FINAL
Preliminary Assessment Report
1108th Theatre Aviation Sustainment Maintenance Group (TASMG), Gulfport, Mississippi

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

September 2020

Prepared for:

Army National Guard Bureau
111 S. George Mason Drive
Arlington, VA 22204

UNCLASSIFIED

Table of Contents

Figures

Tables

Appendices

Acronyms and Abbreviations

%	percent
°F	degrees Fahrenheit
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
ARFF	Aircraft Rescue and Firefighting
amsl	above mean sea level
ANG	Air National Guard
AOI	area of interest
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRTC	Combat Readiness Training Center
CSM	conceptual site model
EDR	Environmental Data Resrouces, Inc.
FTA	fire training area
Jet-X	Ansul Jet-X 2 3/4 % High-Expansion Foam Concentrate
MSARNG	Mississippi Army National Guard
OWS	oil-water separator
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site inspection
TASMG	Theatre Aviation Sustainment Maintenance Group
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VSI	visual site inspection
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) G9, Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS) (a suite of related chemicals), primarily in the form of aqueous film forming foam (AFFF) released during firefighting activities or training, although other PFAS sources are possible.

AECOM completed a PA for PFAS at 1108th Theatre Aviation Sustainment Maintenance Group (TASMG) in Gulfport, Mississippi, to assess potential PFAS release areas and exposure pathways to receptors. The property at 1108th TASMG is under State of Mississippi Military Department control until June of 2066, as leased from the Gulfport-Biloxi Regional Airport Authority.

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 13 March 2019
- Interviewed current 1108th TASMG personnel during the site visit including Mississippi ARNG (MSARNG) environmental manager, the facility Fire Chief, the Aviation Safety Officer and facilities maintenance personnel
- Completed visual site inspections (VSIs) at known or 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 areas of interest (AOIs) and the facility

Four AOIs related to a potential PFAS releases were identified at 1108th TASMG during the PA. The AOIs are shown on **Figure ES-1** and described in **Table ES-1** below:

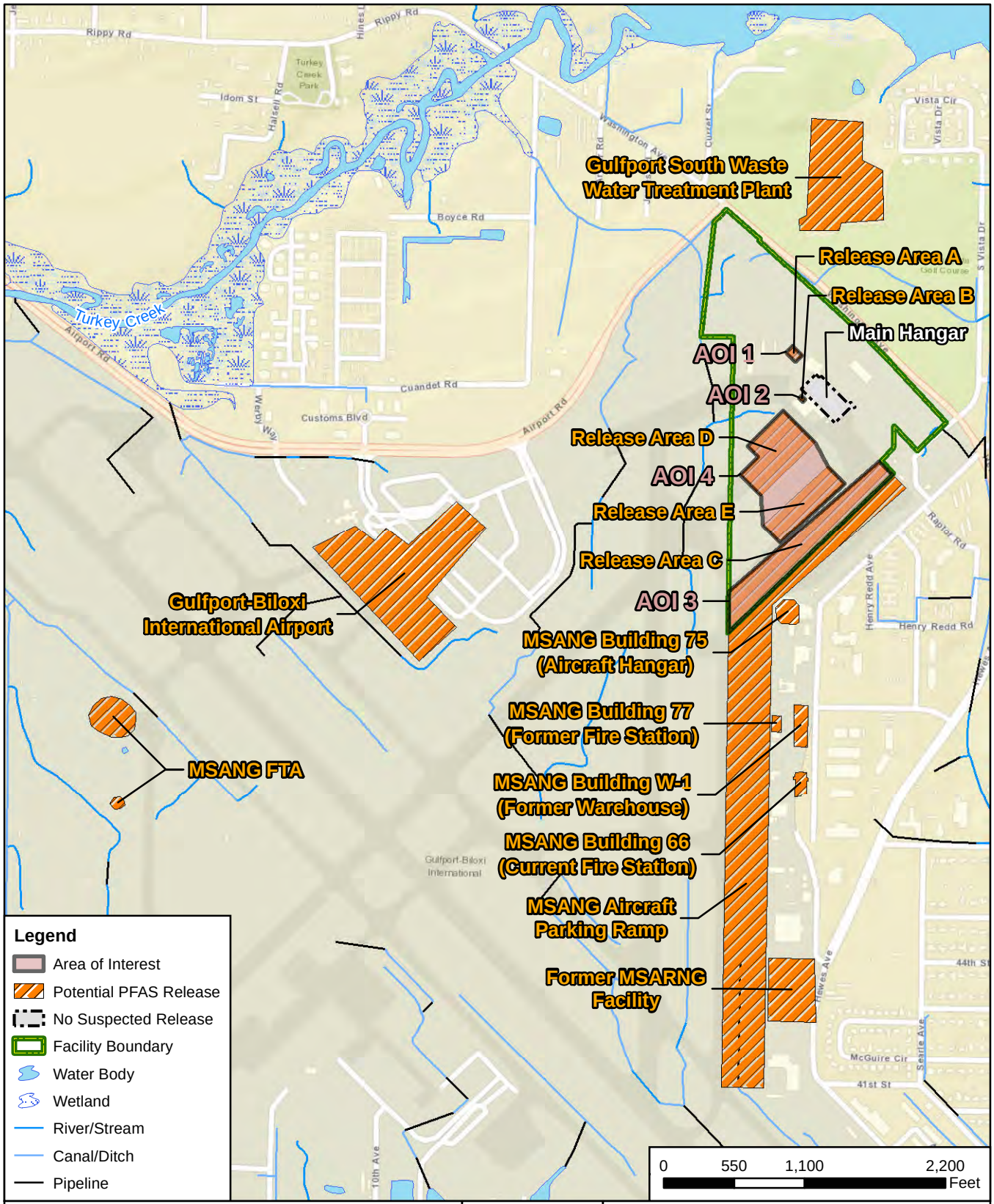
Table ES-1 AOIs at 1108th TASMG

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Release Area A	MSARNG	October 2018
AOI 2	Release Area B	MSARNG	2018
AOI 3	Release Area C	MSANG	1990s
AOI 4	Release Area D & E	MSARNG	1980s - 2016

Based on the potential PFAS releases at AOI 1, AOI 2, AOI 3, and AOI 4, there is potential for exposure to PFAS contamination in surface soil to site workers, construction workers, and visitors/trespassers; in surface water/sediment to off-facility residents; in subsurface soil to construction workers; and in shallow groundwater to construction workers and residents. The CSM for 1108th TASMG is shown on **Figure ES-2**.

