
Fire Protection at Fueling Stations - no
Non-Technical/Recreational/ Pest Management - no

FTA was on old concrete ramp/pad at AASF; involved live burns, pump and roll exercises, and nozzle testing on parked helicopter or truck; used to occur on ~annual basis but hasn't occurred in the last five years; the last time they sprayed any foam at the FTA was last November.

Recalls they used to spray the whole concrete pad with foam, but the last time they did that was ~13 years ago. They used an old crash truck with a 60-gal foam tank and used about 45 gallons of it. Usually, they just discharge short bursts from the nozzle.

3. 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 at the AFFF/suppression systems?

AASF – installed when building was constructed
Annual
Annual-However, not as often as required; tests involve looking at gauges, checking pressure

4. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?

Yes, AFFF

PA Interview Questionnaire – Fire Station

Facility:____RMTC_____
Interviewer:___ST_____
Date/Time:___7/17/19 @ 0730_

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

AASF Budget
No

Supply team at airfield keeps track

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

3% of varying brands – stated the remnants are stored at the AASF in the green barrels. Total AFFF acquired estimated to be about 60-gallons contained in crash truck and ~30 x 5-gallon buckets. Total is ~210 gallons of AFFF.

7. Is AFFF formulated on base? If so, where is the solution mixed, contained, transferred, etc.?
No

8. 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?
Drums and 5 gal buckets

9. How is the AFFF transferred to emergency response vehicles, suppression systems, flightline extinguishers? Is/was there a specified area on the facility where vehicles are filled with AFFF and does this area have secondary containment in case of spills? How and where are vehicles storing AFFF cleaned/decontaminated?
Fill trucks with drums and fork lift. Suppression systems by contractor. Vehicles are filled in front of station.

Spills occurred but they always had pads underneath the vehicles to catch any spills. They used to refill with a pump, but it didn't work very well so they started doing it manually.

10. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located?
ARFF-1 and ARFF-2 at AASF Fire station

ARFF-1 is ~5 years old and has 100-gal foam tank.
ARFF-2 is ~7 years old and has 30-gal foam tank.
Both have proportioning valves.

PA Interview Questionnaire – Fire Station

Facility:____RMTC_____
Interviewer:___ST_____
Date/Time:___7/17/19 @ 0730_

11. Any vehicles have a history of leaking AFFF? Do you/did you test the vehicles spray patterns to make sure equipment is working properly? How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?

No Leaking
Yes on Spray patterns with AFFF
Maybe once a year
Airfield Area- Echo Pad

From Echo Pad, drains on all sides radially and foam was sprayed down with water from the hose.

12. 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?

1-FTA
1- Active
2- Months

Does not recall any other FTA than the concrete pad or "Echo Pad". Does not recall training at live burn pit (AOC-3) because this is before his time.

13. What types of fuels/flammables were used at the FTAs?

None , spray patterns only

14. What was the frequency of AFFF use at each location? When a release of AFFF occurs during a fire training exercise, now and in the past, how is/was 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?

N/A

15. Are there mutual aid/use agreements between county, city, local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement? Can you recall specific times when city, county, state personnel came on-post for training? If so, please state which state/county agency, military entity? Do you have any records, including photographs to share with us?

They have an informal agreement to help each other in case of emergency. They do not do any training with the city. They once had one training event at All America DZ with the AFB, but there was no spraying of foam. It was only a "response to the area" training, which occurred ~10 years ago.

PA Interview Questionnaire – Fire Station

Facility:____RMTC_____
Interviewer:___ST_____
Date/Time:___7/17/19 @ 0730_

16. Did individual units come on-post 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 – no training off-facility

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

N/A

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

No-N/A

19. 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?

N/A

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

Foam is used in Bambi Bucket Training by Blackhawks

He provided clarification in follow-up interview that:
They actually only used water from the Engineers Lake and then they dumped the water onto the airfield, aiming at specific targets. No foam was involved.

PA Interview Questionnaire – Fire Station

Facility:____RMTC_____
Interviewer:___ST_____
Date/Time:___7/17/19 @ 0730_

21. 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 water treatment plants, and AFFF ponds)?

None

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

No

23. 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?

Turned In to DRMO ~120 gallons. These were 5-gal buckets that were unused and contained varying brands of AFFF. They disposed the AFFF, because they didn't want to mix different brands.

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

Yes, but no contact info.

