Final
Preliminary Assessment Report
Mayagüez Readiness Center, Mayagüez, Puerto Rico

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

March 2020

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Contract Number: W912DY-09-D-0061 / DA01
Delivery Order: W912DR17F0192

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
EDR	Environmental Data Resources, Inc.
FMS	Field Maintenance Shop
FTA	fire training area
IED	Installations & Environment Division
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
OWS	Oil-water separator
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
POL	Petroleum, oils, and lubricants
PRARNG	Puerto Rico Army National Guard
SI	Site Inspection
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WWTP	Waste water treatment plant

Executive Summary

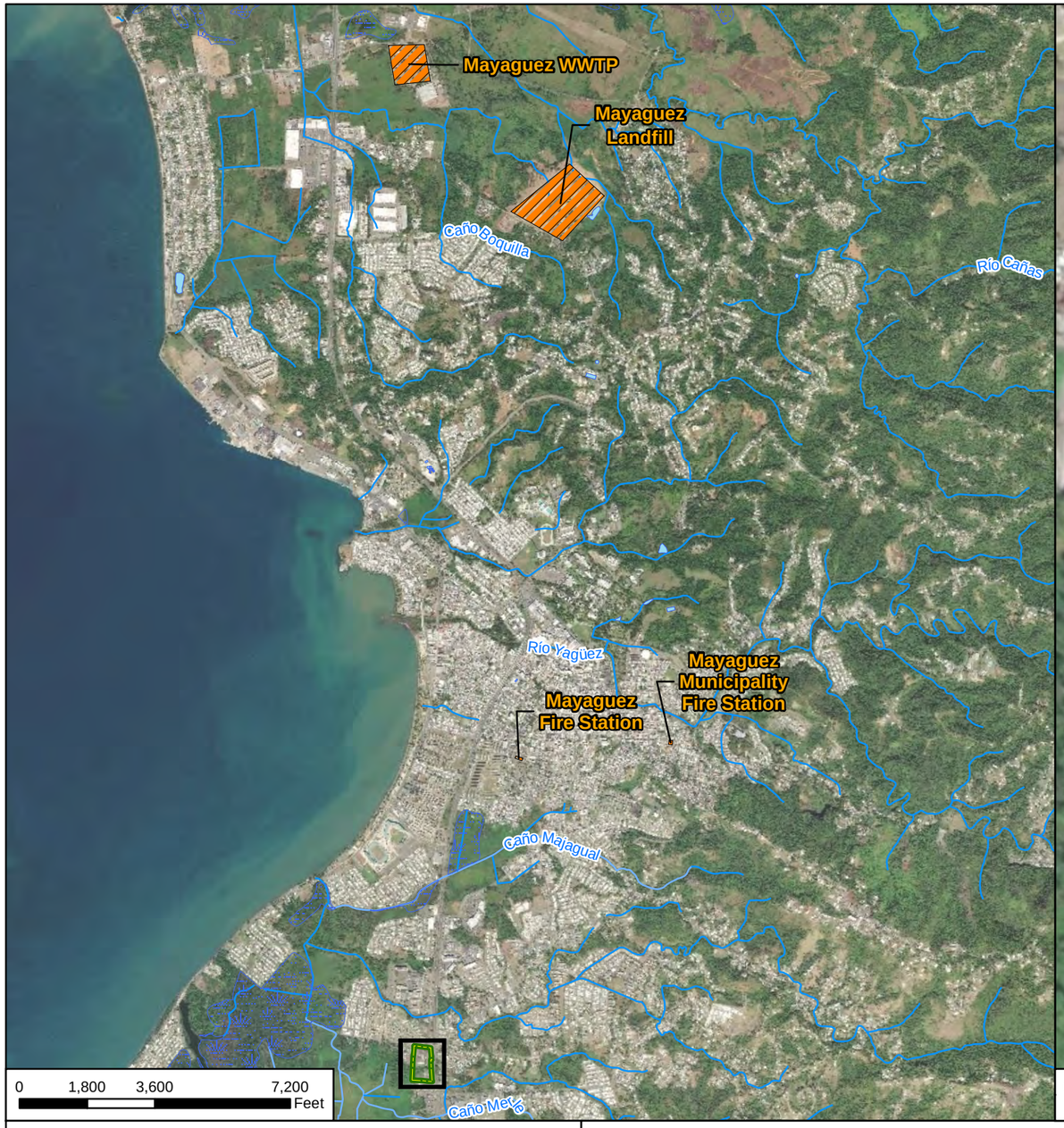
The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division (IED), Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic 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), primarily in the form of aqueous film forming foam released as part of firefighting activities, although other PFAS sources are possible.

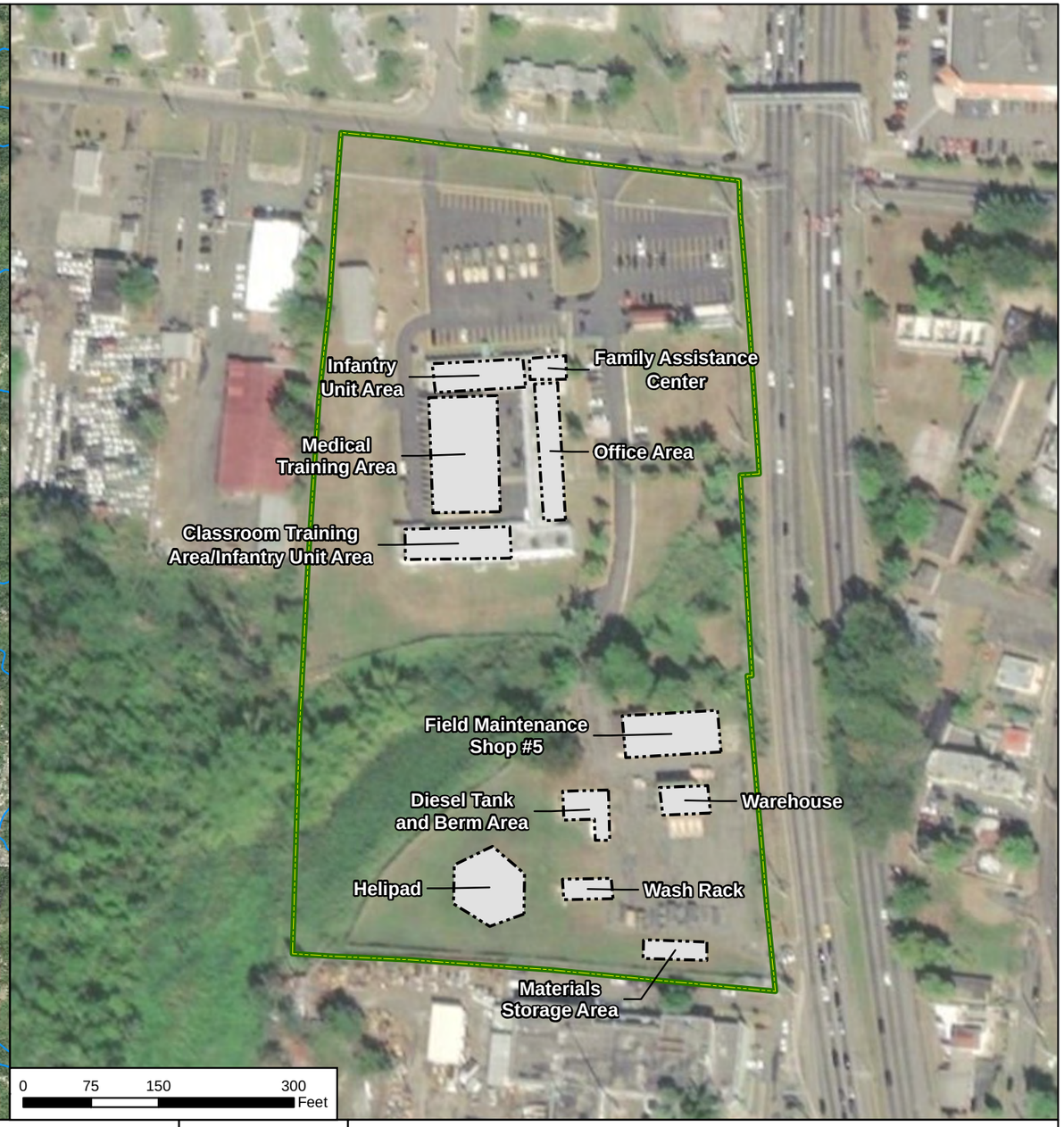
AECOM completed a PA for PFAS at Mayagüez Readiness Center (also referred to as the "facility"), in Mayagüez, Puerto Rico, to assess potential PFAS release areas and exposure pathways to receptors. The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on 22 May 2019
- Interviewed current Puerto Rico ARNG (PRARNG) Mayagüez Readiness Center personnel during the site visit, including a Major and Lieutenant Colonel.
- Completed visual site inspections at suspected PFAS release locations and documented with photographs
- Developed a preliminary conceptual site model to outline the potential release and pathway of PFAS for the Area(s) of Interest (AOIs) and the facility (**Figure ES-1**)

Based on the US Environmental Protection Agency (USEPA) Unregulated Contaminant Monitoring Rule 3 data, it was indicated that no PFAS were detected in a public water system above the USEPA Health Advisory level within 20 miles of the facility.

