

FINAL Preliminary Assessment Report Florence Military Reservation, Florence, Arizona

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

September 2020

Prepared for:



Army National Guard Bureau
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UNCLASSIFIED

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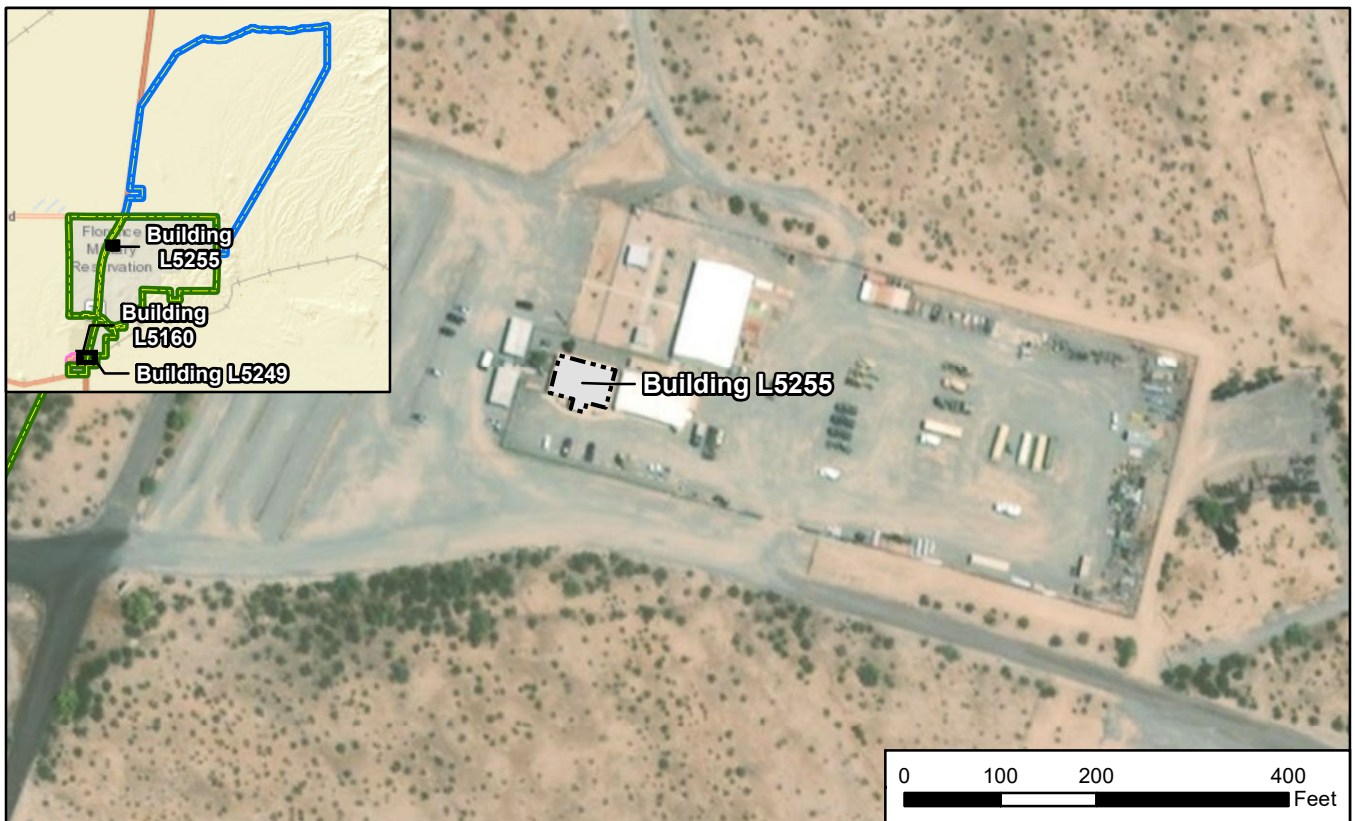
°F	degrees Fahrenheit
AZ	Arizona
AZARNG	Arizona Army National Guard
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surfance
CAP	Central Arizona Project
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
EDR™	Environmental Data Resources, Inc.™
FMR	Florence Military Reservation
FTA	fire training area
gpm	gallons per minute
HUC	Hydrologic Unit Code
NGWA	National Ground Water Association
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site Inspection
SBAH	Silverbell Army Heliport
UCMR3	Unregulated Contaminant Monitoring Rule 3
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VSI	visual site inspection

Executive Summary

The Army National Guard (ARNG) is performing Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide. A PA for per- and polyfluoroalkyl substances (PFAS)-containing materials was completed for Florence Military Reservation (FMR; also referred to as the “Installation” or “facility”) in Florence, Arizona (AZ), to identify areas of known or suspected releases known as Areas of Interest (AOI) and exposure pathways to receptors. The current FMR is constructed on a parcel of land owned by the USACE and leased to the Arizona ARNG (AZARNG). The current agreement expires in 2040. The PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)TM report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 8 November 2018 and completed visual site inspections at locations where PFAS-containing materials were suspected of being stored, used, or disposed; and
- Interviewed current AZARNG FMR personnel during the site visit and AZARNG environmental managers and operations staff.

Three areas (firefighting bays [Building L5249], the Range Operations and Storage [Building L5255] building, and Vehicle Maintenance Shop [Building L5160]) have been identified as No Suspected Release (**Figure ES-1**). Based on the documented absence (2009-present) of the use or release of PFAS-containing materials at FMR, no AOIs were identified during the PA. The USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR3) data indicate that PFOS/PFOA were not detected in a public water system above the USEPA Health Advisories within a 20-mile radius of the facility. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR3 but might be detected if analyzed today.



Legend

- No Suspected Release
- Facility Boundary
- Facility SLUP and Commercial Boundary
- Facility State Deed Boundary

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Florence MR, AZ			
REVISED	9/11/2020	GIS BY	MS	9/11/2020
SCALE	1:2,400	CHK BY	MG	9/11/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	9/11/2020



Summary of Findings

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12420 Milestone Center Drive
Germantown, MD 20876

Figure ES-1

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1. Introduction

1.1 Authority and Purpose

The Army National Guard (ARNG) G9 is the lead agency in performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. This work is supported by the United States (US) Army Corps of Engineers (USACE) Baltimore District and their contractor AECOM Technical Services, Inc. (AECOM) under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017.

The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS) (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 US Environmental Protection Agency (USEPA) issued lifetime Drinking Water Health Advisories for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS. In the absence of federal standards some states have adopted their own drinking water standards for PFAS; however, the state of Arizona does not currently have promulgated standards for PFAS.

This report presents the findings of a PA for PFAS-containing materials at FMR (also referred to as the “Installation” or “facility”) in Florence, AZ, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations [CFR] Part 300), and Army requirements and guidance.

This PA documents the locations where PFAS may have been released into the environment at FMR. The term PFAS used in this PA means the entire suite of per- and polyfluoroalkyl substances, including PFOS and PFOA. PFOS and PFOA are the primary components of AFFF, which has been present at FMR. If a known or suspected release of AFFF or other PFAS-containing material has occurred, that location is designated an Area of Interest (AOI). The process for conducting the PA is discussed in the next section.

1.2 Preliminary Assessment Methods

The following tasks were performed as part of this PA:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)TM report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 8 November 2018 and completed visual site inspections (VSIs) at locations where PFAS-containing materials were suspected of being stored, used, or disposed; and
- Interviewed current Arizona ARNG (AZARNG) Military Reservation (MR) personnel during the site visit and AZARNG environmental managers and operations staff.