Mississippi Air National Guard (MSANG) is investigating AOI 3 as a part of their May 2016 PA report and January 2019 SI report (Leidos, 2019). As such, future actions at AOI 3 under the CERCLA process are anticipated to be performed by the MSANG, not the MSARNG.

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 the facility.

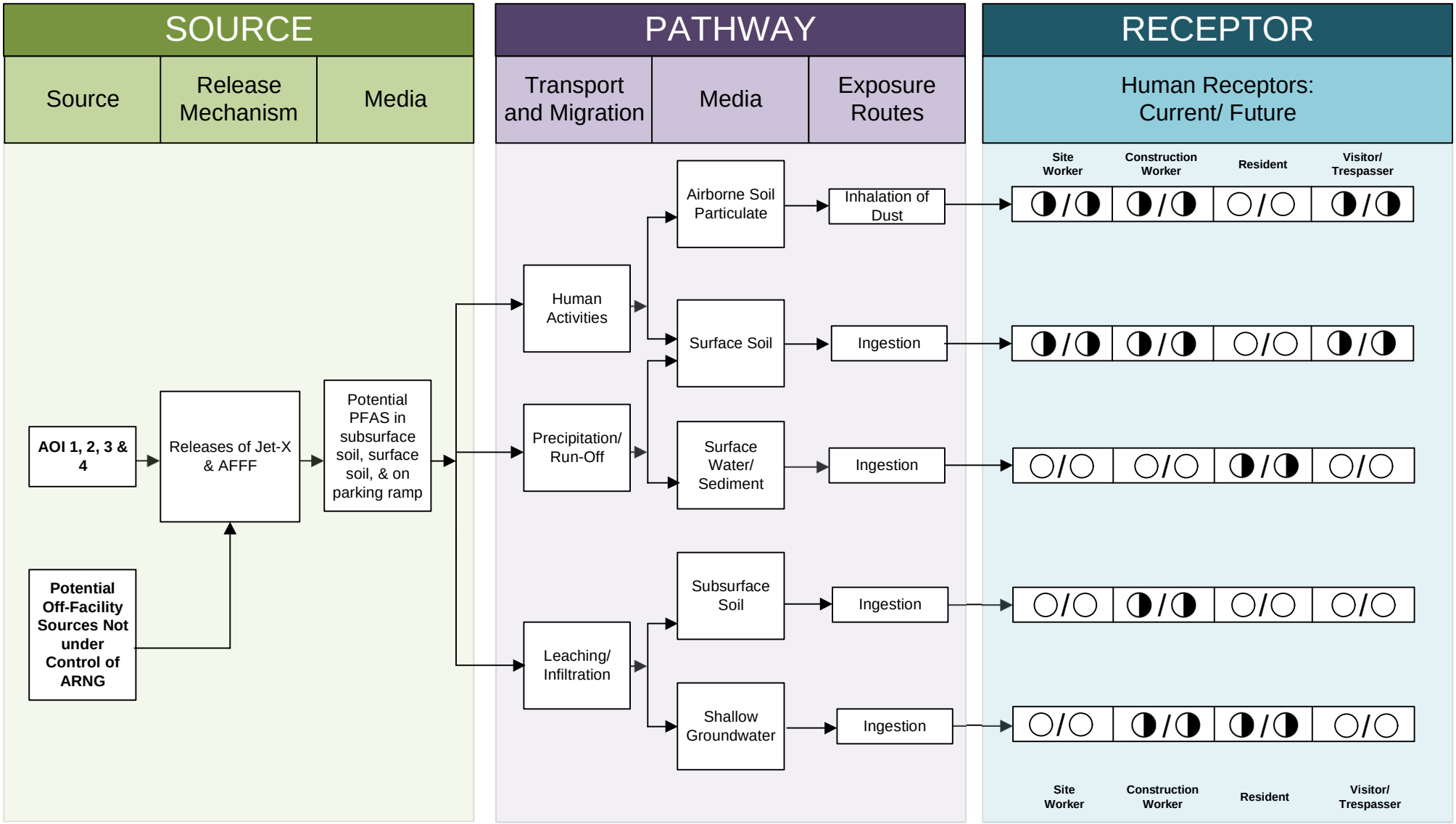


CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:13,200	CHK BY	PD	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/9/2020

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure ES-1



LEGEND

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

Notes:

1. The resident and recreator receptors refer to an off-site receptor.
2. Dermal contact exposure pathway is incomplete for PFAS.

Figure ES-2
Preliminary Conceptual Site Model
TASMG Gulfport

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) G9, 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 their facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily releases of aqueous film forming foam (AFFF) although other sources of PFAS are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of these PFAS compounds in the environment will vary. 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.

This report presents findings of a PA for PFAS at 1108th Theatre Aviation Sustainment Maintenance Group (TASMG), Gulfport, Mississippi, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300), and USACE requirements and guidance.

This PA documents the known or suspected areas where PFAS may have been released into the environment at 1108th TASMG. The term PFAS will be used throughout this report to encompass all PFAS being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on 13 March 2019
- Interviewed current 1108th TASMG personnel during the site visit including Mississippi Army National Guard (MSARNG) environmental manager, the facility Fire Chief, the Aviation Safety Officer, and facilities maintenance personnel
- Completed visual site inspections (VSI) at known or 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 areas 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 at each AOI.
- **Section 7** – **Conclusions:** summarizes the data findings and presents the conclusions of the PA.
- **Section 8** – **References:** provides the references used to develop this document.
- **Appendix A** – Data Resources
- **Appendix B** – Preliminary Assessment Documentation
- **Appendix C** – Photographic Log

1.4 Facility Location and Description

The 1108th TASMG (also referred to as the "facility") is located within the City of Gulfport, Harrison County, on the coast of Mississippi (**Figure 1-1**). Located on Gulfport-Biloxi International Airport property, the TASMG facility is co-located with the Air National Guard (ANG) Combat Readiness Training Center (CRTC). The 1108th TASMG and the CRTC are tenants under lease from Gulfport-Biloxi Regional Airport Authority until June of 2066. At present, 1108th TASMG includes approximately 33-acres of land and operates as a full Army aviation maintenance depot facility. The MSARNG has been occupying the present location since 1989. Prior to that, the MSARNG occupied a small hangar facility on the south end of the taxiway. These buildings are located outside of the current boundaries of ANG and ARNG property.