Based on the absence of the use or release of PFAS-containing materials at Mayagüez Readiness Center, evidence does not support current or former ARNG activities having contributed to PFAS contamination in soil, groundwater, surface water, or sediment. Additionally, no adjacent sources of potential PFAS release were identified within the vicinity of the facility. No AOIs related to PFAS release were identified at the PRARNG facility based on PA data. A summary of PA findings is shown on **Figure ES-1**. The Mayagüez Readiness Center will not move forward in the CERCLA process.





CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Mayaguez Readiness Center, PR			
REVISED	11/5/2019	GIS BY	MS	11/5/2019
SCALE	1:43,200	CHK BY	JW	11/5/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	11/5/2019

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

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Summary of Findings

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Figure ES-1

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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), 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. Puerto Rico does not currently have drinking water standards for PFAS.

This report presents the findings of a PA for PFAS at Mayagüez Readiness Center (also referred to as the "facility"), in Mayagüez, Puerto Rico, 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 locations where PFAS-containing materials may have been released into the environment at Mayagüez Readiness Center. 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 data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on 22 May 2019
- Interviewed current Puerto Rico ARNG (PRARNG) Mayagüez Readiness Center personnel during the site visit including a Major and Lieutenant Colonel.
- Completed visual site inspections at suspected PFAS release locations and documented with photographs
- Developed a preliminary conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Area(s) of Interest (AOIs) and the facility

1.3 Report Organization

This report has been prepared in accordance with the USEPA *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA, 1991). The report sections and descriptions of each are:

- **Section 1** – **Introduction:** identifies the project purpose and authority and describes the facility location, environmental setting, and methods used to complete the PA
- **Section 2** – **Fire Training Areas:** describes the fire training areas (FTAs) at the facility identified during the site visit
- **Section 3** – **Non-Fire Training Areas:** describes other locations of potential PFAS releases at the facility identified during the site visit
- **Section 4** – **Emergency Response Areas:** describes areas of potential PFAS release at the facility, specifically in response to emergency situations
- **Section 5** – **Adjacent Sources:** describes sources of potential PFAS release adjacent to the facility that are not under the control of ARNG
- **Section 6** – **Preliminary Conceptual Site Model:** describes the pathways of PFAS transport and receptors for the AOIs and the facility
- **Section 7** – **Conclusions:** summarizes the data findings and presents the conclusions of the PA
- **Section 8** – **References:** provides the references used to develop this document
- **Appendix A** – Data Resources
- **Appendix B** – Preliminary Assessment Documentation
- **Appendix C** – Photographic Log

1.4 Facility Location and Description

Mayagüez Readiness Center is located in the city of Mayagüez, in the central-west coast of Puerto Rico. Adjacent to the north of the Mayagüez Readiness Center is the municipality of Mayagüez, the municipality of Hormigueros is to the east, and the municipality of Cabo Rojo is to the south. The main gate is located on Calle Carolina, near its intersection with Highway PR-2 (**Figure 1-1**). The facility comprises several buildings, including a field maintenance shop (FMS), office spaces, and a medical training area, all over approximately 8 acres of land. The Mayagüez Bay is approximately 1.5 miles west of Mayagüez Readiness Center.

According to PRARNG personnel, the facility was established in the 1940s and hosted an engineering regiment. In 1964 the facility transitioned to and continues to host infantry units.

Real property documents for the facility, including a 1962 and 1963 land acquisition memo, a 1972 certificate of title, and a 1972 federal-state agreement for the construction of the maintenance shop are included in **Appendix A**.

1.5 Facility Environmental Setting

The facility lies on western slope of the Cordillera Central mountain range, which forms the east-west drainage divide in Puerto Rico. Topography across the facility is generally flat, but slopes downward toward a small stream that bisects the facility and flows west to an estuarine and marine wetland. Virtually all of the coastal plain is used for intensive agriculture, or is urbanized.

Much of the Mayagüez municipality was formerly used for sugar cane production, but the area is rapidly undergoing urban sprawl, highway development, and conversion to other agricultural uses (Miller, Gary L.; Lugo, Ariel E, 2009).

1.5.1 Soils

Soils beneath the Mayagüez Readiness Center are a part of the Coto-Aceitunas association. This association consists of nearly level to sloping soils in valleys and on foot slopes of the limestone hills. The association is adjacent to the Atlantic Ocean to the west, and to the limestone uplands on the south. The major soils of this association are deep, gently sloping to sloping, well drained, and moderately permeable. The soils tend to be underlain by hard, fragmented limestone. The Coto soils are reddish brown, slightly acid, and fine textured. The Aceitunas soils are dark reddish brown, fine textured, and very strongly acid (Gierbolini, Roberto E., 1975).

No digital data are available for soil directly beneath the facility via the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey tool, but the majority of soils listed in the immediate vicinity of the facility include alluvial land soil, Lares clay, and Coloso silty clay loam. These soils range from somewhat poorly drained to very poorly drained (USDA NRCS, 2019)

1.5.2 Geology

The Mayagüez area is covered by thick alluvium. The alluvium overlies the Mayagüez group that includes most of the rocks in southwestern Puerto Rico, and within the vicinity of the facility includes Maricao basalt, Sabana Grande andesite, El Rayo porphyry, and Yauco mudstone. The Mayagüez group also includes Parguera limestone, Brujo limestone, and Melones limestone, although US Geological Survey (USGS) spatial data does not include these in the surrounding area. The group ranges in thickness from about 800 meters in the south to 3800 meters in the north, and it varies in lithology from limestone in the south to mudstone and volcanic rock in the north (Mattson P.H., 1960). According to USGS spatial data, the Lago Garzas Formation is also present in the area.

The Mayagüez Readiness Center is predominately underlain by Holocene alluvium (**Figure 1-2**). The materials are poorly to moderately sorted and moderately to well-bedded sand, silt, and cobble or boulder gravel. At the foot of steep slopes in the surrounding areas, materials may include unsorted rock-fall and landslide debris (Curet, Angel F., 1986).

1.5.3 Hydrogeology

The facility is located in the West Coast groundwater province of Puerto Rico, which is indented by several alluvial valleys. The facility itself is located in the Río Guanajibo watershed, which is surrounded by dissected hills and ridges, and low-lying narrow valleys (USGS, 2002). The Guanajibo Valley is among the largest alluvial valleys of the West Coast groundwater province and is drained principally by the Río Guanajibo, which terminates in the Mayagüez Bay northwest of the facility.

Groundwater depth beneath the facility is unknown. Depth to groundwater recorded in 1954 at an inactive groundwater monitoring well listed by the USGS National Water Information System (USGS Site Number 181055067085800) located 0.3 miles northeast of the facility was last measured at 8 feet below ground surface. Groundwater depth in other inactive wells located approximately 0.45 miles southwest of the facility range from 48 to 0 feet below ground surface. Well information is included in the Environmental Data Resources, Inc. (EDR) report for a 1-mile radius surrounding the facility (**Appendix A**), and wells are shown on **Figure 1-2**.

The Mayagüez Readiness Center is provided municipal drinking water by the Puerto Rico Aqueducts and Sewers Authority west region, and its wastewater discharges to municipal sanitary sewer systems. According to water quality reports for the Mayaguez urban area (**Appendix A**), drinking water is supplied by the Miradero Filter Plant, which sources water from the Río Cañas and Río Grande de Añasco; the Añasco Filter Plant, which sources water from the Río Humatas; and several groundwater wells, including the Bateyes Well, Mariní I Well, Mariní II Well, Cabo Rojo 1 Well, Cabo Rojo 2 Well, Club de Leones Well, Remanso Well, and Margarita Well. The locations of these wells are unknown.

Groundwater flow direction at the Mayagüez Readiness Center is unknown but presumed to flow west towards the ocean (**Figure 1-2**). Based on the USEPA Unregulated Contaminant Monitoring Rule 3 data, it was indicated that no PFAS were detected in a public water system above the USEPA Health Advisory level within 20 miles of Mayagüez Readiness Center.