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 are described as follows:

- **Section 1 – Introduction:** identifies the project purpose and authority, and describes the facility location, environmental setting, and methods used to complete the PA
- **Section 2 – Fire Training Areas:** describes the fire training areas (FTAs) at the facility identified during the site visit
- **Section 3 – Non-Fire Training Areas:** describes other locations of known or suspected PFAS releases at the facility identified during the site visit
- **Section 4 – Emergency Response Areas:** describes areas of known or suspected PFAS release at the facility, specifically in response to emergency situations
- **Section 5 – Adjacent Sources:** describes sources of known or suspected 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 areas of interest (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

FMR is approximately 40 miles southeast of Phoenix, in Pinal County, AZ (**Figure 1-1**). The town of Florence is located approximately 1 mile to the south of the facility. The current acreage for FMR is 25,754. (AZARNG, 2017)

FMR was established on 28 October 1912, by Executive Order (EO) 1633. The EO removed 5,655 acres from the public domain and established a rifle range for military training. In 1944 part of this original land was set aside to form a prisoner-of-war (POW) camp. The POW camp site was declared surplus in 1950, and the land was given to the US Bureau of Prisons. The land then became a detention center for illegal immigrants. Another section of the original FMR, located on the western side of State Highway 79, was disposed in 1954, sold, and developed into a mobile home and recreational vehicle community. In 1971, the Arizona State Land Department (ASLD) issued a private deed for 60 acres for AZARNG use. In 1990, AZARNG acquired Special Land Use Permits from the ASLD for 17,836 acres of land on the east of State Highway 79, the northern most portion of the property in the Range Operations and training portion. In 2009, the facility occupied 25,854 acres. As of 24 April 2012, the northern portion of the Installation (north of Cottonwood Canyon Road) is no longer leased from the state of Arizona, reducing the overall acreage by over 6,712 acres (AZARNG, 2012). The Installation's current mission is to provide live-fire small arms and maneuver training to AZARNG troops each year.

The federally reserved (EO 1633) portions of FMR generally sustain light to moderate daily use consisting primarily of maintenance activities and small arms range use. The remainder of FMR is used primarily for weekend training exercises and annual training. FMR supports individual

squad, platoon, company, and battalion-level tactical training for aviation, cavalry, engineer, military police, maintenance, signal, transportation, and Explosive Ordnance Disposal (EOD) units.

In addition to the cantonment area, various ranges and training sites are located at FMR. The training sites are used for live-fire training, non-duded impact area, and maneuver training activities. FMR also supports courses for the Arizona Regional Training Institute Officer Candidate School, Military Occupation Specialty, and Non-Commissioned Officer Education System. No production and/or manufacturing of PFAS has occurred at FMR. Additional information regarding installation improvements and history can be found in the 2012 Integrated Natural Resources Management Plan, which appears in **Appendix A**.

1.5 Facility Environmental Setting

FMR is bounded by property administered by different government agencies. Arizona State Trust Land under ASLD administration is located to the west, north, and northeast of the FMR. Land uses under ASLD include agriculture, recreation, and grazing. Lands currently under Bureau of Land Management (BLM) administration are located on the eastern, southern, and southeastern portions of FMR. Land uses under BLM lands include resource conservation, recreation, and grazing. Land southwest of the impact area is under the administration of the Bureau of Reclamation. Private lands are located along the Gila River floodplain on the southern boundaries of FMR. There is also one parcel of privately-owned land to the northeast of FMR. Some of the private lands are used for agriculture and mining operations (gravel/aggregate).

1.5.1 Geology

FMR lies within the Basin and Range Physiographic Province of the US. The Province is characterized by elongate, northwest-trending block-fault mountain ranges separated by broad, relatively flat valleys. These valleys are typically filled with several thousands of feet of alluvial material at their deepest axis. The alluvial sediments consist of varying ratios of poorly lithified to unconsolidated gravels, sands, silts, and clay material, which generally thin to a feather edge near the valley mountain range transition. Normal faults associated with the formation of the Basin and Range Physiographic Province are thought to be caused by crustal extension from the mid-Tertiary Period (approximately 18 million years ago) to the early Quaternary Period (approximately 1.5 million years ago). Bedrock is exposed mainly in the mountain ranges and low hills surrounding the valleys and typically consists of igneous, sedimentary, and metamorphic rock types. (SECOR, 2004)

FMR is located just to the west of an unnamed, northwest-trending, normal fault system that caused the relative upward movement and eastward tilt of the Mineral Mountains. Bedrock exposures in the Mineral Mountains, located less than one mile east of FMR, consist of Proterozoic metamorphic and igneous rocks intruded by late Cretaceous and Tertiary Age silicic-to mafic-type rocks and variable composition dike swarms. Flat to gently tilted Tertiary sedimentary and volcanic rocks overlie the basement sequence on the western side (hanging-wall) of the fault system. Volcanic basaltic bedrock dating from the Tertiary Period outcrops in several locations, with concentrations in the southern portion of FMR. These volcanic intrusives blend with the eroding Pleistocene terrace deposits on the north side of the Gila River. The Tertiary stratigraphic sequence is overlain by Quaternary gravels and fine-grained alluvium.

Mineral resources of known and potential economic value occur to the east of FMR in the vicinity and to the northeast of the Mineral Mountains. Copper, silver, gold, uranium, molybdenum, iron, and lead are major mineral resources in the region. Sand and gravel mining operations are also found in the area. The main access route to these mineral resources, Cottonwood Canyon Road, leads through FMR. Evidence of mining and/or exploration activity, both past and present, can be

observed, especially in the vicinity of the Mineral Mountains. FMR has two gravel pits; one was abandoned some years ago, but the other is still in use. The area also contains some mineral collecting sites often visited by collectors. Minerals that may be collected in the area include amethyst, chrysocolla, chalcedony, opalite, idocrase, pyrite, and other copper-associated minerals.

Geologic mapping at the Installation (SECOR, 2004) concluded that the area west of the Mineral Mountains represents a bedrock pediment extending from the mountain front toward the west. The uppermost bedrock unit of the pediment is believed to be a fanglomerate unit (coarse, poorly sorted, poorly stratified conglomerates accumulated in alluvial fan), underlain by a volcanic unit (basalt) which is underlain by metamorphic and granitic rocks that are characteristic of the Mineral Mountains. The fanglomerate unit ranges in thickness from more than 100 feet (near the south portion of FMR) to a feather edge along topographically high areas. The youngest deposits identified at FMR are alluvium, which is deposited by easterly winds moving fine sand and silt from the broad valley area west of the Installation, and gravels composed of schists, quartzites, and granitoids, which are confined to the bottom portions of drainages originating in the Mineral Mountains and deposited as a result of storms (SECOR, 2004). Groundwater features are shown on **Figure 1-2**.

1.5.2 Hydrogeology

FMR is located on the boundary between the southeastern East Salt River Valley Basin and the Lower Santa Cruz Basin, a subdivision of the Basin and Range Lowlands Hydrogeologic Province. The Installation is also located in what is classified as the Eloy Sub-basin of the Pinal Groundwater Active Management Area. The bedrock contacts beneath alluvial deposits commonly form a barrier against groundwater migration and concentrate water movement lateral to the rock interface. The composition of the hydrologic bedrock is either crystalline igneous or metamorphic units or lithified sedimentary units. Significant vertical movement of groundwater may occur where rock units are faulted, fractured, or have lithologies that permit water flow (e.g., interstitial pores or foliation planes).

Gila River sediments act as a conduit for water movement into the deeper portions of the subsurface. Additional recharge originates from agricultural activities concentrated in Gila River floodplain areas. Groundwater flow in alluvium is variable and may be significantly retarded by caliche horizons or finer-grained floodplain deposits. To evaluate the presence of groundwater underlying FMR, several seismic surveys were conducted, and available information about existing groundwater wells was reviewed. On the basis of this information, it was concluded that groundwater is very scarce at FMR (SECOR, 2002a). Refraction seismic surveys suggest that in some areas, the uppermost bedrock unit of the pediment feature is an interbedded sequence of conglomerates and thinly bedded limey sandstones that appear to inhibit the infiltration of rainfall. Where this layer is not present at the surface, it was concluded that the alluvium that overlies bedrock is of insufficient thickness to retain appreciable amounts of groundwater. This was confirmed by coring conducted by SECOR in two separate areas (SECOR, 2002a).