1.5 Facility Environmental Setting

The 1108th TASMG is located within the Gulf Coastal Plain, less than 3 miles from coast of Mississippi. The Coastal Plain is a gently sloping area of unconsolidated fluvial and deltaic sediments. Elevations at the facility range from approximately 22 to 26 feet above mean sea level (amsl). The facility is located within the Turkey Creek Watershed, and drainage generally flows to the north towards Turkey Creek (MSARNG, 2017).

1.5.1 Geology

The facility is located above the unconsolidated sediments of the Gulf Coast Plain and falls entirely within the Prairie Formation, a late Pleistocene alluvial deposit. The deposits on the Gulf Coast are defined by the late Pleistocene Sangamonian Interglacial, during which, sea levels rose and encroached on coastal areas.

At the beginning of this coastal transgression, sea level stood at a much lower elevation than it does today. Deposition of muddy and sandy marine and estuarine sediments of the Biloxi Formation occurred during the sea level rise. Gulfport Formation barrier island progradation coincided with a coalescing of Prairie Formation floodplains, which created an interfingering of the two units. The sea level eventually exceeded modern levels before falling again about 125 to 122 thousand years ago. During this time, barrier strandplains built out seaward from the edge of the Prairie Coastal Plain. Below the Sangamonian sediments lie undifferentiated alluvium and Neogene fluvial siliclastic sediments (Otvos, 2001).

1.5.2 Hydrogeology

Two major aquifers, the Mississippi embayment and the coastal lowlands aquifer, occur in Mississippi. The coastal lowlands aquifer is present in the southern third of the state, which includes the 1108th TASMG. In southern Mississippi the coastal lowlands aquifer system is more than 5,000 feet thick and is composed of several individual aquifers and confining units. The base of the coastal lowlands aquifer system is a thick sequence of marine clays of the Jackson and Vicksburg Groups, which outcrop across the middle of Mississippi. The facility is located to the south of a principle regional recharge area, and just to the east of a principle regional discharge area which is related to the flow of the Mississippi River (Grubbs, 1986).

The individual aquifers that make up the coastal lowlands include the Catahoula, Hattisburg, Pascagoula, Graham Ferry, and Citronelle. They consist of thick, lenticular beds of sand or gravel that are generally not continuous over large areas. The Graham Ferry and the Pascagoula aquifers both underlay the facility and are used for domestic, industrial, and public water supply in the area. Both of these aquifers include confining clay layers and contain well fields operated by the City of Gulfport for water supply to the facility and surrounding areas (BB&E, 2016).

The water table aquifer underlying the facility is the Pamlico aquifer. Formerly, the aquifer was used locally for irrigation and limited water supply; however, it has become contaminated with sewage and other contaminants from various sources in the general Gulfport area, making it unsuitable for drinking water. During a 2019 SI at the adjacent ANG CRTC facility, groundwater levels were measured at depths of 1.95 feet below ground surface (bgs) to 6.25 feet bgs. The groundwater flow direction is generally north-northwest towards, Bayou Bernard, as shown on **Figure 1-2** (Leidos, 2019).

Drinking water for 1108th TASMG is drawn from a municipal supply. The Environmental Data Resources, Inc. (EDR) report (**Appendix A**) lists two City of Gulfport wells approximately 1,400 feet east-southeast of the southern part of the facility. There are multiple domestic drinking water wells listed within 1 mile to the north of the facility boundary. These wells are generally drilled at depths of 170 to 220 feet bgs (**Appendix A**).

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 the facility.

1.5.3 Hydrology

The 1108th TASMG lies within the Bernard Bayou-Big Lake Watershed (**Figure 1-3**). The facility has a very low topographic gradient, with elevations ranging from approximately 22 – 26 feet amsl. Two drainage ditches direct surface water and stormwater off-site to the north. There is a pond in the northeast corner of the facility that is potentially used for stormwater and does not appear to be a permanent feature.

The primary drainage in the area is Bayou Bernard, about 0.5 miles to the north. The bayou drains east to Big Lake and eventually to the Mississippi Sound and the Gulf of Mexico. The Brickyard Bayou flows towards the east about 1 mile south of the facility and joins with Bayou Bernard before entering into Big Lake.