1.5.4 Hydrology

The Mayagüez Readiness Center is located on the northwestern edge of the Río Guanajibo Basin. The total drainage area of the basin, which drains into the Mayagüez Bay, is approximately 127 square miles (Haire, 1972). A common occurrence in streams on the island of Puerto Rico is the loss of an indeterminate amount of baseflow to coastal wetlands or aquifers during low-flow periods when sandbars seal river outlets, preventing direct outflow to the sea. These low-flow periods include February and March for streams draining watersheds underlain by volcanic rocks (Gomez-Gomez et. al, 2014), such as the area surrounding the Mayagüez Readiness Center.

Mayagüez Bay is located approximately 1 mile northwest of the Mayagüez Readiness Center. Within the PRARNG subject property, a small stream bisects the facility. The stream drains to an estuarine and marine wetland. Freshwater emergent and riverine wetland habitats exist within the vicinity of the facility in all directions (**Figure 1-3**) (US Fish and Wildlife Service [USFWS], 2019).

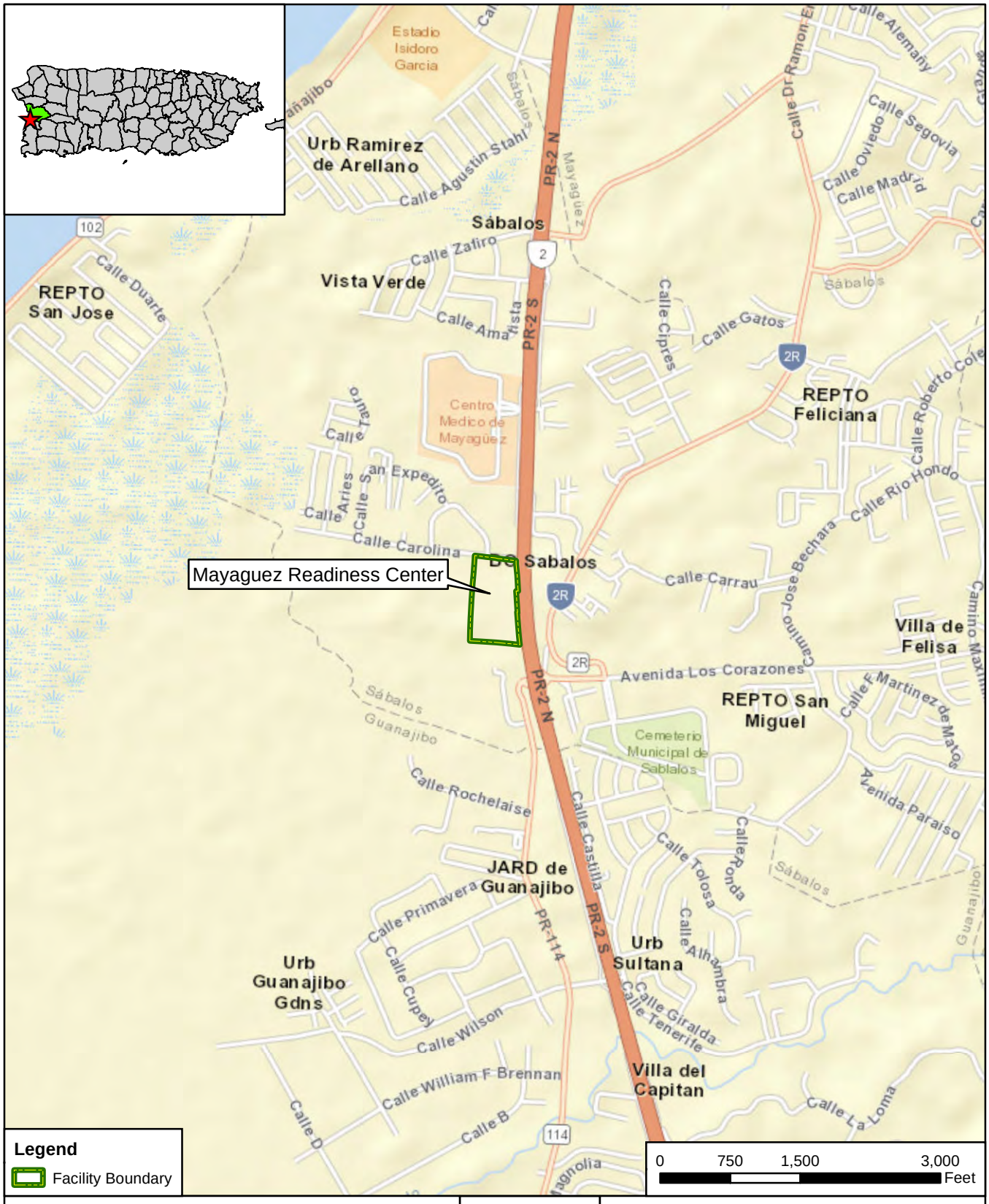
1.5.5 Climate

Puerto Rico is located in the tropics, and its maritime climate experiences warm sea breezes throughout the year, preventing major fluctuations in temperature. The average temperature in Mayaguez in the summer is 80.9 degrees Fahrenheit (°F), while the average temperature in the winter is 76.2 °F (National Oceanic and Atmospheric Administration [NOAA], 2019). Seasonal variation in the temperate zone is very low; however, there is considerable variation in temperature and precipitation resulting from variable topography and prevailing winds. The east-west mountain chain intercepts the easterly trade winds and provides the north side of the island with an abundance of rain (Miller, Gary L.; Lugo, Ariel E, 2009). Rainfall is distributed throughout the year, with May through November being considered the rainy period. January to March is dryer, but may have cold fronts coming in from the temperate zone to the north that can produce rain. Annual precipitation in Mayaguez is approximately 59.45 inches (NOAA, 2019).

Puerto Rico is in the hurricane belt of the western Atlantic and Caribbean. Hurricanes are Puerto Rico’s predominant weather problem because of the catastrophic high winds and waves, large volumes of rain, and the enormous structural change they can produce on natural ecosystems and on human populations and their infrastructure. Typically, six to ten hurricanes develop yearly in the western North Atlantic region. Hurricanes have impacted Puerto Rico recently, most notably with Hurricane Maria in 2017 (Miller, Gary L.; Lugo, Ariel E, 2009).

1.5.6 Current and Future Land Use

The Mayagüez Readiness Center converted to host PRARNG infantry units in 1964, and future land use is anticipated to remain the same.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Mayaguez Readiness Center, PR			
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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	11/5/2019

Facility Location

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Figure 1-1

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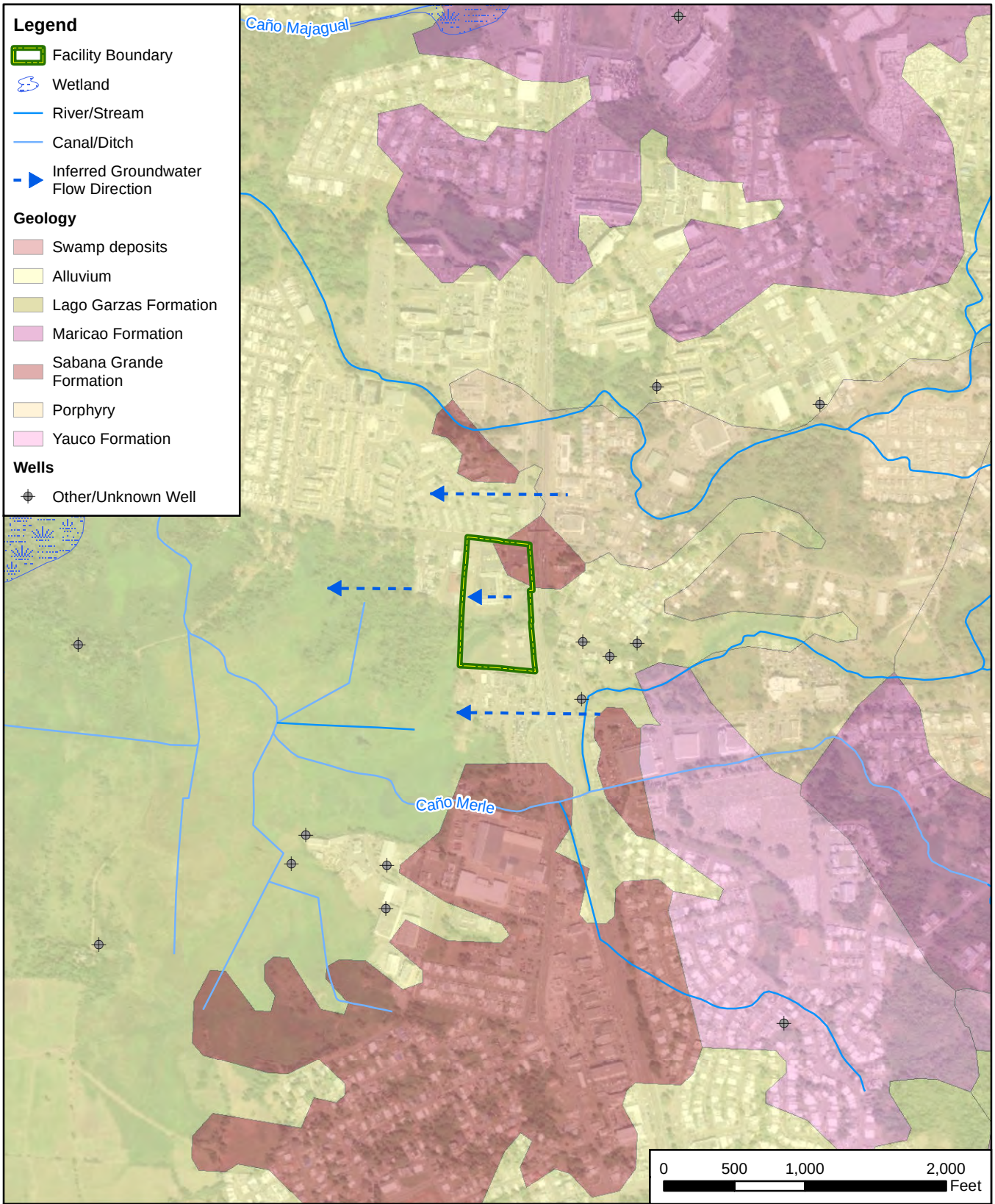