Arizona Department of Water Resources (ADWR) records indicate the depth to groundwater in the vicinity of FMR is approximately 550 to 600 feet below ground surface (bgs), with regional groundwater flow to the north and southwest. Heterogeneous subsurface conditions, local recharge, and pumping effects result in localized patterns and changes in depth to groundwater. The ADWR groundwater registry indicated there are eight wells at FMR and three wells within a 0.5-mile radius of the Installation. Six of the on-site wells were identified as exploration and geotechnical, with no water use. The remaining two on-site wells are used for commercial and irrigation use. Three off-site wells include one monitoring well, one irrigation well, and one non water use well. (ADWR, 2019)

Migration of potential contaminants is unlikely due to limited precipitation, high evaporation, and depth to water-bearing aquifer units (>100 feet). Generally, exempt wells are less regulated than non-exempt wells. An exempt well is defined as having a pump with a maximum capacity of no more than 35 gallons per minute (gpm). Most exempt wells are used for residential and non-irrigation purposes, noncommercial irrigation of less than two acres of land, and watering stock. A non-exempt well has a pump capacity exceeding 35 gpm. This type of well is generally used for irrigation or industrial purposes. Monitoring wells are designed and installed to obtain representative groundwater quality samples and hydrogeologic information. Other wells include geotechnical, mineral exploration, and vapor extraction wells. Well locations are shown on **Figure 1-3**.

The USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR3) data indicate that PFOS/PFOA were not detected in a public water system above the USEPA Health Advisories within a 20-mile radius of the facility. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR3 but might be detected if analyzed today.

1.5.3 Hydrology

The desert climate, which has an annual average of only 9 to 10 inches of rain, limits the development of perennial streams at the Installation because infiltration and evaporation rates exceed precipitation amounts. Surface water is absent from most drainages between major precipitation events. Rainfall has the potential to produce concentrated high velocity flows in drainages that can transport large particles such as cobbles or boulders. During periods of heavy precipitation, surface water flows into ephemeral drainages. The Installation's drainages drain to the south and southwest. Once off-Installation, these drainages cross the North Side Canal and Casa Grande Canal (collectively referred to as the Central Arizona Project [CAP] Canal). These canals are lined with concrete and run parallel to the Gila River to the north and south. These irrigation canals are fed by the Ashurt-Hayden Diversion Dam, which is part of the San Carlos Irrigation Project. Discharge from area drainages into these canals is prevented by a series of overchutes and culverts that reroute surface water over and under the Canal. Downstream of the Canal, surface water flow continues southward, eventually discharging to the Gila River. Further discussion of the Installation drainages is provided in **Section 3.3**.

The Gila River, which flows from January to March and July to August, is located approximately 0.25 miles south of the Installation and is fed by releases from the San Carlos Lake Dam, located approximately 20 miles northeast of FMR. The Gila River constitutes the largest surface water drainage in the vicinity of FMR. Flow along the river's course has been significantly altered by the construction of dams that restrict the amount of water flowing downstream. However, the river channel can flood during periods of high precipitation. Although characterized as an ephemeral stream and not used as a source of potable water, the Gila River is classified as a water of the US and is under the regulation of EPA's National Pollutant Discharge Elimination System.

Hydrologic Unit Code (HUC) 12 data provided by United States Geological Survey (USGS), distinguishes eight watersheds within the East Salt River Valley and the Lower Santa Cruz Basins. These watersheds include Web Tank Magma Dam Watershed, New Tank Watershed, Cholla Mountain Watershed, Town of Adamsville-Gila River Watershed, China Wash-Gila River Watershed, Town of Florence-Gila River Watershed, Allens Peak Tank Watershed, and Cat Hills Tank-Florence Diversion Dam Watershed. Surface water features are shown on **Figure 1-4**.

1.5.4 Climate

The average daily maximum temperature is 86.7 degrees Fahrenheit (°F), and the average daily minimum temperature is 53°F. Temperature extremes range from 106°F, which typically occurs in

July, to a low of approximately 36°F, which typically occurs in January. Freezing temperatures are uncommon and usually ephemeral.

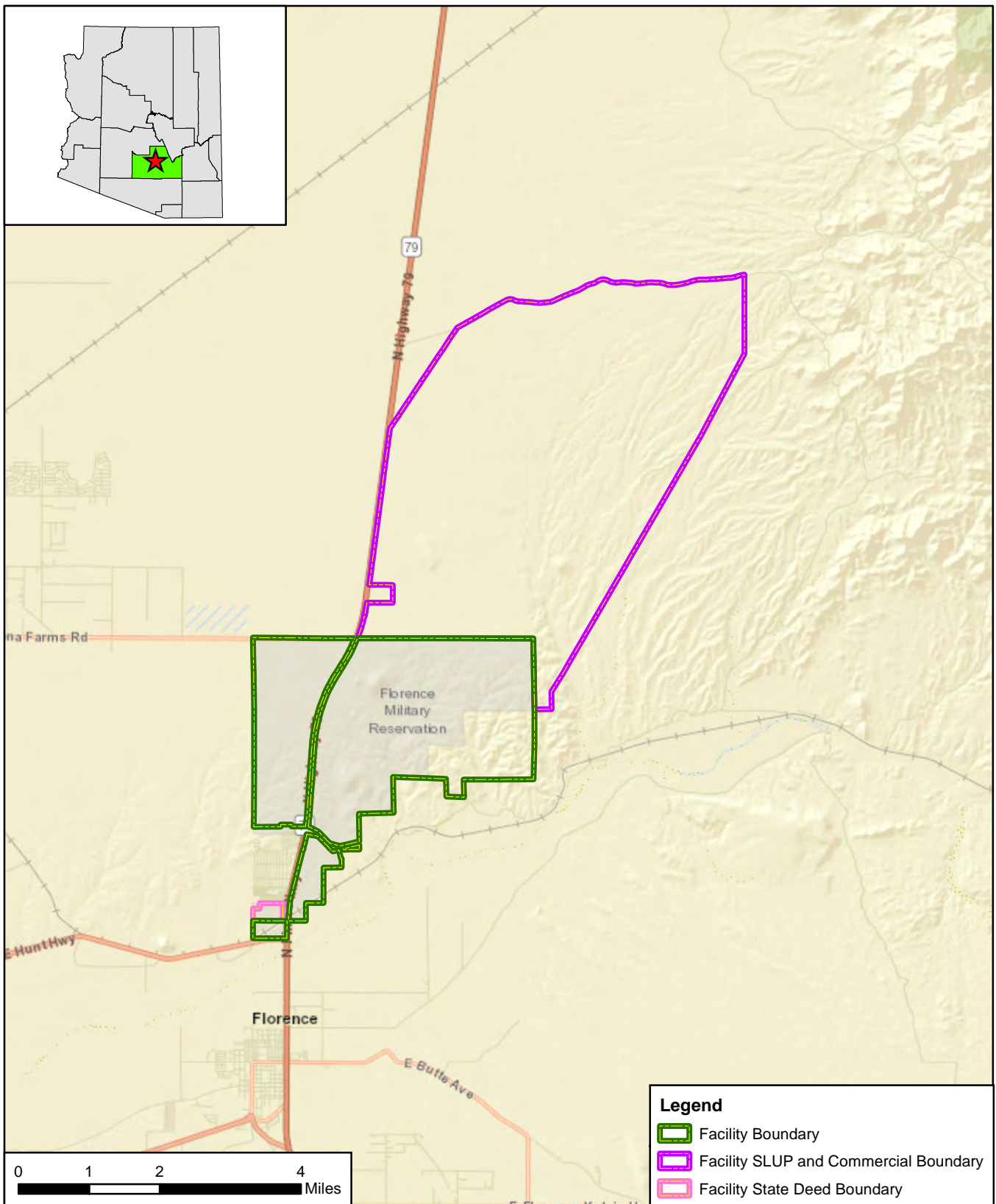
Average annual precipitation is 9 to 10 inches. The rainfall pattern is bimodal. Widespread, gentle, sustained winter rains are spawned by frontal systems from the Pacific Ocean and Gulf of California. Evaporation rates are 15 to 20 times the annual precipitation. July and August are the wettest months, with an average of 1 to 1.5 inches of precipitation falling each month; furthermore, the precipitation typically manifests as brief, violent thunderstorms of limited expanse. The winter rainy season occurs from December to March, when an average total of 3 to 4 inches of rain falls in conjunction with gentler, more widespread storm fronts. Rare snow accumulations are generally minimal (Sellers and Hill, 1974; EA, 2008).