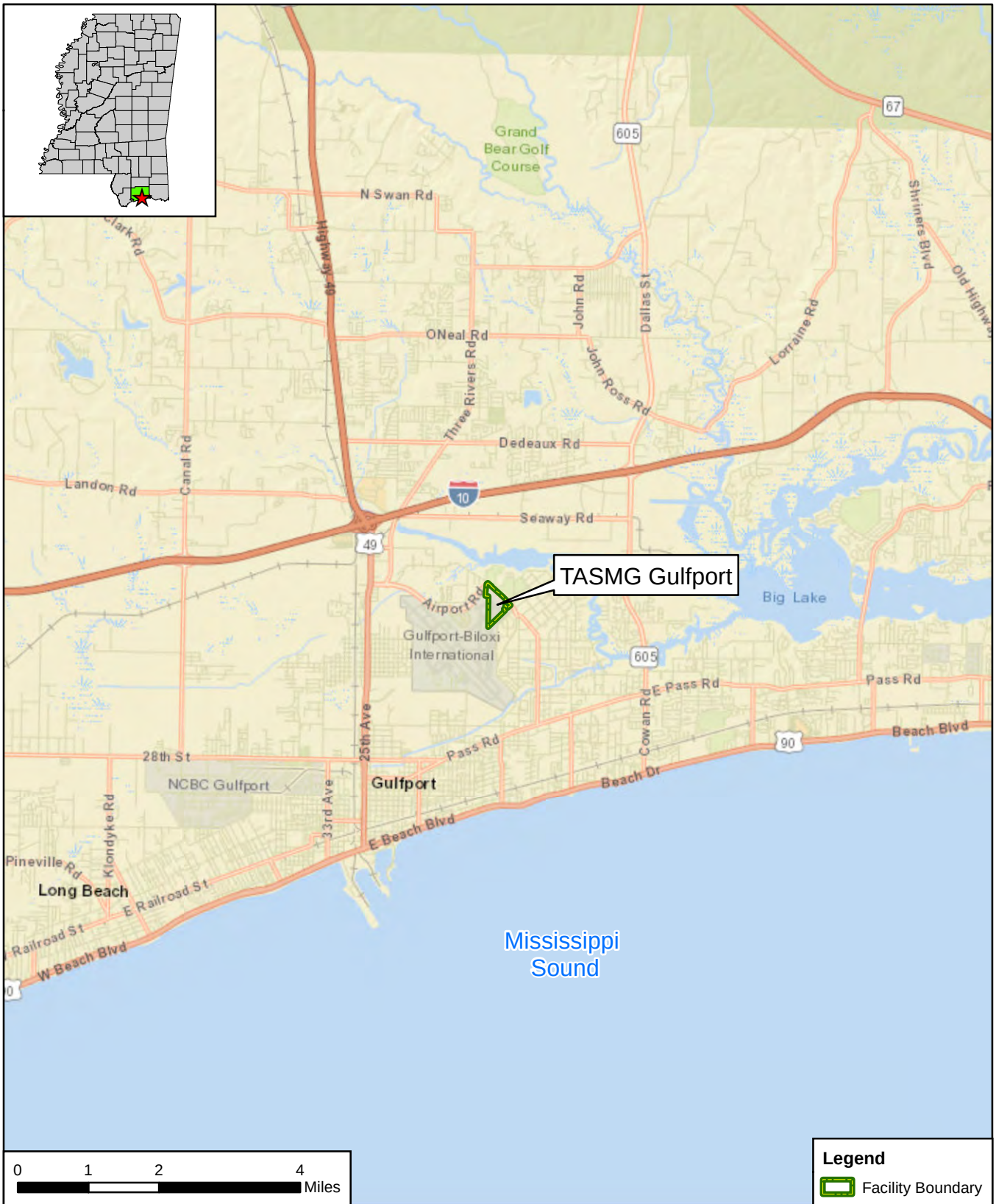
1.5.4 Climate

The Gulfport, Mississippi climate is humid and subtropical. The annual mean temperature is 68.25 degrees Fahrenheit (°F). The average summer temperature is 90.5°F. The summer months (June, July, and August) have the highest rainfall, with an average of 6.87 inches of precipitation per month. The average winter temperature is 62.7°F. The mean annual precipitation is 65.19 inches of rain (US Climate Data, 2019).

1.5.5 Current and Future Land Use

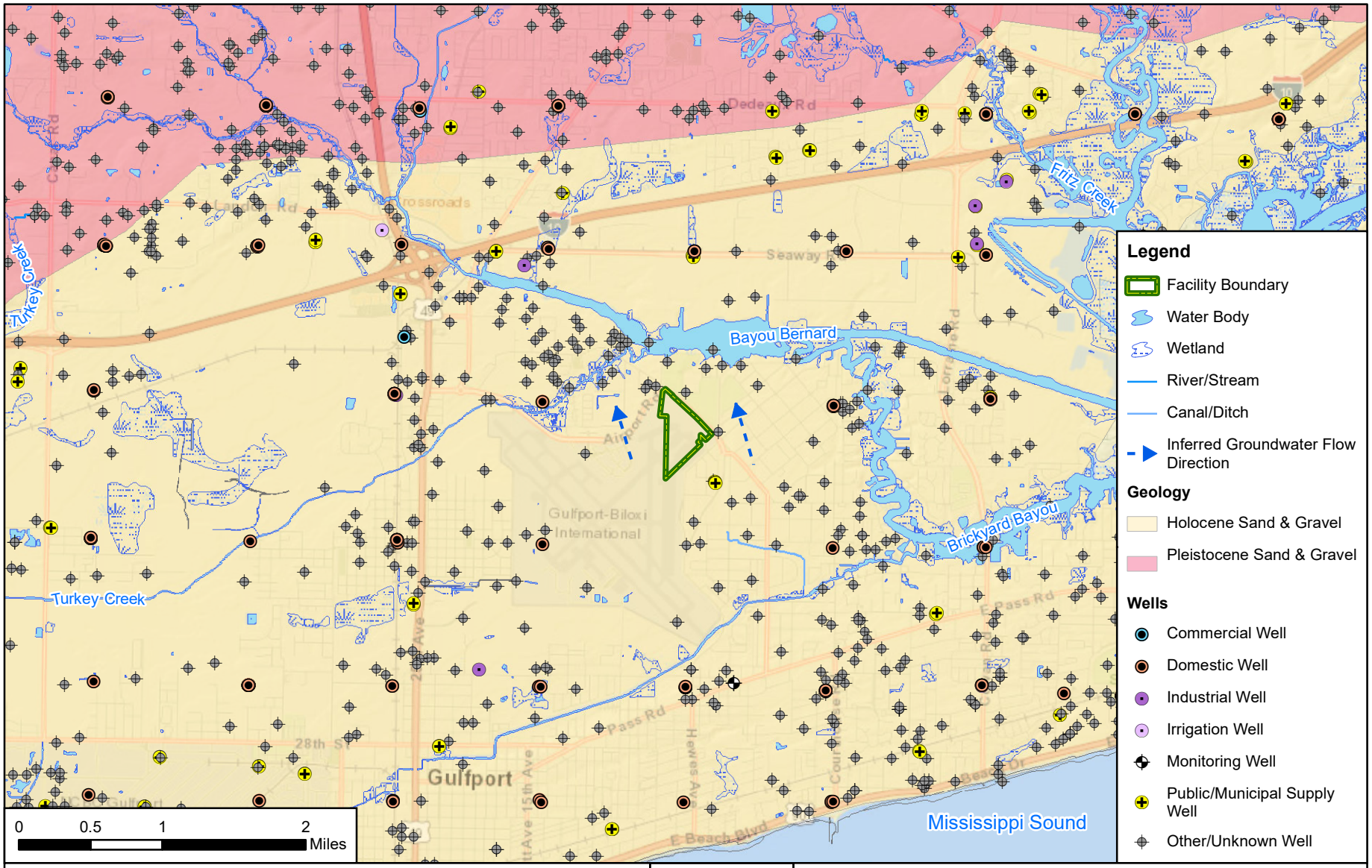
At present, the 1108th TASMG has a total land area of approximately 33 acres. The primary mission of the facility is to provide aircraft maintenance, component rebuilding, and painting. The facility buildings provide space for the main operations and storage. Land use surrounding the facility is a mixture of residential and industrial and includes the co-located ANG CRTC and Gulfport-Biloxi International Airport.