PA Interview Questionnaire – Fire Station

Facility:___RMTC_____
Interviewer:___ST_____
Date/Time:__7/16/19 @ 1300___

Interviewee:_[redacted]_____ **Title:__Fire Chief, CRFD_____** **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 _____

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

17 years total
1998 started at Department of Public Safety. He left facility between 1998-2001 and then came back. Roles include: patrol officer, lieutenant, Director of Public Safety, Fire Chief

In 2015/2016, the Department of Public Safety (DPS) split into separate police and fire departments when they used to be combined. The AASF used to have their own fire department separate from DPS but combined to form the Camp Robinson Fire Department (CRFD). [redacted] was the only firefighter/fire chief at the AASF for a while.

2. What can you tell us about the history of 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 (e.g., ramp washing)
   Fire Training Areas
   Firefighting (Active Fire)
   Crash
   Fire Suppression Systems (Hangers/Dining Facilities)
   Fire Protection at Fueling Stations
   Non-Technical/Recreational/ Pest Management

CRFD has AFFF but very rarely use it due to the cost of the material. If they have any range or vehicle fires, the usual response is to let it burn out on its own. They do not use foam in any response.

3. 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 at the AFFF/suppression systems?

Yes at AASF

4. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?

Yes

PA Interview Questionnaire – Fire Station

Facility:___RMTC_____
Interviewer:___ST_____
Date/Time:__7/16/19 @ 1300___

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

N/A

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

Ansul 3%

7. Is AFFF formulated on base? If so, where is the solution mixed, contained, transferred, etc.?

Mixed on vehicles

8. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?

Stored only on AASF probably near wash rack

9. How is the AFFF transferred to emergency response vehicles, suppression systems, flightline extinguishers? Is/was there a specified area on the facility where vehicles are filled with AFFF and does this area have secondary containment in case of spills? How and where are vehicles storing AFFF cleaned/decontaminated?

They don't service mobile fire extinguishers, because a private company/contractor will do it for them. The mobile fire extinguishers stationed on airfield contain dry chemical, not foam. They have 5-gallon buckets of AFFF.

10. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located?

All vehicles have foam capability and he can recall foam being filled in vehicle. He estimates they have ~10 vehicles → there are two firetrucks at the AASF and 4 universal train vehicles (UTVs). All vehicles are either at AASF or Bldgs 70200/70201.

PA Interview Questionnaire – Fire Station

Facility:___RMTC_____
Interviewer:___ST_____
Date/Time:__7/16/19 @ 1300___

11. Any vehicles have a history of leaking AFFF? Do you/did you test the vehicles spray patterns to make sure equipment is working properly? How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?

Engine 500 might still have AFFF on it and is located at Bldg 70200. The engine has a capacity of 75-gal for water on tank and foam capacity of 5-gal. No nozzle testing occurs with the truck.

12. 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?

The only fire training activities are where they just practice setting up the firetruck and staging area. They don't even pull hose. They have done fire training over at the Little Rock Air Force Base burn pit. This involved a vehicle fire or C130 simulator incident. However, they still do not do training with AFFF.

They don't set fires except they did set fire to one house in ~2016 and just watched it burn. They squirted water on the surrounding trees.

13. What types of fuels/flammables were used at the FTAs?

N/A

14. What was the frequency of AFFF use at each location? When a release of AFFF occurs during a fire training exercise, now and in the past, how is/was 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?

N/A

15. Are there mutual aid/use agreements between county, city, local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement? Can you recall specific times when city, county, state personnel came on-post for training? If so, please state which state/county agency, military entity? Do you have any records, including photographs to share with us?

The CRFD responds to fire emergencies. Prior to CRFD, it was the Department of Public Safety. There is no official agreement but they may call the Little Rock Fire Department for assistance. The AFB may have own crash trucks on the leased airfield (All American Zone), but the CRFD would also respond in case of any emergency in the area.

PA Interview Questionnaire – Fire Station

Facility:___RMTC_____
Interviewer:___ST_____
Date/Time:__7/16/19 @ 1300___

16. Did individual units come on-post 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?

The Air Force sends two firetrucks to All American Zone if they are doing any aircraft touch and go training. However, the firetrucks just sit there and do not discharge anything.

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

Yes, they have trained off-facility at Little Rock AFB and Jacksonville AFB. No training off-facility involved foam.

18. 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?

There was an ultralight plane crash site near the WWTP. This happened in ~1998. There was no foam used in response; only water. It was responded to by the Little Rock Fire Department.