1.5.5 Current and Future Land Use

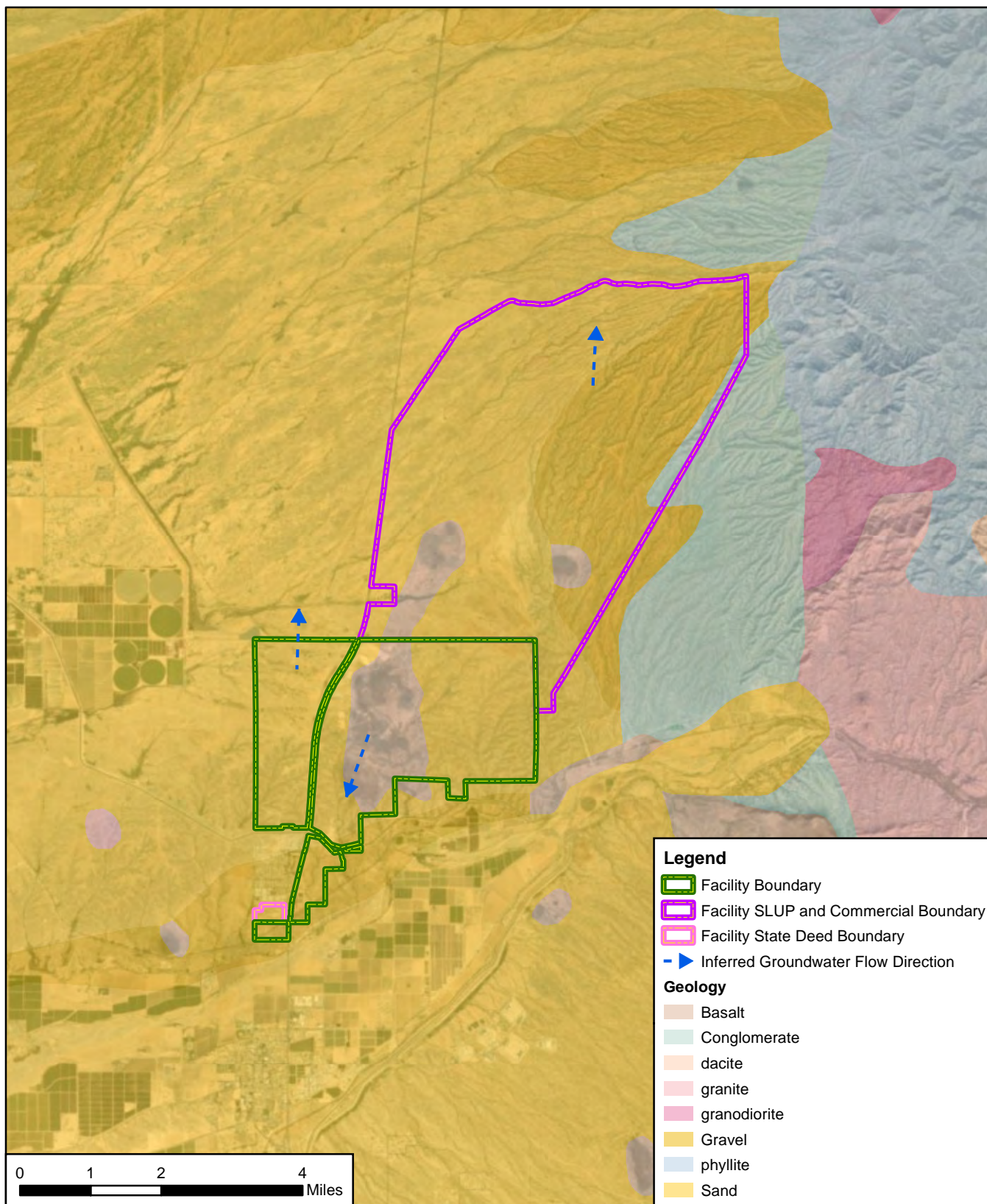
Current land use consists of military training exercises which are coordinated with local residents. Live-fire dates are posted in advance on perimeter signs, and red range flags are flown on active days. In addition to military training, a number of law enforcement and state agencies utilize FMR small arms ranges. At this time land use at FMR is industrial and is not anticipated to change in the foreseeable future.



1.5.6 Soils

Soils on FMR include loams, sandy loams, clay loams, gravelly sandy loams, and very gravelly sandy loams. Grain size of FMR soil ranges from the fine-grained alluvium of the floodplains and valley floors, to the coarser-grained gravel and sand on hilly slopes, to the very cobbly soils and rock outcrops on mountain slopes. These soils were formed from slope alluvium derived dominantly from basalt, but also from andesite, granite, rhyolite, limestone, and schist. In general, the soils of FMR are shallow, highly permeable, and relatively erosion resistant. Many of the soils on FMR have either a hard caliche layer or a surface layer of pebbles, rock chips, or gravel that help protect underlying soils from erosion.