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/11/2019

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Groundwater Features

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Figure 1-2

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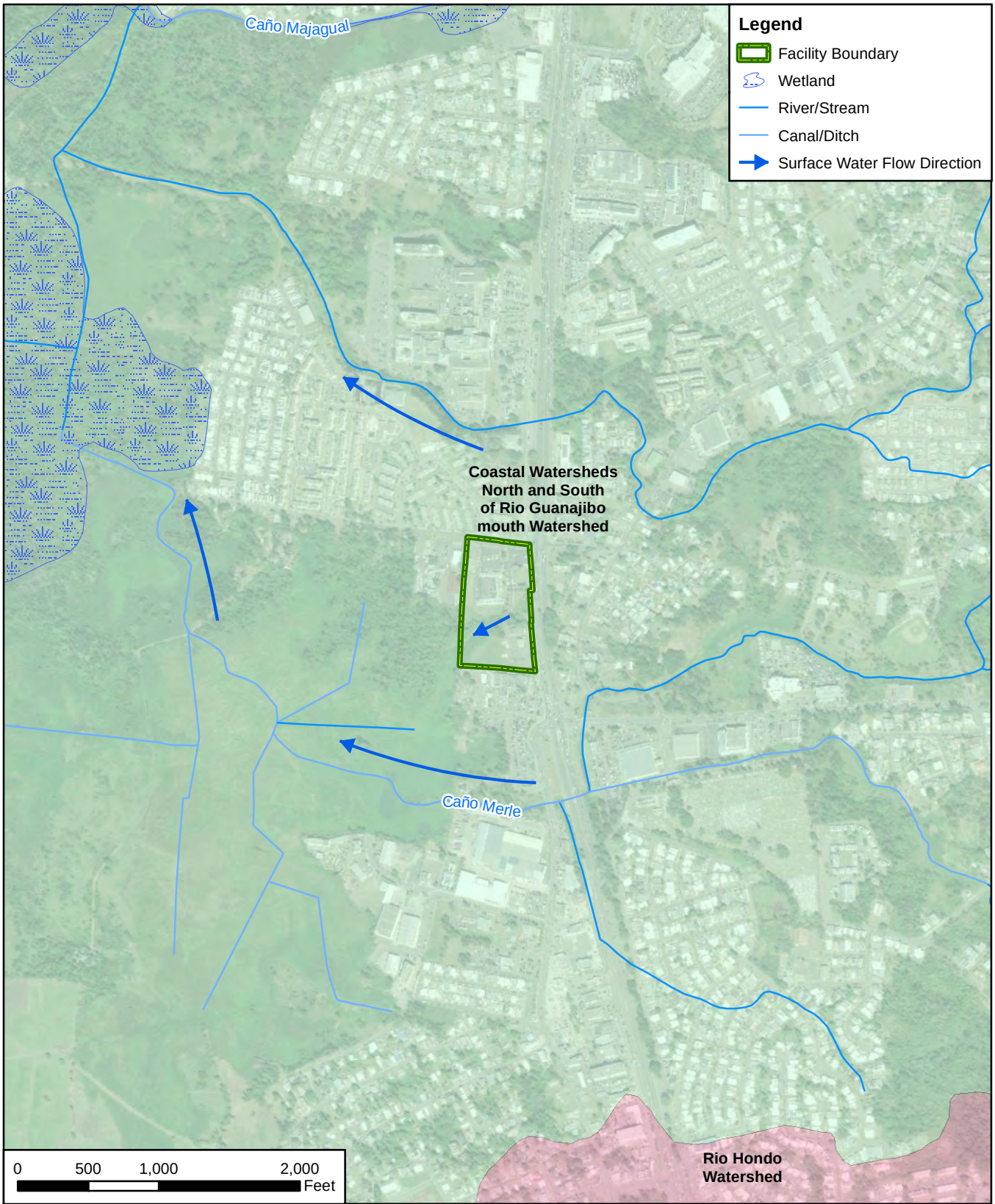

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/5/2019

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

FTAs are considered areas where deliberate discharge of AFFF or other firefighting materials is performed for purposes of training personnel. No FTAs were identified at Mayagüez Readiness Center during PA through interviews, review of the Environmental Data Resources, Inc. (EDR) report for a 1-mile radius surrounding the facility (**Appendix A**), and historical document review.

3. Non-Fire Training Areas

Several non-FTAs where AFFF could have been potentially stored and/or 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 Field Maintenance Shop #5

The FMS #5 is located in the southern portion of the Mayagüez Readiness Center (18°10'30.45"N; 67°9'6.38"W). According to facility personnel, FMS #5 was constructed approximately 30-40 years ago and transitioned to a storage area approximately 5 years ago. FMS #5 comprises five maintenance bays, office space, a bathroom, and a used oil tank. Petroleum, oils, and lubricants (POL) and flammable materials are also stored within the FMS. No AFFF is stored or used within the FMS, and no AFFF-capable vehicles are stored or maintained at the Mayagüez Readiness Center. Additionally, PRARNG personnel, whose tenure at the facility span 1990 to present day, stated that FMS #5 is not used for the maintenance of vehicles from other PRARNG installations. Dry chemical fire extinguishers are staged in each maintenance bay as well as the break room. There is no fire suppression system at the FMS.

An FMS #5 diagram provided by Mayagüez Readiness Center personnel is included in **Appendix A**. No evidence indicates that AFFF was ever stored or used at FMS; FMS#5 is not considered a potential PFAS release area.

3.2 Warehouse

The Mayagüez Readiness Center includes a warehouse located in the southern portion of the facility property adjacent to FMS #5 (18°10'29.76"N; 67°9'6.17"W). The warehouse includes storage space, a tool room, and a welding area. According to facility staff, no AFFF has ever been stored or used within the warehouse. Dry chemical fire extinguishers are staged within the warehouse, and there is no fire suppression system at the warehouse. No evidence indicates that AFFF was ever stored or used at the warehouse; the warehouse is not considered a potential PFAS release area.

3.3 Wash Rack

The Wash Rack is located in the southern portion of the Mayagüez Readiness Center (18°10'28.72"N; 67°9'7.27"W). The Wash Rack is located adjacent to the facility oil-water separator (OWS) and is used for to wash facility vehicles and equipment. No AFFF is stored or used at the Wash Rack, and no AFFF-capable vehicles are washed at the Wash Rack. Dry chemical fire extinguishers are staged at the Wash Rack in case of emergency. There is no fire suppression system at the Wash Rack. The OWS connects to municipal sanitary sewer systems. No evidence indicates that AFFF was ever stored or used at the Wash Rack; the Wash Rack is not considered a potential PFAS release area.

3.4 Diesel Tank and Berm Area

The Diesel Tank and Berm Area is located in the southern portion of the Mayagüez Readiness Center, adjacent to the Wash Rack (18°10'29.65"N; 67°9'7.27"W). The area comprises a bermed concrete pad for vehicles to park on while fueling, and an aboveground diesel storage tank. A dry chemical fire extinguisher is staged in the area in case of emergency. No AFFF is stored or used at the Diesel Tank and Berm Area. According to facility personnel, no accidents requiring AFFF response have occurred in the Diesel Tank and Berm Area. AFFF is not used in

response to fuel spills at the Mayagüez Readiness Center. There is no fire suppression system Diesel Tank and Berm Area. No evidence indicates that AFFF was ever stored or used at the Diesel Tank and Berm Area; it is not considered a potential PFAS release area.