19. 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

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

No

PA Interview Questionnaire – Fire Station

Facility:___RMTC_____
Interviewer:___ST_____
Date/Time:__7/16/19 @ 1300___

21. 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 water treatment plants, and AFFF ponds)?

N/A

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

No

23. 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?

They acquired an AFFF tote from the AFB for free. They have turned in this tote as well as other 5-gallon buckets to DRMO unused. This goes to a consolidated waste lot and then gets properly disposed into a landfill. They have waste manifests available.

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

[redacted]

PA Interview Questionnaire - Other

Facility:__RMTC_____
Interviewer:___ST_____
Date/Time:__7/16/19 @ 0915__

Interviewee:__[redacted] Mcadoo_____ **Title:**_State Environmental Specialist / Ecologist and Hazardous Waste Manager **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:
2 / 3 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?

No crashes known	**Known Uses**
AFB leases runway on base, but no known fire training activities in the area	Use
Potentially only known impacted area is AOC 3	Procurement
They have done Landnav and firearm training with the AFB and Air National Guard but no known fire training together.	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

PA Interview Questionnaire - Other

Facility:__RMTC_____
Interviewer:___ST_____
Date/Time:_____

Interviewee:__[redacted]_____ **Title:___**Little Rock AFB Chief, Fire and Emergency Services **Phone Number:**__[redacted]_____ **Email:**___[redacted]_____	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:
See attached email for responses to questions

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?

See attached email for responses to questions	**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

[redacted]

From: [redacted] >
Sent: Monday, December 09, 2019 3:51 PM
To: [redacted]
Cc: [redacted]
Subject: RE: ARNG PFAS: AFFF investigation at Camp Robinson, AR

I've been at Little Rock AFB For 32 years. I've served in positions from a basic firefighter to the Fire Chief. For the first six years I was enlisted in the US Air Force and afterwards as a Department of Defense Civilian. I'm ok being identified.

v/r,

[redacted]
Chief, Fire & Emergency Services

[redacted]

"Keep reaching beyond your best, because
better is a never ending quest." ~Anonymous

From: [redacted]

[redacted]
Subject: [Non-DoD Source] RE: ARNG PFAS: AFFF investigation at Camp Robinson, AR

Good morning Chief [redacted]

Thank you for your responses. They have been very helpful to our investigation. My only remaining questions are for recordkeeping purposes:

1. How many years have you been at Little Rock AFB and what roles or activities have you served?
2. Are you comfortable with your name or role being used in our Preliminary Assessment report?

Regards,

[redacted]

From: [redacted]

Good Afternoon [redacted]

As requested, here are the answers to the questions you forwarded to me.

1) Have the AFB firefighting vehicles parked at the All American Drop Zone ever leaked or been known to leak AFFF?
    a. No. I am not aware of any AFFF leaks which have occurred from any of the Air Force vehicles that have been used at the All American Landing/Drop Zone (AALZ).
2) Have the AFB firefighting vehicles ever been used for any emergency response at the All American Drop Zone?
    a. No emergency at the AALZ has required the use of AFFF agent.
3) Where in the All American Drop Zone are the AFB firefighting vehicles parked?
    a. Current parking is located along the active runway, at approximately the mid-point on the north side. There is a large gravel/hard packed area at that location. (see attached map, red circle)
4) How many AFB firefighting vehicles are parked and what kind of vehicle are they (what is their foam capacity)?
    a. We use two vehicles during each standby mission. One is a Water Tender with zero AFFF capacity. The other is a P-19 firefighting vehicle and holds 210 gallons of AFFF. Please note that Little Rock AFB Fire Emergency Services completed our transition to AFFF using short-chain PFAS in December 2016.

v/r,

[redacted]

Chief, Fire & Emergency Services

[redacted]

"Keep reaching beyond your best, because
better is a never ending quest." ~Anonymous

From: [redacted]
Subject: [Non-DoD Source] ARNG PFAS: AFFF investigation at Camp Robinson, AR

Hi Chief [redacted],

I am a NGB contractor conducting an AFFF investigation at Camp Robinson. I was given your contact information by the Camp Robinson Fire Chief [redacted], and I was hoping I could ask you a few questions about the All American Drop Zone, the AFB-leased property at Camp Robinson.

1. Have the AFB firefighting vehicles parked at the All American Drop Zone ever leaked or been known to leak AFFF?
2. Have the AFB firefighting vehicles ever been used for any emergency response at the All American Drop Zone?
3. Where in the All American Drop Zone are the AFB firefighting vehicles parked?
4. How many AFB firefighting vehicles are parked and what kind of vehicle are they (what is their foam capacity)?