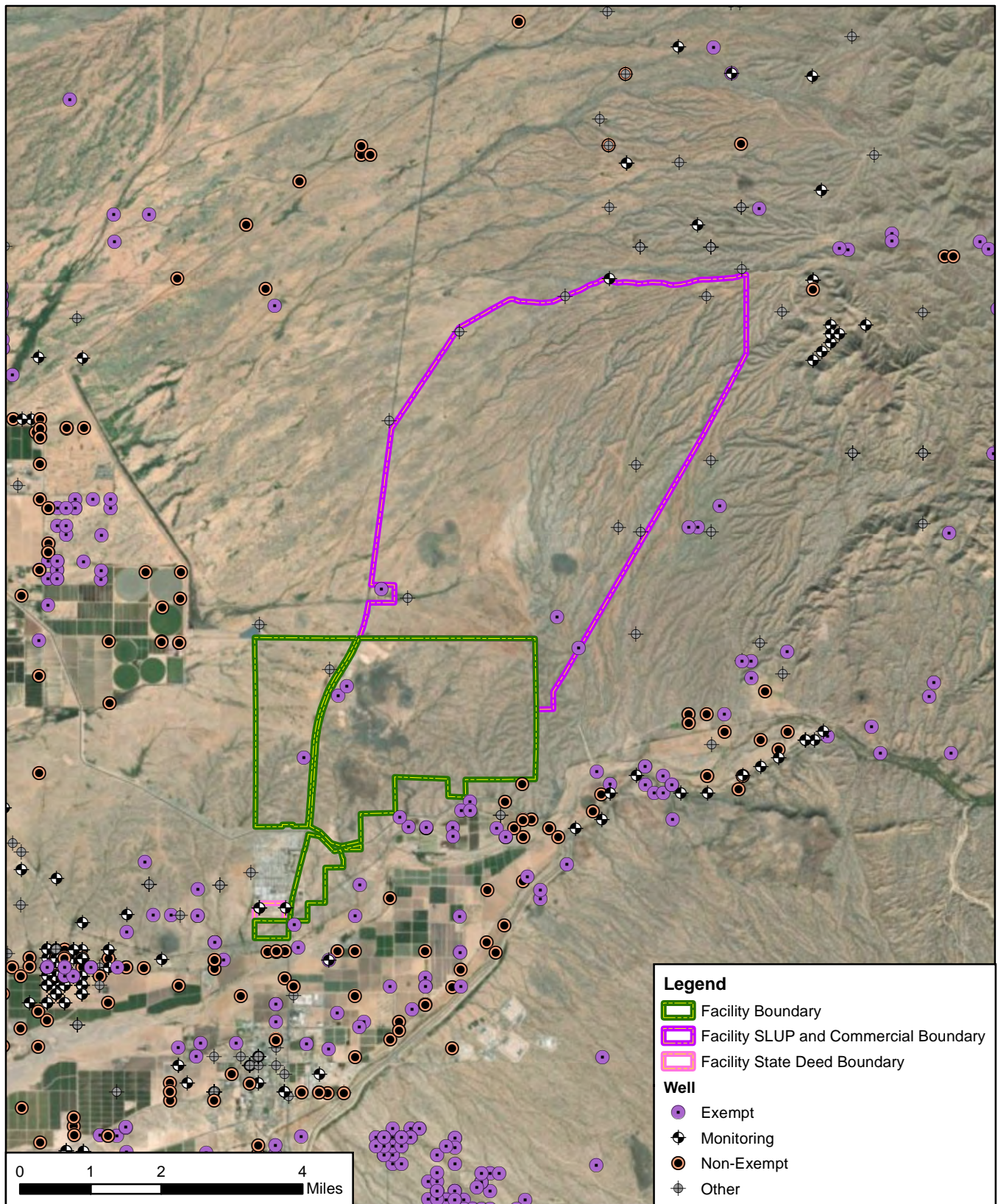


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CLIENT					ARNG						Groundwater Features									
NOTES											Preliminary Assessment for PFAS at Florence MR, AZ									
REVISED		4/19/2019		GIS BY		MS		4/19/2019			 12420 Milestone Center Drive Germantown, MD 20876					Figure 1-2				
SCALE		1:126,720		CHK BY		MG		4/19/2019												
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,				PM		RG		4/19/2019												

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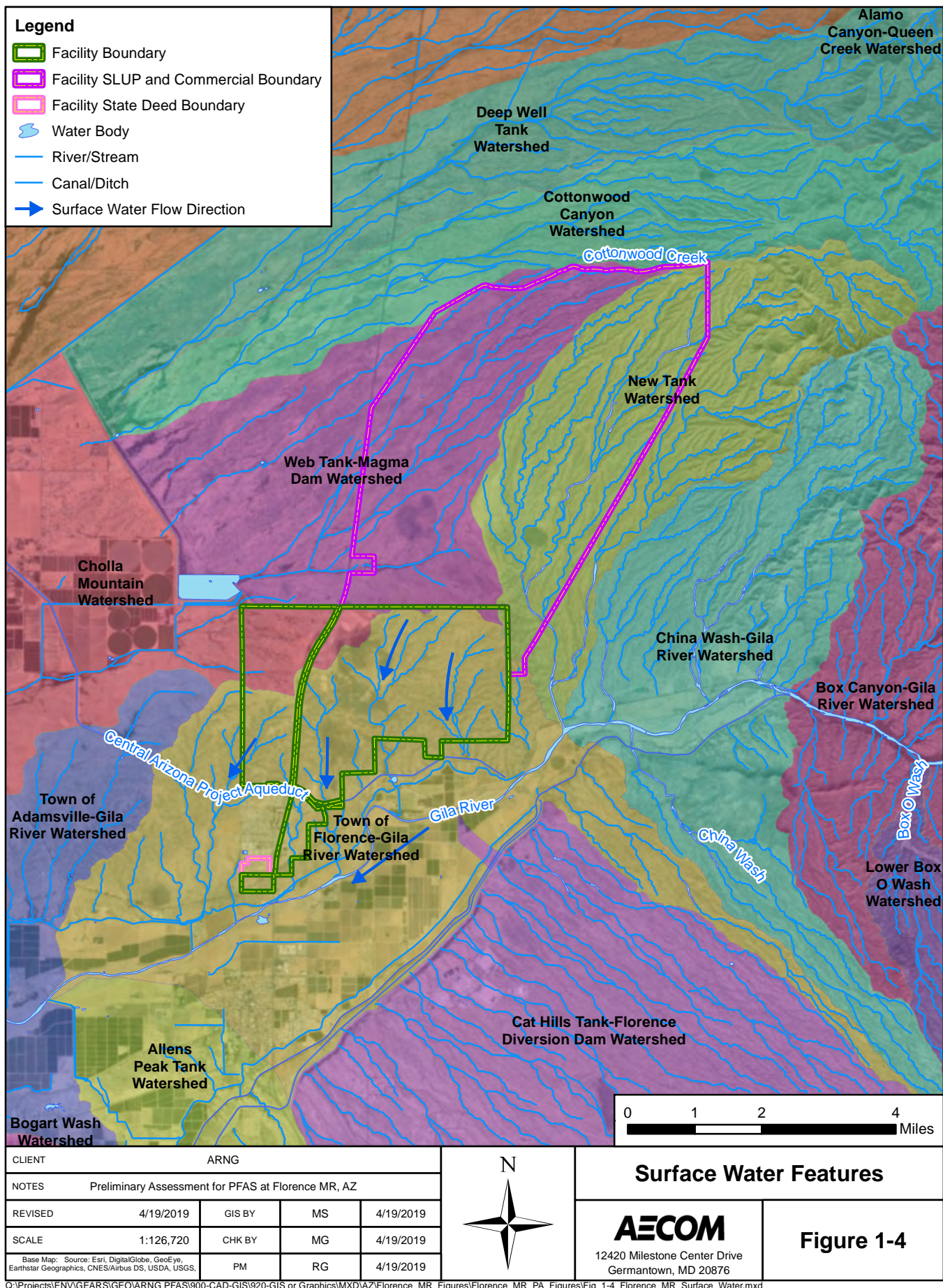


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Well Locations	
AECOM 12420 Milestone Center Drive Germantown, MD 20876	
Figure 1-3	

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2. Fire Training Areas

No FTAs where AFFF may have been potentially released were identified through record reviews and interviews during the PA. Although FMR contains helicopter landing areas, mobile fire extinguishers are not housed in the areas. Training for FMR firefighters involving AFFF use was conducted at Silverbell Army Heliport (SBAH), which is approximately 38 miles south of FMR.

3. Non-Fire Training Areas

In addition to FTAs, the PA evaluated areas where PFAS-containing materials may have been broadly used, stored, or disposed. This may include buildings with fire suppression systems, paint booths, AFFF storage areas, and areas of compliance demonstrations. Information on these features obtained during the PA are included in **Appendices A** and **B**.

Three non-FTAs were identified as a result of this PA; however, no releases of AFFF are known or suspected to have occurred in these areas. Each non-FTA is described below and shown on **Figure 3-1**.