The 1108th TASMG is located within the City of Gulfport, Mississippi, which is the second largest city in the state. Reasonably anticipated future land use is not expected to change from the current land use.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	9/17/2019	GIS BY	MS	9/17/2019
SCALE	1:126,720	CHK BY	LC	9/17/2019
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	9/17/2019

Q:\Projects\ENV\GEARS\GEO\ARNG PFAS\900-CAD-GIS\920-GIS or Graphics\MXD\MS\TASMG_Gulfport\Fig_1-1_TASMG_Gulfport_Facility_Location.mxd



CLIENT	ARNG			
Preliminary Assessment for PFAS at Camp McCain, MS				
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:63,360	CHK BY	LC	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	7/9/2020

TITLE

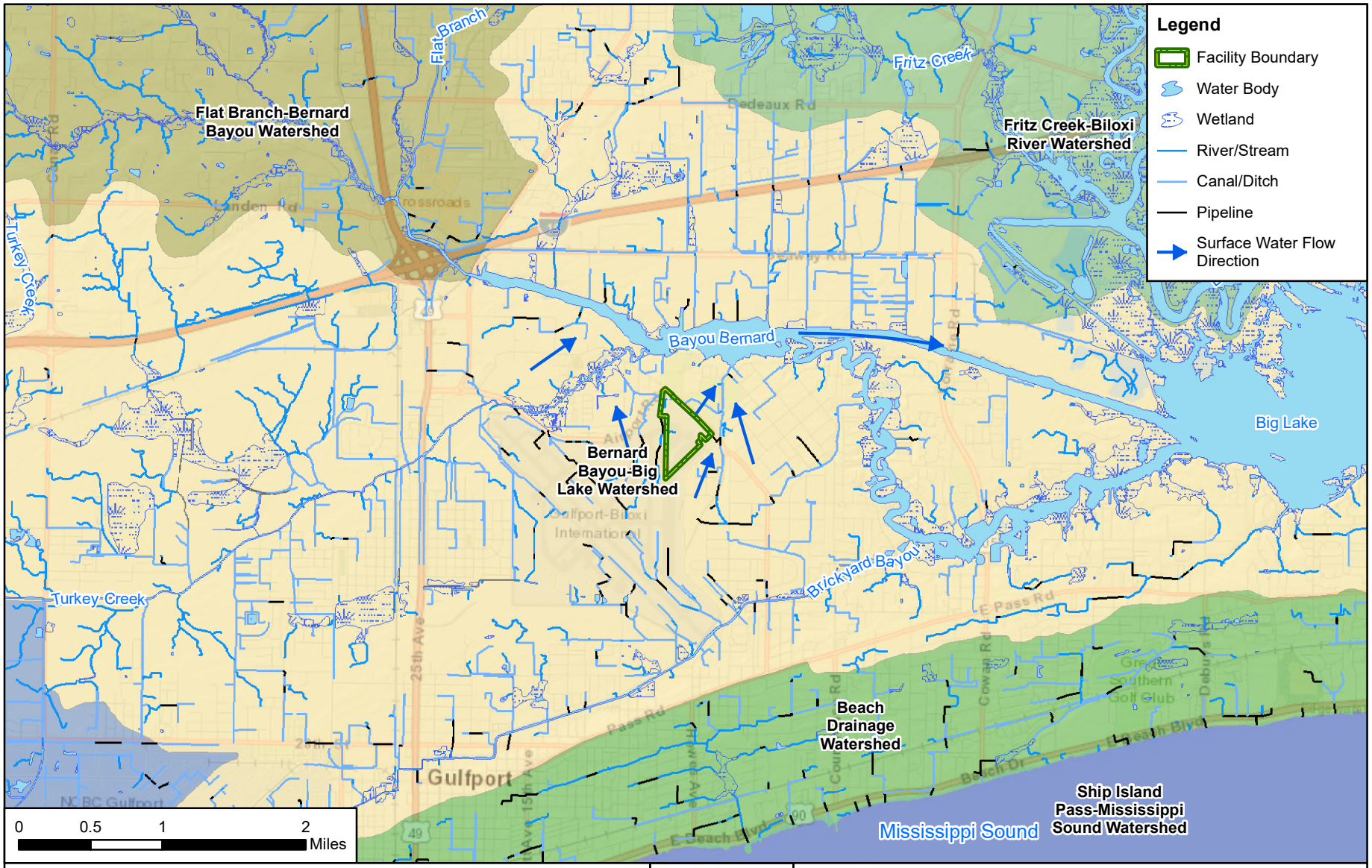
Groundwater Features

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-2

C:\Users\stankevichm\OneDrive - AECOM Directory\ARNG_PFAS_GIS_60552172\MXDs\MS\TASMG_Gulfport\Fig_1-2_TASMG_Gulfport_Groundwater.mxd



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:63,360	CHK BY	PD	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)		PM	RG	7/9/2020

N

TITLE

Surface Water Features

AECOM

12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-3

C:\Users\stankevichm\OneDrive - AECOM Directory\ARNG_PFAS_GIS_60552172\MXDs\MS\TASMG_Gulfport\Fig_1-3_TASMG_Gulfport_Surface_Water.mxd

2. Fire Training Areas

No FTAs were identified at the 1108th TASMG during the PA. According to the facility Fire Marshall, the adjacent Mississippi ANG (MSANG) Station covers emergency response to the 1108th TASMG. The MSANG operates an FTA at an off-facility location that is discussed further in **Section 5**.

3. Non-Fire Training Areas

Non-FTAs where PFAS were potentially released were also identified during the PA. A description of each non-FTA is presented below, and the non-FTAs are shown on **Figure 3-1**. Interview records appear in **Appendix B** and photographs in **Appendix C**.

3.1 Release Area A – New Paint Hangar

The New Paint Hangar is located on the northern half of the facility. Construction of the building began in 2017 and was completed in September 2018. Release Area A is shown on **Figure 3-1**.