3.5 Helipad

The Helipad is located in the southern portion of the Mayagüez Readiness Center, adjacent to the Wash Rack; its approximate geographic coordinates are 18°10'28.74"N; 67°9'8.40"W. The Helipad consists of an open field that is infrequently used to land aircrafts at the Mayagüez Readiness Center. There is no fire suppression system is in place at the Helipad. According to facility staff, no AFFF has ever been stored or used at the Helipad.

No evidence indicates that AFFF was ever stored or used at the Helipad; it is not considered a potential PFAS release area.

3.6 Materials Storage Area

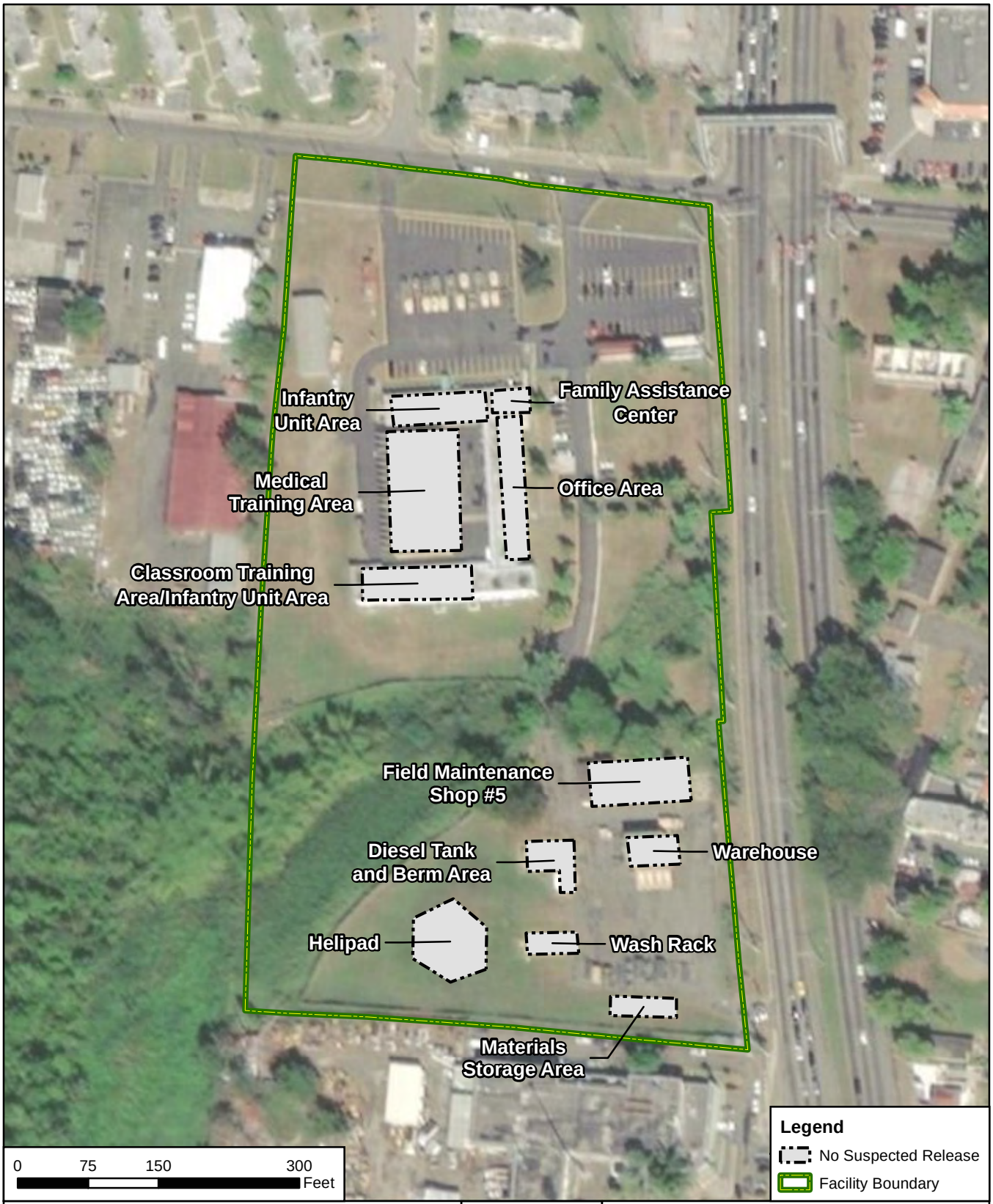
The Materials Storage Area is located at the southern boundary of the Mayagüez Readiness Center (18°10'28.05"N; 67°9'6.22"W). The Materials Storage Area includes battery storage, corrosive materials storage, hazardous waste storage, flammable materials storage, POL storage, and janitorial supplies storage. No AFFF is stored or used at the Materials Storage Area, and no fire suppression system is in place. Dry chemical fire extinguishers are staged in the area in the event of emergency. No evidence indicates that AFFF was ever stored or used at the Materials Storage Area; it is not considered a potential PFAS release area.

3.7 Office, Administrative, and Classroom Areas

Several office, administrative, and classroom areas are present within the buildings in the northern portion of the Mayagüez Readiness Center. A classroom training area is located in the basement of one of the buildings used by PRARNG infantry units. The classroom training area was formerly used as an indoor firing range. According to PRARNG facility personnel, no AFFF has ever been stored or used in the classroom training area. Dry chemical fire extinguishers are staged in the area in the event of emergency, but no fire suppression system exists.

The medical training area is located in center of the northern portion of the Mayagüez Readiness Center property. The area comprises a sheltered courtyard in the center of facility buildings. Medical training associated with the infantry units stationed at the Mayagüez Readiness Center occurs within the courtyard. According to PRARNG facility personnel, no AFFF has ever been stored or used in the Medical Training Area. No fire suppression system exists in the area, but dry chemical fire extinguishers are stored within the buildings surrounding the courtyard.

Remaining spaces within the buildings in the northern portion of the Mayagüez Readiness Center are used as office and administrative spaces, and as a Family Assistance Center. No evidence indicates that AFFF was ever stored or used in any of these areas, and they are not considered potential PFAS release areas.



CLIENT	ARNG			
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SCALE	1:1,800	CHK BY	JW	11/5/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/5/2019

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Non-Fire Training Area

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Figure 3-1

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4. Emergency Response Areas

PRARNG staff confirmed that no known incidents requiring AFFF fire suppression have occurred at the Mayagüez Readiness Center or in its immediate vicinity during their collective tenure (spanning 1990-present).

5. Adjacent Sources

Several potential off-facility sources of PFAS adjacent to Mayagüez Readiness Center, not under the control of the PRARNG, were identified during the PA through interviews, review of the EDR report for a 1-mile radius surrounding the facility (**Appendix A**), and historical document review. A description of each potential adjacent source is presented below, and the sources are shown on **Figure 5-1**