3.1 Building L5249

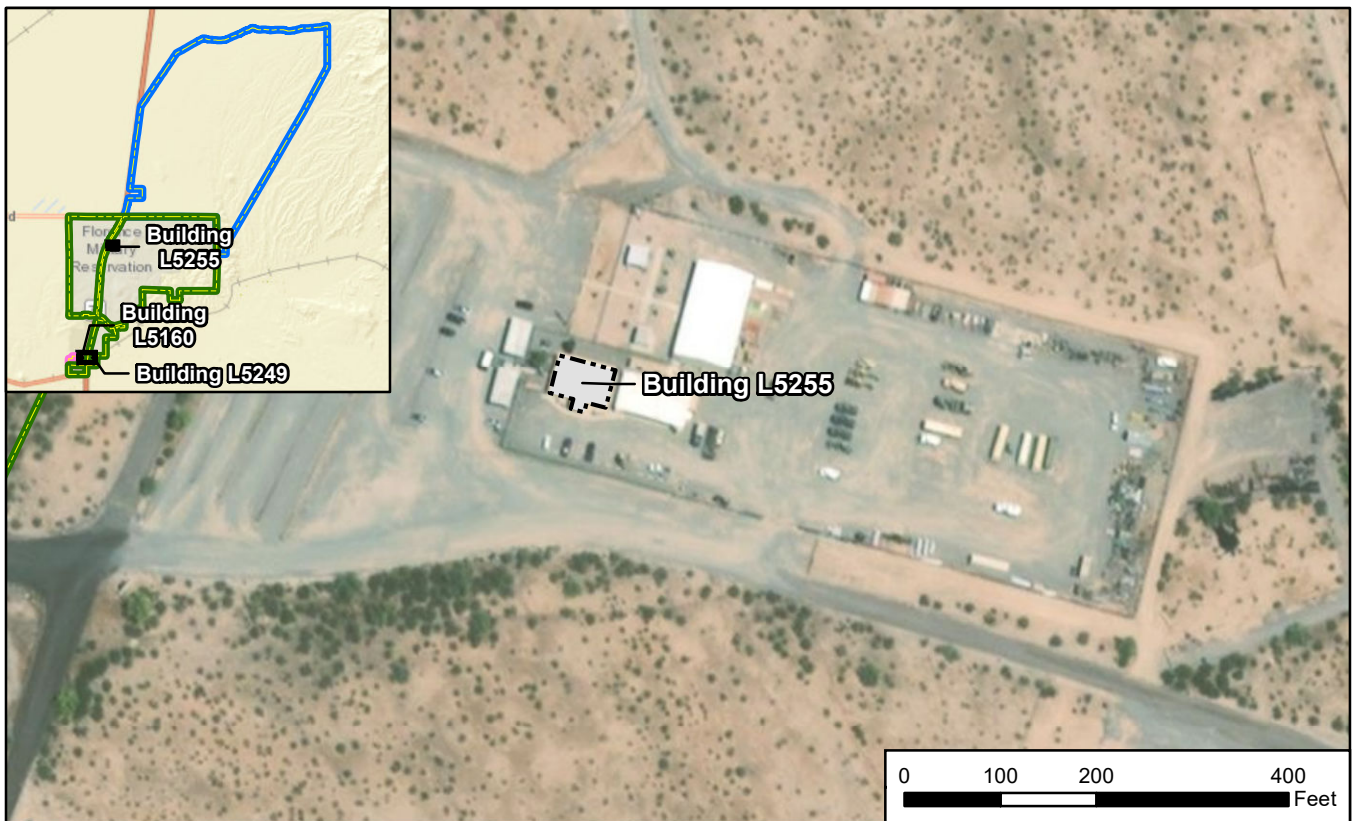
The firefighting bays (Building L5249) are located on the southeastern side of FMR. The geographical coordinates are 33°03'48.2"N and 111°22'34.4"W. A firetruck containing AFFF was previously stored on occasion in the firefighting bays (L5249). The firetruck was driven to SBAH for maintenance and use in fire training activities. FMR personnel stated the firetruck was not used or washed at FMR. The firetruck was removed from FMR sometime between 2011 and 2013, and the building currently serves as vehicle storage. The building is fitted with a fire suppression system that does not contain AFFF. Emergency response is provided by the town of Florence and Pinal County. No bulk AFFF was known to be stored at the facility. No releases of AFFF occurred at the firefighting bays (L5249), and PFAS release to the environment at the firefighting bays (L5249) is not suspected.

3.2 Building L5255

The Range Operations and Storage Building (Building L5255) is located on the northernmost side of FMR. The geographical coordinates are 33°06'24.86"N; 111°22'0.39"W. The Range Operations and Storage Building (L5255) contains buildings and an aboveground storage tank containment area. FMR currently does not have a fueling point, but one may have existed previously. During the site visit, Class A fire extinguishers were confirmed as the fire suppression agent used for the area. Local emergency services are provided by the town of Florence for significant fires on the ranges caused by tracers or other munitions. The few fires that have been started on the ranges have been put out with water or the use of flappers. In some cases, the fires were allowed to burn themselves out due to lack of vegetation in the area. No AFFF was used on the ranges. No releases of AFFF to the environment at the Range Operations and Storage Building (L5255) are suspected.

3.3 Building L5160

The Vehicle Maintenance Shop (Building L5160) is located on the southernmost side of FMR. The geographical coordinates are 33° 3'46.70"N; 111°22'53.80"W. Full vehicle maintenance is conducted in the maintenance shop. No reported vehicle fires or fire incidents in the maintenance shop. No AFFF extinguishers were ever present or used at the vehicle maintenance shop. No releases of AFFF to the environment at the Vehicle Maintenance Shop are suspected.



Legend

- No Suspected Release
- Facility Boundary
- Facility SLUP and Commercial Boundary
- Facility State Deed Boundary

CLIENT		ARNG			
NOTES		Preliminary Assessment for PFAS at Florence MR, AZ			
REVISED	9/11/2020	GIS BY	MS	9/11/2020	
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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	9/11/2020	



Non-Fire Training Areas

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

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. No releases of AFFF have occurred at FMR according to interviews with AZARNG personnel whose knowledge covers 2009 to present and review of EDR™ reports. No emergency response areas were identified within the FMR facility during the PA.

5. Adjacent Sources

Adjoining land uses to FMR are residential and agricultural. During the site visit, no known or suspected sources of PFAS were identified on properties adjacent to FMR.

6. Preliminary Conceptual Site Model

Based on the PA, no release areas were identified as AOIs at FMR. A preliminary conceptual site model (CSM) includes three components necessary for potentially complete exposure pathways related to a site: (1) source, (2) pathway, and (3) receptor. If any of these elements are missing, the pathway is considered incomplete. No known or suspected AOIs were identified on or adjacent to FMR. Therefore, none of the exposure pathways are complete.

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 FMR. The findings presented below are based on a site visit, interviews with FMR personnel, and records search presented in **Appendix A** and **Appendix B**.

7.1 Findings

No PFAS releases relating to current or historical activities at FMR were identified during this PA. **Section 3 (Figure 7-1)** discusses three areas suspected of managing AFFF or PFAS. **Table 7-1** summarizes these areas and presents the rationale as to why they are not considered to be definite sources of PFAS:

Table 7-1: Known or Suspected Release Areas

Known or Suspected Release Area	Used by	Determination	Rationale
Building L5249	AZARNG	No known or suspected PFAS release	A firetruck potentially containing AFFF had been stored on the installation between 2010-2013. However, no AFFF or PFAS releases have occurred on the installation.
Building L5255	AZARNG	No known or suspected PFAS release	No AFFF sources or PFAS releases have been identified. Fire suppression equipment does not contain PFAS.
Building L5160	AZARNG	No known or suspected PFAS release	No AFFF sources or PFAS releases have been identified. Fire suppression equipment does not contain PFAS.

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, other non-traditional activities, or on its disposition.

The conclusions of this PA are based on all available information, including: previous environmental reports, EDRs™, observations made during the VSI, and interviews. Interviews of personnel with direct knowledge of a facility generally provided the most useful insights regarding a facility's historical and current PFAS-containing materials. Sometimes, the provided information was vague or conflicted with other sources. Gathered information has a degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS was first used (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in known or suspected PFAS release

locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected.