The New Paint Hangar includes a fire suppression system that is charged with Ansul Jet-X 2 3/4 percent (%) High-Expansion Foam Concentrate (Jet-X). The Jet-X data sheet provided by Ansul (**Appendix A**) does not explicitly state the absence of PFAS in the product. Therefore, there is the potential for Jet-X to contain PFAS. During the VSI, a 400-gallon Jet-X tank that supplies the New Paint Hangar suppression system was observed in a utility room within the Hangar. Corrosion was noted on the exterior of the tank, as well as on the floor of the utility room. No floor drains were noted within the utility room.

According to multiple interviews with site personnel, in October 2018, a full test of the New Paint Hangar suppression system was conducted using Jet-X. The hangar doors were shut, and the walls were covered in plastic in order to prevent foam from exiting the hangar. During the test, the tank was completely expended, and it was reported that the foam reached heights of 4-6 feet within the hangar. After the test, the foam was cleaned with mops and guided into hangar floor drains. These drains lead to an oil-water separator (OWS) located behind the hangar that drains to the city sanitary sewer, and ultimately to the city of Gulfport Waste Water Treatment Plant (WWTP) located just north of the facility boundary (**Figure 3-1**). Sludge that collects inside the OWS is vacuumed out and sent to a Subtitle D landfill.

3.2 Release Area B – Main Hangar and Tank Room

The Main Hangar is located on the northern half of the facility, southeast of the New Paint Hangar. Release Area B is shown on **Figure 3-1**. According to interviews with the facility Aviation Safety Officer (**Appendix B**), the Main Hangar was constructed in 1989. The building currently serves as the facility's main aircraft maintenance hangar.

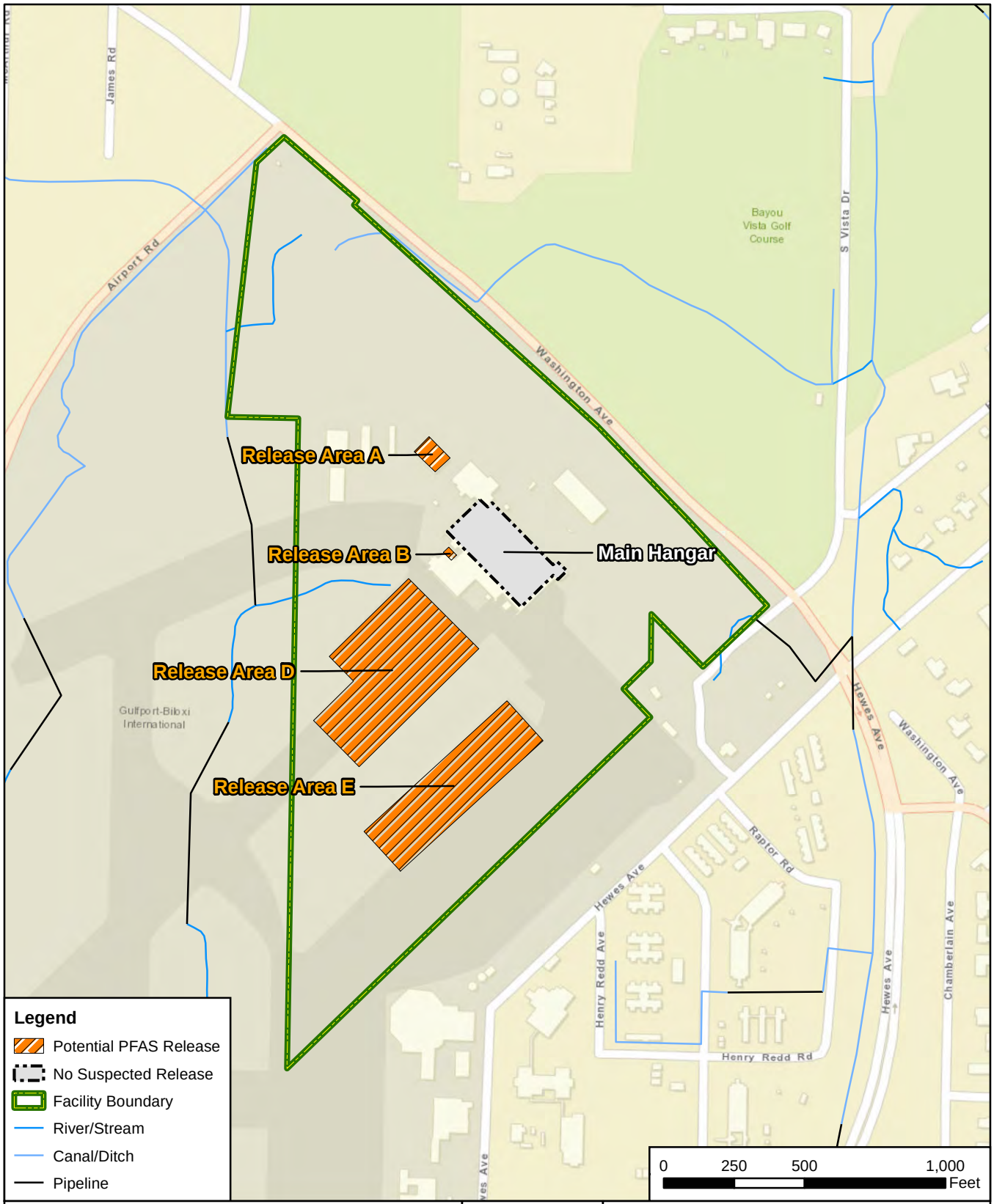
The Main Hangar includes a 5 to 10-year-old fire suppression system that is equipped with a 900-gallon Chemguard AFFF tank. During the VSI, an additional 55-gallon drum of Chemguard AFFF was also noted in the tank room, which is adjacent to the southwest wall of the Main Hangar and houses the suppression system tank. AFFF residue was noted on the floor of the tank room. Floor drains were present in this room; however, they were located on an elevated section of floor about 3 feet above the base of the tank, and any minor leaks of AFFF would not reach the drains.

According to site personnel, the bladder in the AFFF tank was replaced within the past year. It is unknown whether the AFFF in the tank was replaced at this time. Site personnel did not have knowledge of any documentation related to the bladder change, and there are uncertainties regarding how the AFFF was managed during this process. Staining on the floor of the tank room and on the side of the tank itself indicates potential spills or leaks have occurred inside the tank room. According to interviews, there have been no instances of AFFF release inside the Main Hangar during the duration of the suppression system's existence, and a test of the suppression system has never been conducted.