5.1 Mayagüez Fire Station and Mayagüez Municipality Fire Station

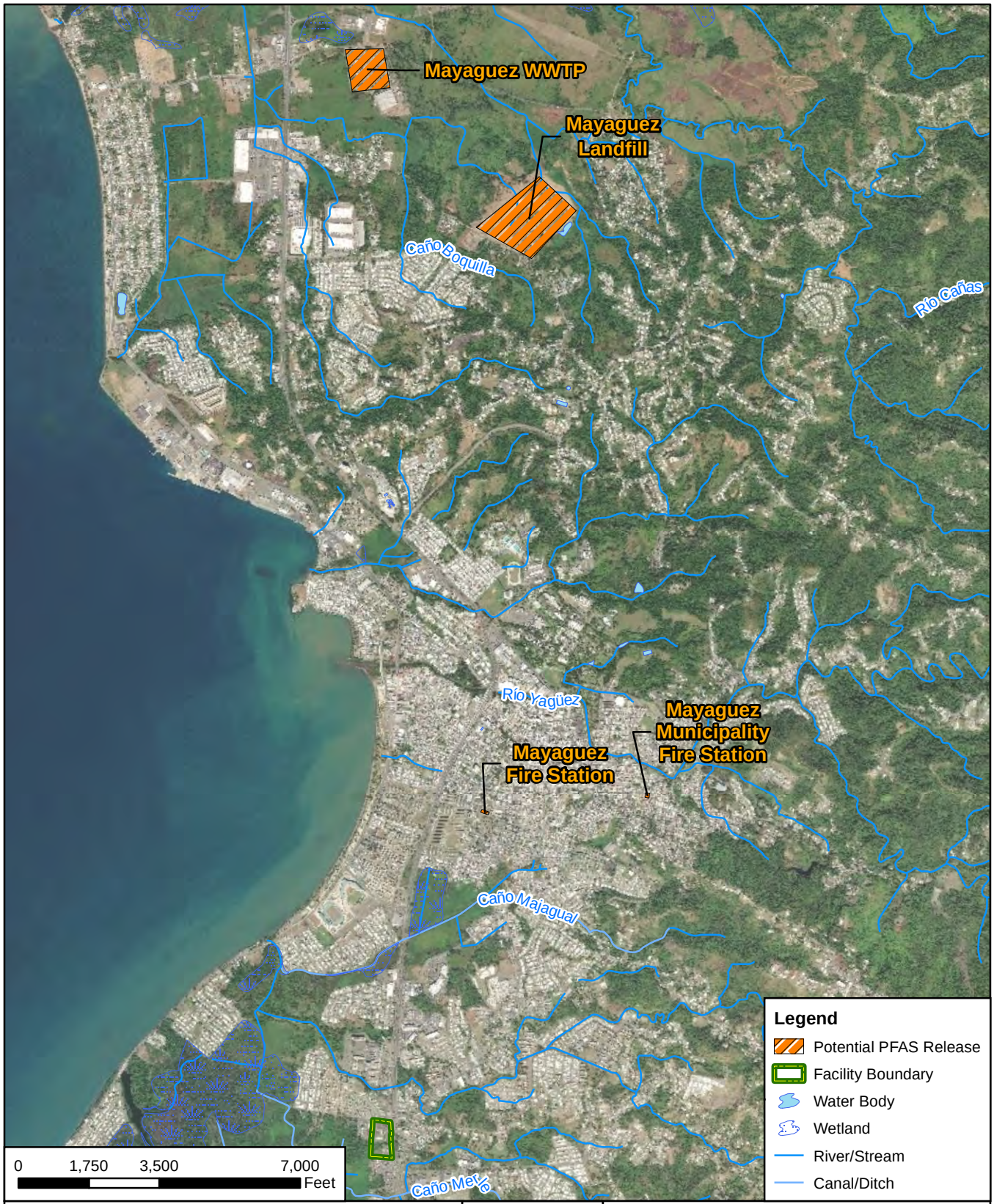
Two fire stations are located in the city of Mayagüez, north of the Mayagüez Readiness Center: the Mayagüez Fire Station is about 1.6 miles to the north and the Mayagüez Municipality Fire Station is about 2 miles to the northeast. The Mayagüez Fire Department responds to emergencies at the Mayagüez Readiness Center; however, no emergencies requiring fire suppression emergency response have occurred at the facility. According to Mayagüez Readiness Center personnel, the fire department also performs annual inspections of the water supply at the Mayagüez Readiness Center for capabilities during an emergency, and they also inspect the dry chemical fire extinguishers. It is unknown whether either Fire Department stores AFFF at the fire stations, trains with AFFF, or maintains firefighting vehicles capable of using AFFF.

5.2 Mayagüez Wastewater Treatment Plant

There are no Waste Water Treatment Plants (WWTPs) at the Mayagüez Readiness Center. The nearest WWTP is located approximately 5 miles north of the facility and is operated by the Puerto Rico Aqueduct and Sewer Authority. WWTPs are not usually a primary potential release area of PFAS, but sludges and liquids from areas of potential release that are treated at WWTPs may create a secondary source of contamination. No information obtained during the PA that indicated PFAS-related materials from the Mayagüez Readiness Center were treated at a WWTP.

5.3 Mayagüez Landfill

There are no landfills at the Mayagüez Readiness Center. The nearest landfill is the Mayagüez Landfill, located approximately 4.4 miles north of the facility. Landfills are not usually a primary potential release area of PFAS, but materials disposed of in landfills may create a secondary source of contamination. Such materials, to name a few, may include sludge from a WWTP that processes PFAS-laden water, used AFFF storage containers, or products associated with waterproofing uniforms or boots. At the PRARNG Mayagüez Readiness Center, no information obtained indicates PFAS-related materials were disposed of in a landfill.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Mayaguez Readiness Center, PR			
REVISED	11/5/2019	GIS BY	MS	11/5/2019
SCALE	1:42,000	CHK BY	JW	11/5/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	11/5/2019

N

Adjacent Sources

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, no release areas were identified at the PRARNG Mayagüez Readiness Center; therefore, a preliminary CSM is not required for the facility. A CSM identifies 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. Based on the findings of this PA, there are no sources at the Mayagüez Readiness Center, thus, there is no complete pathway to potential receptors from ARNG use of PFAS sources at the facility.

7. Conclusions

This report presents a summary of available information gathered during the PA on the potential use and storage of AFFF and other PFAS-related activities at Mayagüez Readiness Center. The PA findings are based on personnel interviews, environmental reports, historical documents, and the visual site inspection. The PA findings are based on the information presented in **Appendix A**, **Appendix B**, and **Appendix C**.

7.1 Findings

No AOIs related to potential PFAS release were identified at the Mayagüez Readiness Center based on information gathered as part of this PA (**Figure 7-1**). Based on the documented absence of the use/release of PFAS-containing materials, evidence does not support current or former ARNG activities at the facility having contributed to PFAS contamination in soil, groundwater, surface water, or sediment at the facility or adjacent areas. Adjacent potential PFAS release areas were identified in the city of Mayagüez, but it is unknown if any PFAS releases have occurred at these locations.

The following areas discussed in **Section 2** through **Section 5** were determined to have no suspected PFAS releases to the environment (**Table 7-1**):

Table 7-1: No Suspected Release Areas

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
FMS #5	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.
Diesel Tank and Berm Area	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.
Wash Rack	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.
Helipad	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.
Warehouse	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.
Materials Storage Area	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.
Office, Administrative, and Classroom Areas	PRARNG	Readily available information indicates no evidence of AFFF stored or use at the facility.

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 PRARNG on the storage of AFFF or on its disposition. There is no known history of use or storage of AFFF at Mayagüez Readiness Center, but it is also unlikely that records would have been kept in the event of use.

The conclusions of this PA are predominantly based on the information provided during interviews with personnel who had direct knowledge of PFAS use and storage at the facility. Sometimes the provided information was vague. Gathered information has a degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge, the time passed since PFAS was first used by the ARNG (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS storage locations. 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 storage of PFAS were reviewed, tenured 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:

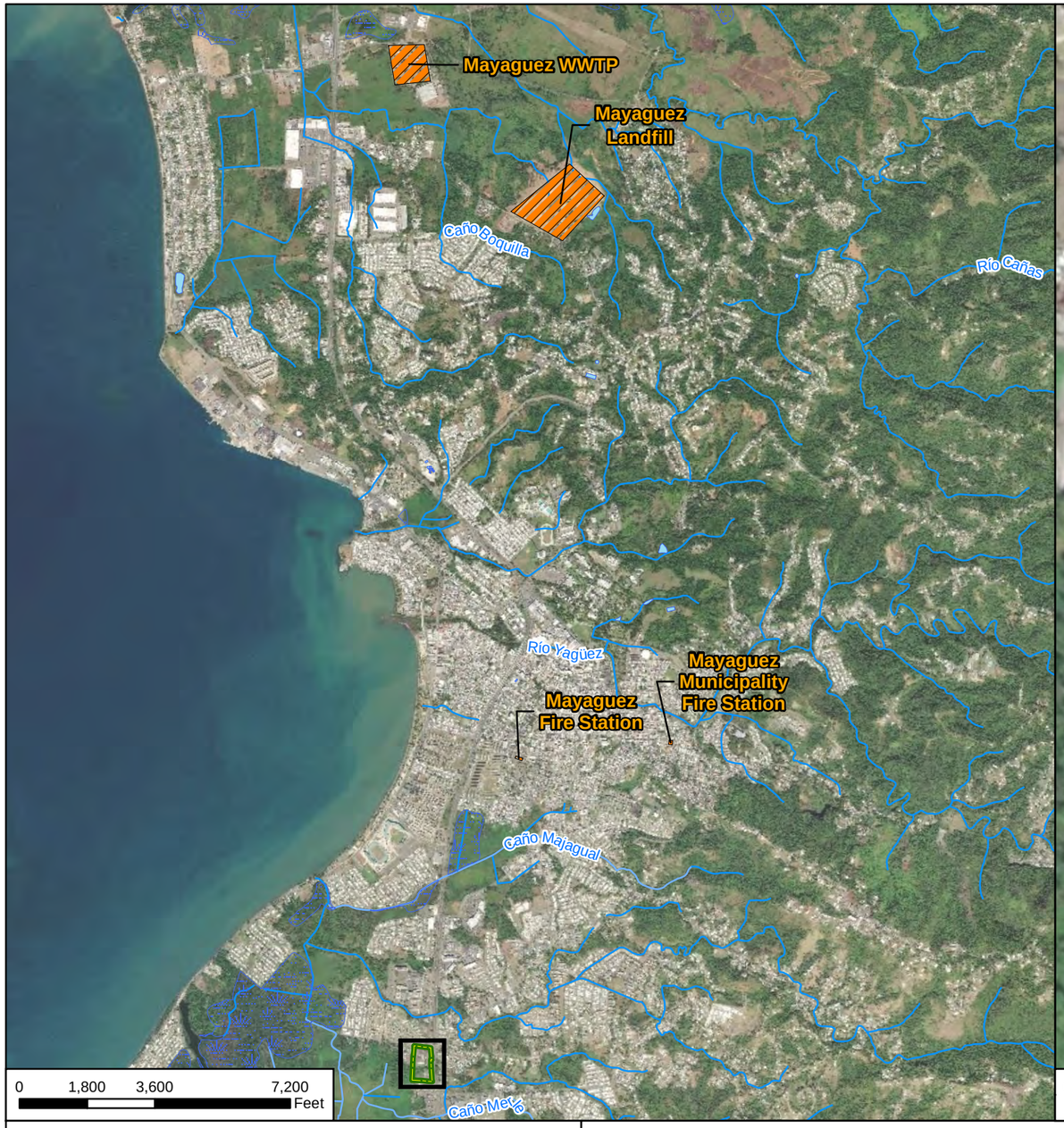
Table 7-2: Sources of Uncertainties

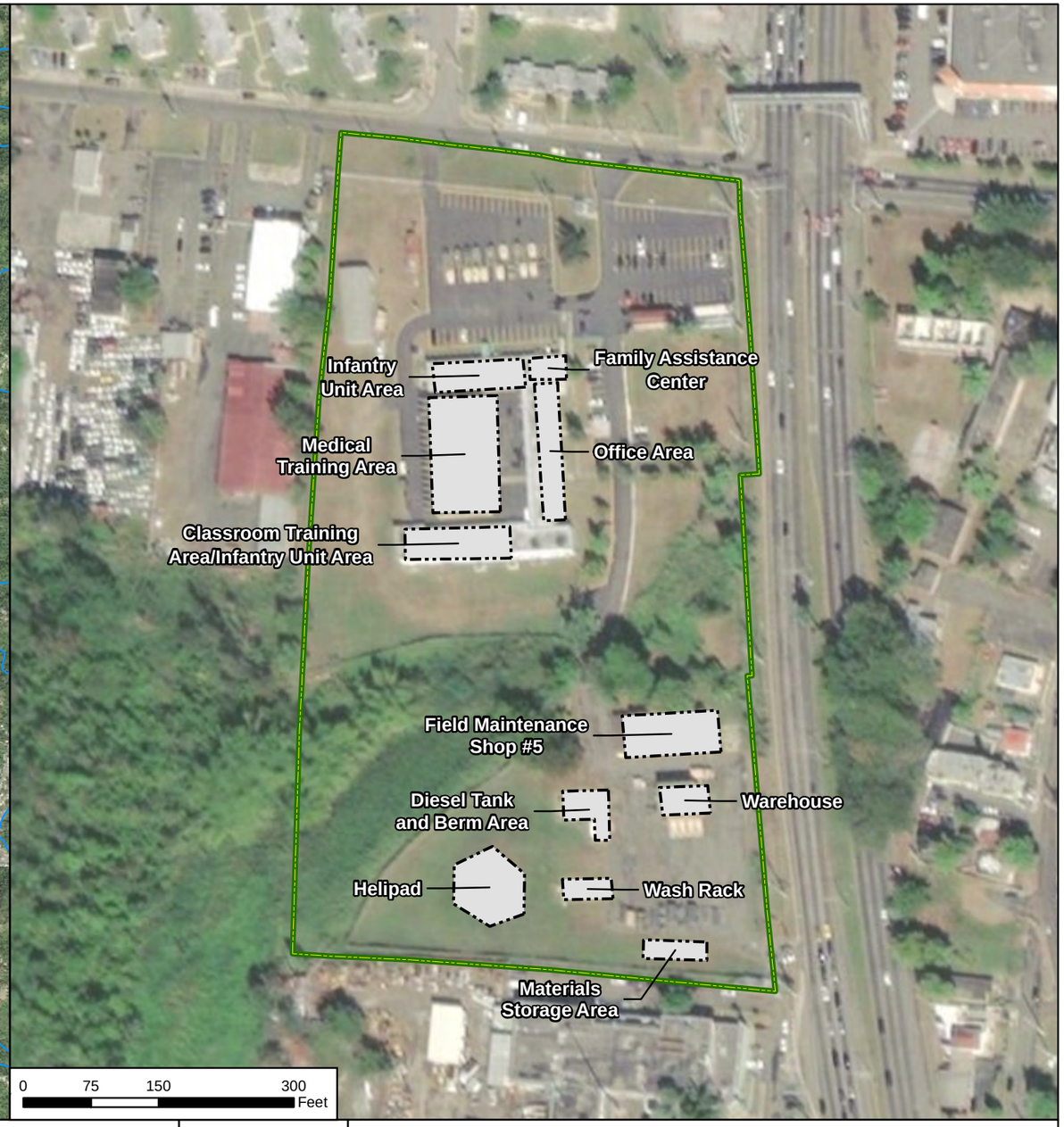
Location	Source of Uncertainty
Mayagüez Readiness Center	Although AFFF was not typically stored at PRARNG facilities until 2007, no PRARNG background reports for the facility were available. Thus, the complete history of the facility is unknown.

7.3 Potential Future Actions

Interviews with Mayagüez Readiness Center personnel, whose first-hand knowledge of the facility span 1990 to present, and records indicate that current or former ARNG activities have not resulted in PFAS releases at the Mayagüez Readiness Center. Based on the absence of the use or release of PFAS-containing materials at facility, no AOIs were identified during the PA.

The PRARNG Mayagüez Readiness Center will not move forward in the CERCLA process.





CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Mayaguez Readiness Center, PR			
REVISED	11/5/2019	GIS BY	MS	11/5/2019
SCALE	1:43,200	CHK BY	JW	11/5/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	11/5/2019

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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8. References

Curet, Angel F., 1986. Geologic Map of the Mayagüez and Rosario Quadrangles, Puerto Rico. United States Geological Survey.

Gierbolini, Roberto E., 1975. Soil Survey of Mayagüez Area of Western Puerto Rico. United States Department of Agriculture, Soil Conservation Service. https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/puerto_rico/PR684/0/Mayagüez.pdf. December 1975.

Gómez-Gómez, Fernando, Rodríguez-Martínez, Jesús, and Santiago, Marilyn, 2014, Hydrogeology of Puerto Rico and the outlying islands of Vieques, Culebra, and Mona: U.S. Geological Survey Scientific Investigations Map 3296, 40 p. plus 2 pls., http://dx.doi.org/10.3133/sim3296.

Haire, 1972. Floods in the Rio Guanajibo Valley, Southwestern Puerto Rico. Commonwealth of Puerto Rico, Department of Public Works.

Mattson, P.H., 1960, Geology of the Mayagüez area, Puerto Rico: Geological Society of America Bulletin, v. 71, p. 319-362.

Miller, Gary L.; Lugo, Ariel E, 2009. Guide to the ecological systems of Puerto Rico. Gen. Tech. Rep. IITF-GTR-35. San Juan, PR: U.S. Department of Agriculture, Forest Service, International Institute of Tropical Forestry.

National Oceanic and Atmospheric Administration, 2019. Data Tools: 1981-2010 Normals. https://www.ncdc.noaa.gov/cdo-web/datatools/normals. Accessed October 2019.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), 2019. Custom Soil Resource Report for Mayagüez Area, Puerto Rico, Western Part. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed September 26, 2019.

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

United States Fish and Wildlife Service (USFWS), 2019. National Wetlands Inventory Mapper. https://www.fws.gov/wetlands/data/mapper.html. (Accessed August 2019).

United States Geological Survey (USGS), 1990. Groundwater Use from the Principal Aquifers in Puerto Rico During Calendar Year 1990.

USGS, 2002. Geology and Hydrogeology of the Caribbean Islands Aquifer System of the Commonwealth of Puerto Rico and the U.S. Virgin Islands.