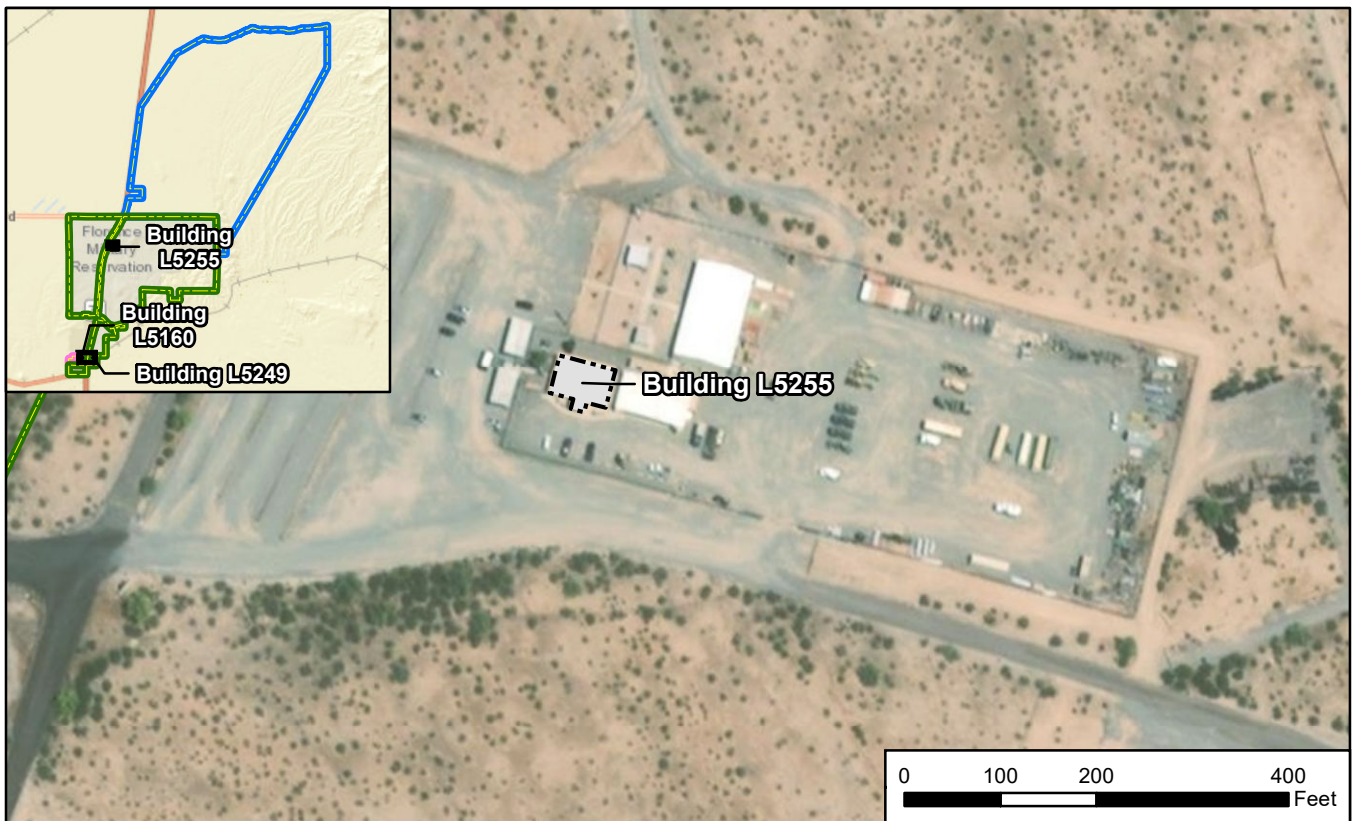
Table 7-2 summarizes the uncertainties associated with the PA:



Table 7-2: Uncertainties within the PA

Area Evaluated	Source of Uncertainty
FMR	No or limited information was available on the use and/or storage of AFFF at FMR prior to 2009. Similarly, interviewees did not have knowledge prior to 2009.

7.3 Potential Future Actions

Based on the documented absence (2009-present) of the use or release of PFAS-containing materials at FMR, no AOIs were identified during the PA. Evidence does not indicate that current or former ARNG activities contributed PFAS contamination to soil, groundwater, surface water, or sediment at the facility or adjacent areas. FMR will not move forward in the CERCLA process.



CLIENT		ARNG				Summary of Findings	
NOTES		Preliminary Assessment for PFAS at Florence MR, AZ				 12420 Milestone Center Drive Germantown, MD 20876	Figure 7-1
REVISED	9/11/2020	GIS BY	MS	9/11/2020			
SCALE	1:2,400	CHK BY	MG	9/11/2020			
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	9/11/2020			

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8. References

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AZARNG, 2012. Florence Military Reservation Integrated Natural Resources Management Plan Update, Florence, Arizona. Final.

AZARNG, 2017. Arizona Army National Guard Installation Atlas. August 2017.

Engineering, Science and Technology, Inc. (EA), 2008. Draft Final Operational Range Assessment Program Phase I Qualitative Assessment Report, May 9, 2008.

SECOR, 2004. Florence Military Reservation Environmental Investigations: Overview of SECOR Work 2000-2004. May 7, 2004.

SECOR, 2002a. Draft Activity Summary Report No.6, Characterize Nature and Extent of Groundwater Contamination, Supplemental Site Investigation, Florence Military Reservation. July 10, 2002.

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

Appendix A

Data Resources

Data resources will be provided separately on CD. Data resources for Florence Military Reservation include:

Environmental Data Resources, Inc™. Geotcheck Report

- 2019 Environmental Data Resources, Inc™. Geotcheck Report for Florence Military Reservation, Arizona

Miscellaneous Data Resources

- 2012 Florence Military Reservation Integrated Natural Resources Management Plan Update
- 2017 Arizona Army National Guard Installation Atlast

Appendix B

Preliminary Assessment Documentation

Appendix B.1

Interview Records

PA Interview Questionnaire - Other

Facility: Florence Military Reservation

Interviewer: [REDACTED]

Date/Time: 02/14/2019 17:05

Interviewee: SG [REDACTED] Title: SGT Phone Number: [REDACTED] Email: N/A	Can your name/role be used in the PA Report? <u>Y</u> or N Can you recommend anyone we can interview? Y or <u>N</u>
Roles or activities with the Facility/Years working at the Facility:	
Since 2010 (9 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 built), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?	
UTES constructed in 2009-2010. Units moved onto facility in 2010. Firefighting bays were constructed in sometime of 2011. SGT [REDACTED] stated the AFFF truck was not stored at the firefighting bays building. The truck was brought on site for drill training. The truck was stored off site. Unaware of any AFFF use during the drills as the interviewee was not in the unit that would use the AFFF for drills. 260 th unit was the unit that used the AFFF for drills but has since transferred from FMR and no longer drill at FMR with the AFFF truck. Firefighting bays used for vehicle storage only.	Known Uses
	Use
	Procurement
	Disposition
	Storage (Mixed)
	Storage (Solution)
	Inventory, Off-Spec
	Containment
	SOP on Filling
	Leaking Vehicles
	Nozzle and Suppression System Testing
	Dining Facilities
	Vehicle Washing
	Ramp Washing
Fuel Spill Washing and Fueling Stations	
Chrome Plating or Waterproofing	

PA Interview Questionnaire - Other

Facility: Florence Military Reservation

Interviewer: [REDACTED]

Date/Time: 02/15/2019 9:20

Interviewee: CW3 [REDACTED] Rank: Chief Phone Number: [REDACTED] Email: N/A	Can your name/role be used in the PA Report? <u>Y</u> or N Can you recommend anyone we can interview? Y or <u>N</u>
Roles or activities with the Facility/Years working at the Facility:	
20 years with Guard; 10 years at UTES; maintenance support	
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 built), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?	
AFFF truck was stored at the former UTES Facility in the firefighting bays building on and off. The truck was removed from facility about 6-8 years ago. The firefighting bays currently serve as vehicle storage. Training and cleaning of AFFF truck was completed at WAATS (also known as SBAH). Fire suppression system in the building does not contain AFFF. Emergency response is provided by town of Florence and Pinal County. There is no fueling point currently on base. May have had a fueling area associated with the old UTES. Base contains helicopter landing areas. No mobile fire extinguishers at the helicopter landing areas. Above ground storage tanks have secondary containment system which is state operated and have class A extinguishers.	Known Uses
	Use
	Procurement
	Disposition
	Storage (Mixed)
	Storage (Solution)
	Inventory, Off-Spec
	Containment
	SOP on Filling
	Leaking Vehicles
	Nozzle and Suppression System Testing
	Dining Facilities
	Vehicle Washing
	Ramp Washing
Fuel Spill Washing and Fueling Stations	
Chrome Plating or Waterproofing	

Preliminary Assessment – Pre-Interview Form

1. Installation Name: Florence Training Center (Range Operations and Storage [L5255])

2. Primary Points of Contact:(Name/Title/Telephone Number/Email Address):	
ARNG:	██████████/FTC Range Manager ██████████
USACE:	
Installation:	AZNG Florence Training Center

3. Suggested Personnel to Interview (Name/Title/Number of Years at Installation/Retired):

██████████	/Manager/2
██████████	/Employee/5
██████████	/Employee/4
██████████	/Employee/8
██████████	/Employee/1.5

4. Is the ARNG property an enclave of a larger facility? What command or authority controls that facility? DoD or non-DoD?