Please let me know if you have any questions or concerns in regards to this discussion. I appreciate any information you can share.

Thank you,

[redacted]

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

Names(s) of people performing VSI: ST

Recorded by: ST

ARNG Contact: ML

Date and Time: 7/16/19 @ 1300 / 7/17/19 @ 0930

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

Source/Release Information

Site Name / Area Name / Unique ID: AASF

Site / Area Acreage:

Historic Site Use (Brief Description): Maintenance, Storage, aircraft parking

Current Site Use (Brief Description): same as above

Physical barriers or access restrictions: fence

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):

firefighting training & nozzle testing from at least 13 yrs ago; stopped training 5 yrs ago but one nozzle testing incident last year

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

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

N/A

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

3a. Indicate what businesses are located near the site

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

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

only ARNG

also has AFFF fire suppression system that has leaks

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% Ansul

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

~annually, one active leak in pump room, other leaks possible in other pump room

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

replaced once in September 2018 (according to label)

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

one pump room had floor drain

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

all drainage eventually leading to Arkansas River

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.

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):

Built new aviation building in ~2020

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:

fenced

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:

~1 mile to west

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

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

Oak Grove Elementary School ~1.5 miles to west

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

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

Engineers Lake ~1.2 miles Southeast

Visual Survey Inspection Log

Additional Notes

- Concrete pad had multiple cracks in pavement & could present potential migration pathway
- AOC 3 area was also inspected, which is a former live burn pit near AASF
  - ↳ suspected only water used in exercises according to witness Doug Ernst
  - ↳ site of environmental investigation but reached formal closure

Photographic Log

Photo ID/Name	Date & Location	Photograph Description

Visual Site Inspection Checklist

Names(s) of people performing VSI: ST

Recorded by: ST

ARNG Contact: ML

Date and Time: 7/17/19 @ 1030

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

Source/Release Information

Site Name / Area Name / Unique ID: All American Zone

Site / Area Acreage:

Historic Site Use (Brief Description): drop zone and site of touch and go exercises from Little Rock AFB (leased from RMTC)

Current Site Use (Brief Description): same as above

Physical barriers or access restrictions: need permission to access

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

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

AFB will always bring fire crash vehicles on standby but never spray

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

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

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

only AFB

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.

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:

within facility gate

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:

AFB

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

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

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:

Visual Survey Inspection Log

Additional Notes

also Site of one training incident that Camp Robinson Fire Department participated in ; however , training did not involve any spraying of anything . They were just practing how to respond in case of emergency at the field .

Photographic Log

Photo ID/Name	Date & Location	Photograph Description

Visual Site Inspection Checklist

Names(s) of people performing VSI: ST

Recorded by: ST

ARNG Contact: ML

Date and Time: 7/16/19 @ 1430

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

Source/Release Information

Site Name / Area Name / Unique ID: Camp Robinson Fire Department – Bldgs 70200 & 70201

Site / Area Acreage:

Historic Site Use (Brief Description): Firehouse, vehicle storage

Current Site Use (Brief Description): Same as above

Physical barriers or access restrictions: within facility gate

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):

only Class A foam storage

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

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

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

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.

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:

with facility gate

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:

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:

Visual Site Inspection Checklist

Names(s) of people performing VSI: ST

Recorded by: ST

ARNG Contact: ML

Date and Time: 7/17/19 @ 1015

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

Source/Release Information

Site Name / Area Name / Unique ID: Range 24

Site / Area Acreage:

Historic Site Use (Brief Description): prescribed burn area, training range

Current Site Use (Brief Description): same as above

Physical barriers or access restrictions: within facility gate

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

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

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

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.

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:

within facility gate

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:

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:

Visual Survey Inspection Log

Additional Notes

During perscribed burn exercise ~ 1 year ago, some leaves underneath a bench caught on fire and had to be put out with Class A foam

Photographic Log

Photo ID/Name	Date & Location	Photograph Description

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Camp Robinson Maneuver Training Center (RMTC)

Why has this location been identified as a site?