Appendix A
Data Resources

Data Resources will be provided separately on CD. Data Resources for Mayagüez Readiness Center includes:

Mayagüez Readiness Center Information Sources

- 1972 USGS Floods in the Rio Guanajibo Valley, Southwestern Puerto Rico
- 1986 USGS Geologic Map of the Mayagüez and Rosario Quadrangles, Puerto Rico
- 2014 USGS Hydrogeology of Puerto Rico and the Outlying Islands of Vieques, Culebra, and Mona
- 2019 USDA NRCS Custom Soil Resource Report for Mayagüez Area, Puerto Rico, Western Part
- PRARNG Field Maintenance Shop #5 Figure

Mayagüez Readiness Center EDR Report

- 2019 Mayagüez Readiness Center EDR Report 5714997

Mayagüez Readiness Center EDR Report

- 2018 Puerto Rico Aqueducts and Sewers Authority Water Quality Report for the Mayaguez Urban Area

Mayagüez Readiness Center Real Property Documents

- 1962 Site Survey Certificate
- 1963 Certificate of Construction
- 1963 Land Acquisition Memo
- 1693 Site Survey Certificate
- 1964 ARNG Use Permit
- 1972 Certificate of Title
- 1972 Federal-State Agreement Number DAHB05-73-A-0012

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility: Mayaguez RC
Interviewer: J. Witte
Date/Time: 5/22/2019; 10:30

Interviewee: See Below **Title:** See Below **Phone Number:** See Below **Email:** See Below	Can your name/role be used in the PA Report? **Y** or N Can you recommend anyone we can interview? Y or **N** No

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

MAJ [redacted]
LTC [redacted]; 1990-present

2. Where can I find previous facility ownership information?

If available, CFMO in San Juan can provide.

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 – **No known AFFF use**
Fire Training Areas – **No FTAs**
Firefighting (Active Fire) – **No firefighting unit or training/storage areas**
Crash – **No crashes or accidents requiring fire suppression**
Fire Suppression Systems (Hangers/Dining Facilities) – **Only ABC fire extinguishers**
Fire Protection at Fueling Stations – **ABC fire extinguishers**
Non-Technical/Recreational/ Pest Management - **None**
Metals Plating Facility - **None**
Waterproofing Uniforms (Laundry Facilities) - **None**
Other - **None**

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

5. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing the AFFF/suppression system? Do you have "As Built" drawings for the buildings?

No buildings constructed with AFFF fire suppression systems. Most areas only include dry chemical fire extinguishers. No water sprinkler system

PA Interview Questionnaire - Environmental Manager

Facility: Mayaguez RC
Interviewer: J. Witte
Date/Time: 5/22/2019; 10:30

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?

No. No foam or water suppression systems. Only dry chemical/ABC fire extinguishers

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

NA. No AFFF is/has been procured for Mayaguez Readiness Center

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)?

NA. No AFFF stored or used

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

AFFF is not stored at the facility

10. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

No FTAs exist at the facility

PA Interview Questionnaire - Environmental Manager

Facility: Mayaguez RC
Interviewer: J. Witte
Date/Time: 5/22/2019; 10:30

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?

AFFF has not been released (or stored) at the facility to the knowledge of the interviewees (dating back to 1990).

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?

No city/other DoD entities come to Mayaguez Readiness Center for any kinds of hands-on training, nor training that includes fire training or AFFF use

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

No, Mayaguez Readiness Center units do not go off-post to train elsewhere.

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?

NA. Other units do not train at Mayaguez Readiness Center.

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

No known emergencies or crashes requiring AFFF use, and thus, no emergency records of this kind.

PA Interview Questionnaire - Environmental Manager

Facility: Mayaguez RC
Interviewer: J. Witte
Date/Time: 5/22/2019; 10:30

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?

AFFF has never been used in response to fuel spills at the facility, nor has AFFF been stored or available for such emergencies

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. AFFF is stored and potentially used by the 215 Firefighting Company at the 130th Engineering Battalion (at Vega Baja) and may be used to assist forest fighting at Camp Santiago, but never at Mayaguez Readiness Center

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?

Yes, the local fire department responds to emergencies at the Mayaguez Readiness Center. They also perform annual inspections of the water supply at the facility for capabilities during an emergency, as well as the dry chemical fire extinguishers.

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)?

AFFF has never been stored or used at the facility

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

No AFFF present, therefore, no creative uses

PA Interview Questionnaire - Environmental Manager

Facility: Mayaguez RC
Interviewer: J. Witte
Date/Time: 5/22/2019; 10:30

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?

No known past studies. Renovations at the facility have occurred, but through SRM, and therefore no records or background documents are available. Any information possible will be requested through CFMO.

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

Engineering drawings have been requested.

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.?

NA

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

NA

PA Interview Questionnaire - Environmental Manager

Facility: Mayaguez RC
Interviewer: J. Witte
Date/Time: 5/22/2019; 10:30

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

No one else from Mayaguez Readiness Center.

LTC [redacted] recommended visiting the Ramey Air Force Base Historical Museum for information on Air Force history.

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

Names(s) of people performing VSI: J. Witte, CPT Hess, T. Peck, C. Sandoval

Recorded by: C. Sandoval

ARNG Contact:

Date and Time: 22-May-19

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

Source/Release Information

Site Name / Area Name / Unique ID: Mayaguez Readiness Center

Site / Area Acreage:

Historic Site Use (Brief Description): Used to host engineers.

Current Site Use (Brief Description): Infantry Unit, Coast Guard Station, FMS

Physical barriers or access restrictions: Perimeter Fence and ID Check

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

Restaurants and some various goods located w/in a mile of facility

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:

N/A; no AFFF is used

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

Fire Suppression System uses water

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?

yes, drains lead to City water and sewage.

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location: Water-oil separator located at wash racks

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: Near Oil-Water Separator.

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: There is a wetland located in between the facility and maintenance Shop.

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: Soldiers and people on staff.

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: Contractors.

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

3a. If so, please note the location/distance: Approximately 4 Km Southwest of facility are homes and Shops.

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: Directly in between facility and maintenance Shop.

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Mayaguez Readiness Center

Why has this location been identified as a site?

The site is a readiness center and may have stored or used AFFF in the past

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

Mayaguez has two fire stations located 1.5 and 2 miles north of the readiness center

Training Events

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

If so, how often? NA

How much material was used? Is it documented? NA; AFFF has never even been stored at the RC

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? South

Average rainfall? 59.45 inches per year

Any flooding during rainy season? None known

Direct or indirect pathway to ditches? Direct

Direct or indirect pathway to larger bodies of water? Indirect

Does surface water pond any place on site? Some wetlands and streams

Any impoundment areas or retention ponds? None observed

Any NPDES location points near the site? Unknown, documentation unavailable

How does surface water drain on and around the flight line? No flightline

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Unknown

Depth to groundwater? USGS 181301067081900 CE-RUM2 Observation Well at Mayaguez University (2.5 miles away) = 4.71 ft bgs in 2019

Uses (agricultural, drinking water, irrigation)? None known

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? No

Is groundwater used for drinking water? No

Are there drinking water supply wells on installation? No

Do they serve off-post populations? NA

Are there off-post drinking water wells downgradient Unknown, but the city is on municipal water

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? No

Do we understand the fate of sludge waste? No

Is surface water from potential contaminated sites treated? No

Equipment Rinse Water

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

No firefighting equipment is washed

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

No

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker Yes

Construction Worker Yes

Recreational User Yes

Residential Yes

Child No

Ecological Yes

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

A hospital is located 0.3 miles to the north

Documentation

Ask for Engineering drawings (if applicable).

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

Appendix C
Photographic Log

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mayaguez Readiness Center	Mayaguez, Puerto Rico

Photograph No. 1

Date 5/22/2019

Time 11:37

Description:

The Medical Training Area in the courtyard at the center of the office and administrative areas at Mayaguez Readiness Center

Orientation:

West

Photograph No. 2

Date 5/22/2019

Time 11:44

Description:

The oil water separator at the Wash Rack at the Mayaguez Readiness Center.

Orientation:

West

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mayaguez Readiness Center	Mayaguez, Puerto Rico

Photograph No. 1

Date 5/22/2019

Time 11:43

Description:
Field Maintenance Shop #5 at the Mayaguez Readiness Center

Orientation:
Northeast

Photograph No. 4

Date 5/22/2019

Time 11:41

Description:
The Diesel Tank and Berm Area at the Mayaguez Readiness Center

Orientation:
West

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mayaguez Readiness Center	Mayaguez, Puerto Rico

Photograph No. 5

Date 5/22/2019

Time 11:40

Description:
Wetland area between the Mayaguez Readiness Center and it's accompanying Field Maintenance Shop

Orientation:
West

Photograph No. 6

Date 5/22/2019

Time 11:39

Description:
Mayaguez Readiness Center and Armory entrance

Orientation:
South

Appendix C - Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mayaguez Readiness Center	Mayaguez, Puerto Rico

Photograph No. 1

Date 5/22/2019

Time 11:42

Description:
Dry chemical fire extinguisher staged at the Diesel Tank and Berm Area.

Orientation:
Southwest