There are some archaeological sites that are within the boundaries of FTC, and in various surrounding areas. Sites are managed by DEMA Environmental and NEPA.

5. Installation History (dates of operation, types of activity, active airfield, firefighting training):

Florence Military Reservation consists of land acquired and controlled under four agreements. The primary source of land was Executive Order 1633, dated October 20, 1912, which originally set aside 6,161.2 acres for use by the National Guard. This land is the subject of this report because the land was previously owned by the federal government. The AZARNG controls additional state land under two separate agreements: 1,361 acres is leased, with effective dates of July 1, 1993, through June 30, 2003; and 17,836 acres is controlled under a special land use permit (SLUP). Addition',d land (840 acres) is leased from the Bureau of Land Management.

6. Potential Sites to Investigate:

Accordance with EPA information on PFAS, PFOA, PFOS, GenX no such productions or manufacturing occur at the FTC. IAW a preliminary assessment report 1993 by ARGONNE NATIONAL LABORATORY no issues were present regarding the Florence Training Site.

7. Have we requested the following information from ARNG?

Lease Information:	YES / NO	Comment: Information may be maintained at Headquarters
Material Purchase Information:	YES / NO	Comment: Information may be maintained at Headquarters

(Attach to the front of the Interview Form)

Preliminary Assessment – Pre-Interview Form

Permit/Transfer Documents	YES / NO	Comment: Information may be maintained at Headquarters
Disposition Records for AFFF	YES / NO	Comment: Information may be maintained at Headquarters

8. Does the Installation have an Administrative Record or a Document Repository? If so, does the installation have the following types of documents? Circle all that apply.

Historical Records Review

Preliminary Assessment

Site Inspections

Remedial Investigation

Remedial Action Documentation

Cultural Resources Management Plan

Natural Resources Management Plan

Firefighting Training Records (if documented)

Responded to an Aircraft Crash

Responded to Forest Fires

Federal Facility Agreement

State Permit

RCRA Permit

NPDES Permit

Environmental Baseline Study

Groundwater Flow Information

Groundwater Studies

Groundwater Treatment Units

Groundwater Monitoring Well Location Map

Surface Water Flow Information

Historical Aerials

9. What GIS data do we have? Do we need? Will aerial photographs be needed? (Ask about these during interview if we do not have)

Various GIS datalayers can be provided if needed.

All aerial photos can be requested through Ms. [REDACTED]

Appendix B.2

Visual Site Inspection Checklists

Visual Site Inspection Checklist

Names(s) of people performing VSI:

Recorded by:

ARNG Contact:

Date and Time: November 8, 2018

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

Source/Release Information

Site Name / Area Name / Unique ID: AZARNG Florence Training Center

Site / Area Acreage: 6,712 acres

Historic Site Use (Brief Description): Rifle range, small arms range, prisoner of war camp, AFFF truck storage

Current Site Use (Brief Description): Live-fire range, maintenances, tactical training

Physical barriers or access restrictions: Gated 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):

N/A

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

Residents are to the east

4. Is this site located at an airport/flightline?

☐ Y ☒ N

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

N/A

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:

N/A

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

N/A

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

N/A

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

N/A

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation?

☐ Y ☒ N

1a. If so, note observation and location:

North Side Canal and Casa Grande Canal

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

☐ Y ☒ N

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

Washes

3. Are monitoring or drinking water wells located near the site?

☐ Y ☒ N

3a. If so, please note the location:

Yes, 1/4 mile radius

4. Are surface water intakes located near the site?

☐ Y ☒ N

4a. If so, please note the location:

N/A

5. Can wind dispersion information be obtained?

☐ Y ☒ N

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

N/A

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:

asphalt/concrete/dirt roads and parking lots

3. Does the site or area exhibit evidence of erosion?

☐ Y ☐ N

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

Unknown

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:

Gated access

2. Who can access the site?

Site Workers / Construction Workers / Trespassers / Residential / Recreational
Users / Ecological

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site?

☒ Y ☐ N

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

East less than 1/2 mile

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

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
Photograph No. 3	11/08/2018; Fire Fighting Bays	Entry door to Fire Fighting Bays
Photograph No. 4	11/08/2018; Fire Fighting Bays	Outside view of doors to Fire Fighting Bays
Photograph No. 5	11/08/2018; Fire Fighting Bays	East side of Fire Fighting Bays
Photograph No. 6	11/08/2018; Fire Fighting Bays	Fire suppression system located within Fire Fighting Bays.

Appendix B.3

Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Florence Military Reservation

Why has this location been identified as a site?

Facility has maintenance shop areas. AFFF was possibly stored in a firetruck at the fire fighting bays (L5249) and removed approximately sometime between 2011-2013.

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

No

Training Events

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

If so, how often? N/A

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

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

Surface Water:

Surface water flow direction? Intermittent surface water only during large rainfall and snowmelt events. Flow direction is south-southeast.

Average rainfall? 9-10 inches

Any flooding during rainy season? Flash flooding

Direct or indirect pathway to ditches? Yes

Direct or indirect pathway to larger bodies of water? yes

Does surface water pond any place on site? Unknown

Any impoundment areas or retention ponds? No

Any NPDES location points near the site? No

How does surface water drain on and around the flight line? N/A

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Southeast

Depth to groundwater? 550 to 600 feet

Uses (agricultural, drinking water, irrigation)? Yes

Any groundwater treatment systems? None known

Any groundwater monitoring well locations near the site? Yes

Is groundwater used for drinking water? Yes

Are there drinking water supply wells on installation? Yes

Do they serve off-post populations? No

Are there off-post drinking water wells downgradient? Yes

Waste Water Treatment Plant:

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

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

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

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

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go? No

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? Firefighting equipment nozzles were tested at Silverbell Army Heliport.

3. Other? N/A.

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker Yes

Construction Worker Yes

Recreational User No

Residential Yes

Child Yes

Ecological Yes

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?
Homes and agricultural areas within 5 miles of the facility.

Documentation

Ask for Engineering drawings (if applicable).


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



Unknown

Appendix C

Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Florence Military Reservation	Florence, Arizona
<p>Photograph No. 1</p> <p>Description:</p> <p>Location: Range Operations and Storage Building (L5255)</p> <p>Looking east. ASTs situated on spill/overfill containment. Location is northern most Florence Military Reservation.</p> <p>Photo Date: 11/08/18</p>		
<p>Photograph No. 2</p> <p>Description:</p> <p>Location: Range Operations and Storage Building (L5255)</p> <p>Looking northeast. Typical Class A fire extinguisher located at the facility. Location is northern most Florence Military Reservation.</p> <p>Photo Date: 11/08/18</p>		

APPENDIX C – Photographic Log		
Army National Guard, Preliminary Assessment for PFAS	Florence Military Reservation	Florence, Arizona
Photograph No. 3 Description: Location: Fire Fighting Bays (L5249) Looking east. Entry door to fire bays. Location is southeastern Florence Military Reservation. Photo Date: 11/08/18		
Photograph No. 4 Description: Location: Fire Fighting Bays (L5249) Looking east. West side of Fire bay. Location is southeastern Florence Military Reservation. Photo Date: 11/08/18		

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Florence Military Reservation	Florence, Arizona
<p>Photograph No. 5</p> <p>Description:</p> <p>Location: Fire Fighting Bays (L5249)</p> <p>Looking south. East side of Fire Bays. Location is southeastern Florence Military Reservation.</p> <p>Photo Date: 11/08/18</p>		
<p>Photograph No. 6</p> <p>Description:</p> <p>Location: Fire Fighting Bays (L5249)</p> <p>Looking northeast. Fire suppression system located within the Fire Bays. Location is southeastern Florence Military Reservation.</p> <p>Photo Date: 11/08/18</p>		