There is an AASF and Camp Robinson Fire Department

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

Little Rock Air Force Base is ~4 miles to the east

Training Events

Have any training events with AFFF occurred at this site? *Yes, on AASF concrete pad*

If so, how often? *~annually but hasn't occurred in the past 5 years*

How much material was used? Is it documented? *No documentation. Usually just short bursts from the nozzle but they have sprayed enough to flood the whole pad with foam, using ~45 gallons.*

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? *Varies, see SWPP map of AASF*

Average rainfall? *51 inches, snowfall = 5 inches*

Any flooding during rainy season? *Northeast near Grassy Lake in TA-10/ TA-12*

Direct or indirect pathway to ditches? *Direct pathway to ditches in AASF*

Direct or indirect pathway to larger bodies of water? *AASF may drain to Engineers Lake*

Does surface water pond any place on site? *No*

Any impoundment areas or retention ponds? *Yes*

Any NPDES location points near the site? *Yes, Outfall 001 and WWTP*

How does surface water drain on and around the flight line? *See SWPP map of AASF*

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? *Influenced by geological fault, hydrogeologic bowl near AASF*

Depth to groundwater? *~6 ft bgs, 2 aquifers*

Uses (agricultural, drinking water, irrigation)? *No*

Any groundwater treatment systems? *No*

Any groundwater monitoring well locations near the site? *All over facility but many abandoned*

Is groundwater used for drinking water? *No*

Are there drinking water supply wells on installation? *No, SW intake at Lake Maumelle*

Do they serve off-post populations? *SW intake at Lake Maumelle serves all of central Arkansas*

Are there off-post drinking water wells downgradient

None known but potentially

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? *Yes, still active since WWII, new plant built in mid 90s*

If so, do we understand the process and which water is/was treated at the plant? *UV treatment, no chlorination*

Do we understand the fate of sludge waste? *Sludge drying beds and haul off-facility*

Is surface water from potential contaminated sites treated? *Does not treat stormwater or industrial wastewater; only treats municipal wastewater. Treated water is discharged to a tributary of the Five Mile Creek*

Equipment Rinse Water

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

Yes, eventually drains to Arkansas River from concrete pad. See SWPP map.

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles?

Yes, see answer above. Will run water through nozzles after testing with foam.

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker *Yes*

Construction Worker *Yes*

Recreational User *Yes, people fish and kayak in Engineers Lake as well as other lakes on facility*

Residential *Unlikely*

Child *Unlikely*

Ecological *Yes, multiple wetlands and ponds/lakes*

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?

No

Appendix C
Photographic Log

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Robinson Manuever Training Center	North Little Rock, Arkansas

Photograph No. 1

Date 7/16/2019

Time 13:07

Description:

Residual and rust staining observed nearby a floor drain in the AFFF fire suppression system pump room of Building 2800.

Orientation:

Northwest

Photograph No. 2

Date 7/16/2019

Time 13:09

Description:

The AFFF fire suppression system tank in Building 2800 is shown. The tank has a 1,400-gallon capacity and contains 3% AFFF of the brand Ansulite.

Orientation:

West

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Robinson Manuever Training Center	North Little Rock, Arkansas

Photograph No. 3

Date 7/16/2019

Time 13:15

Description:

A total of eight 5-gallon containers of Class A foam were observed stored in the Wash Bay.

Orientation:

East

Photograph No. 4

Date 7/16/2019

Time 13:36

Description:

Two ARFF vehicles carrying 3% AFFF are shown parked at Building 2800 in front of the AASF fire station.

Orientation:

Northwest

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Robinson Manuever Training Center	North Little Rock, Arkansas

Photograph No. 5

Date 7/16/2019

Time 13:41

Description:

AFFF was found to be actively leaking from an overhead pipe in the fire suppression system tank room of Building 28002. The AFFF was pooled in the area beneath the AFFF tank, which has a 1,100-gallon capacity and contains 3% AFFF of the brand Ansulite.

Orientation:

North

Photograph No. 6

Date 7/17/2019

Time 9:25

Description:

The Echo Pad is an aircraft ramp/pad located at the Robinson Army Airfield where fire training activities involving AFFF are suspected to have occurred. A mock vehicle and Conex box is observed in the distance at the northern corner of the Echo Pad.

Orientation:

North

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Robinson Manuever Training Center	North Little Rock, Arkansas

Photograph No. 7

Date 7/17/2019

Time 9:40

Description:

The approximate area of AOC 3, a former FTA, is shown at the border of the Robinson Army Airfield. Fire training activities are not speculated to have resulted in PFAS release.

Orientation:

Northeast

Photograph No. 8

Date 7/17/2019

Time 10:26

Description:

The All American Landing/ Drop Zone, a property leased to the Department of the Air Force, is shown. The property is used for touch-and-go landing exercises, and an AFFF-containing Air Force Base firetruck is typically parked in the area.

Orientation:

Southwest