3.3 Release Area D & E – Old Aircraft Staging Ramp

The Old Aircraft Staging Ramp includes two paved areas located adjacent to the Main Hangar on its southwest side. Release Areas D & E are shown on **Figure 3-1**. The ramp was used for aircraft staging until about 2016. At the time of the PA site visit, the northern part of the Old Aircraft Staging Ramp (Release Area D) was being used as a staging area for active construction. A new hangar was being built adjacent to the Main Hangar, which is the second stage of the project that completed the New Paint Hangar in 2018.

According to information obtained during interviews, Tri-Max™ units containing AFFF were historically staged here; however, the Aviation Safety Officer stated that no discharges of AFFF have occurred from 1991 – present. Personnel were historically trained by discussion and instructional videos, but not by actually discharging the units. It is unknown how the maintenance of the Tri-Max™ units was handled. Training and maintenance activities prior to 1991 are also unknown. At the time of the site visit, only standard dry chemical extinguishers were present at the 1108th TASMG installation.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:6,000	CHK BY	PD	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/9/2020

Non-Fire Training Areas

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 3-1

4. Emergency Response Areas

No instances of emergency response firefighting were identified at the 1108th TASMG during the PA. The adjacent MSANG fire department would provide emergency response to the facility, if needed. The current Aviation Safety Officer and Fire Marshall reported no knowledge of emergency responses going back to 1991.

5. Adjacent Sources

Nine potential off-facility sources of PFAS not under control of the MSARNG were identified during the PA. All these sources are detailed in a 2019 MSANG Gulfport CRTC SI Report for PFAS (Leidos, 2019). A description of each potential off-facility source is presented below, and locations are shown on **Figure 5-1**.

5.1 Release Area C – MSANG Aircraft Parking Ramp

The MSANG Aircraft Parking Ramp is located along the southeast boundary of the facility, upgradient from the majority of the remaining 1108th TASMG land. Ownership of the northeast trending segment of the ramp is split between the MSANG and the MSARNG. Routine nozzle testing using AFFF was conducted on the ramp during the 1990s by CRTC personnel. Nozzle testing was known to have occurred on the 1108th TASMG property portion of the ramp (Release Area C) (Leidos, 2019). In addition, line purging of Aircraft Rescue and Firefighting (ARFF) vehicles that carried AFFF was performed on the Aircraft Parking Ramp in the area of MSANG Building 77 (Former Fire Station) and Building W-1 (Former Warehouse), as discussed below. Foam expended on the MSANG Aircraft Parking Ramp by CRTC personnel would have been left to dissipate or drain into the trench drain in the middle of the ramp. This trench drain leads to a detention pond and an outfall off-site to the northeast of the 1108th TASMG facility boundary.

MSANG performed an SI at CRTC in 2019; PFAS were detected in soil, sediment, surface water, and groundwater samples associated with the Aircraft Parking Ramp release area (Leidos, 2019). There were exceedances of the USEPA Lifetime Health Advisory for PFOS and PFOA documented in the 2019 SI.

5.2 MSANG Building 75 (Aircraft Hangar)

The MSANG Building 75 (Aircraft Hangar) is located to the south and approximately 80 feet upgradient of the 1108th TASMG facility boundary. An AFFF suppression system was installed in the hangar in 2002. The suppression system consists of a 1,200-gallon AFFF tank and additional AFFF storage containers. A release of AFFF was reported to likely have occurred during testing of the system after installation. Additionally, a 2009 aircraft crash into the hangar triggered an AFFF release of unknown quantity. Lastly, a small release of AFFF was reported during pipeline maintenance in 2013 (Leidos, 2019).

PFAS were detected in the soil and groundwater samples from the Building 75 (Aircraft Hangar) release area during the 2019 SI (Leidos, 2019).

5.3 MSANG Building W-1 (Former Warehouse)

The MSANG Building W-1 (Former Warehouse) is located approximately 1,000 feet upgradient of the 1108th TASMG facility boundary, to the south. It was built in 1957 and surplus AFFF was likely stored at the building before it was demolished in 2007 (Leidos, 2019).

PFAS were detected in the co-located soil and groundwater samples collected by the MSANG to evaluate the Building W-1 (Former Warehouse) and the Building 77 (Former Fire Station) release areas during the SI (Leidos, 2019).

5.4 MSANG Building 77 (Former Fire Station)

MSANG Building 77 was built in 1957 and operated as the CRTC Fire Station until it was demolished in 2008, and it is located upgradient and approximately 820 feet south of the 1108th

TASMG facility boundary. During its operation, Building 77 stored AFFF on trucks and in drums. The 2019 SI reported that on one occasion, a drum of AFFF ruptured outside of the building. No other known releases of AFFF occurred at Building 77 (Leidos, 2019).

PFAS were detected in the co-located soil and groundwater samples collected by the MSANG to evaluate the Building W-1 (Former Warehouse) and the Building 77 (Former Fire Station) release areas during the SI (Leidos, 2019).

5.5 MSANG Building 66 (Current Fire Station)

MSANG Building 66 was built in 2008 to replace Building 77 as the Fire Station, and it is located south and approximately 0.25-mile upgradient of the 1108th TASMG facility boundary. Historically and presently, multiple firetrucks hold AFFF at the station, in addition to three 500-gallon AFFF tanks that supply a gravity-fed refill system for the trucks. AFFF drips slowly into secondary containment from these tanks. Vehicles that hold AFFF are washed in the parking bays or outside on the west side of the building (Leidos, 2019).

PFAS were detected in the soil and groundwater samples collected by the MSANG to evaluate the Building 66 (Current Fire Station) release area during the SI (Leidos, 2019).

5.6 Gulfport-Biloxi International Airport

The 1108th TASMG is located along the northeast corner of the Gulfport-Biloxi International Airport. Airport personnel were not interviewed during the PA because the focus of the assessment was to evaluate potential PFAS related activities and sources at MSARNG properties, not formally assess adjacent sources. Therefore, it is not known if AFFF is used or stored at the airport currently or historically. Because the presence of AFFF at the airport cannot be confirmed, Gulfport-Biloxi International Airport has been identified as a potential off-site PFAS source area.

5.7 Gulfport South Waste Water Treatment Plant

The Gulfport South WWTP is located immediately to the north of the facility. Potential PFAS containing waste water from the New Paint Hangar fire suppression system test was discharged to the WWTP via the sanitary sewer. WWTPs can be secondary sources of PFAS depending on the areas that they serve. WWTP biosolids have specifically been found to be secondary sources of PFAS contamination. Because WWTP personnel were not interviewed during the VSI, it is unknown where and how the biosolids from the WWTP are treated or disposed of. It is known that the WWTP discharges effluent, which is potentially PFAS containing, to local streams. As such, the WWTP could be a potential adjacent source of PFAS.

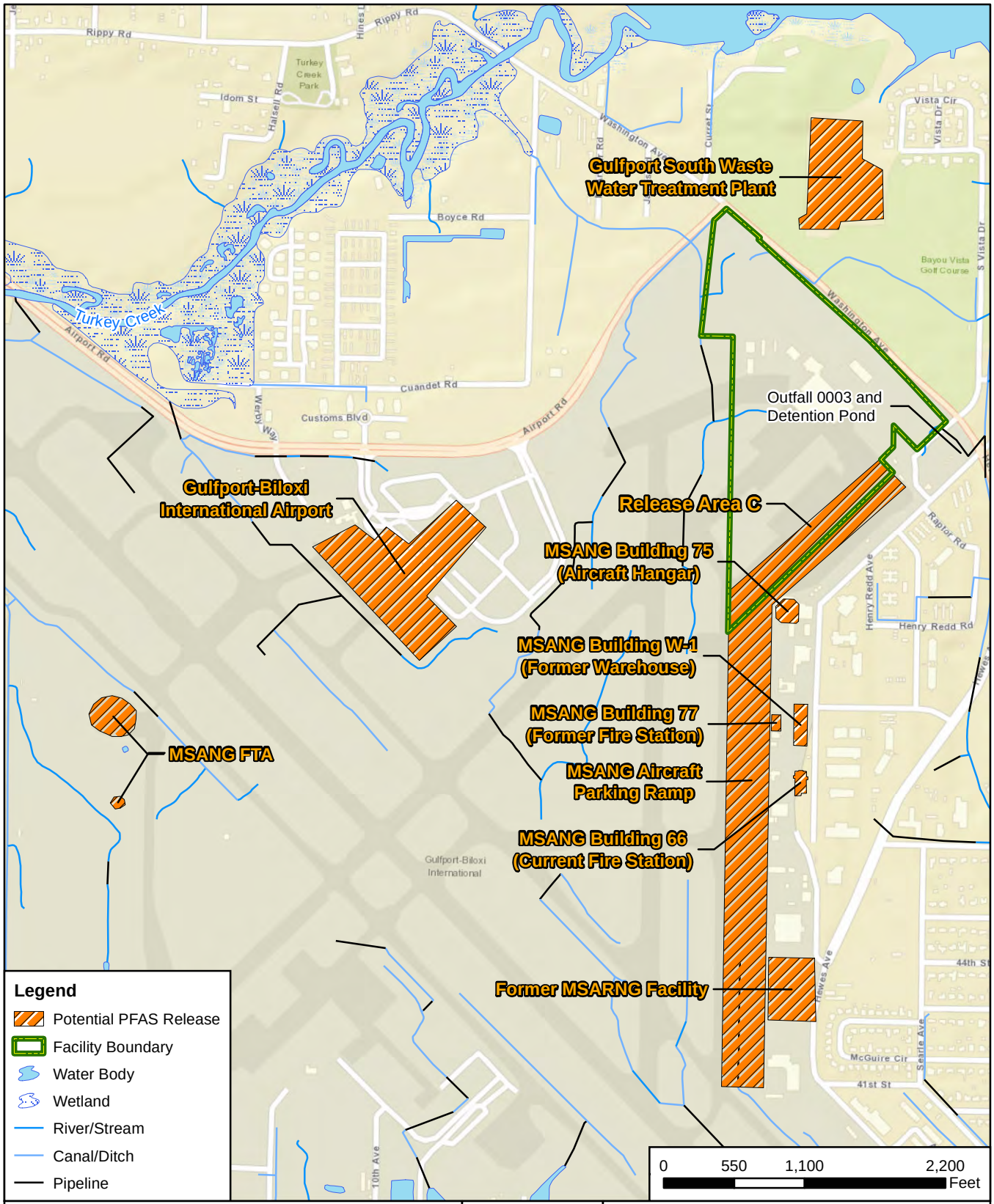
5.8 Former MSARNG Facility

The former location of the MSARNG facility was in operation from 1974 to the mid-1990s and consisted of multiple hangars off the south end of the taxiway. No information was obtained during the PA regarding the potential use, storage, or management of AFFF at this facility.

5.9 MSANG FTAs

The former MSANG FTA (used from 1972 – 1988) is located approximately 0.8-miles to the west of the 1108th TASMG. During the MSANG SI, all six PFAS compounds tested for were detected in groundwater (Leidos, 2019). The USEPA Lifetime Health Advisory level of 70 nanograms per

liter (ng/l) was exceeded for PFOA and PFOS. The current MSANG FTA (in use since 1999) is located immediately to the north of the former MSANG FTA. Five PFAS compounds tested for were detected in groundwater, although there were no exceedances of the USEPA Lifetime Health Advisory.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:13,200	CHK BY	PD	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/9/2020

Adjacent Sources

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 5-1

6. Preliminary Conceptual Site Model

Based on the PA findings, four AOIs were identified at 1108th TASMG: AOI 1 Release Area A, AOI 2 Release Area B, AOI 3 Release Area C, and AOI 4 Release Area D & E. The AOI locations are shown on **Figure 6-1**. The following section describes the CSM components and the specific preliminary CSM developed for this AOI. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways is sparse and continues to be the subject of PFAS toxicological study. Receptors for the 1108th TASMG include site workers, construction workers, off-facility residents, recreational users, and trespassers. The CSMs for the AOI indicates which specific receptors could potentially be exposed to PFAS.

6.1 AOI 1 Release Area A

AOI 1 encompasses Release Area A (**Figure 6-1**). A large release of Jet-X by the MSARNG inside the hangar occurred in 2018 during a full test of the fire suppression system. No remediation activities have occurred at AOI 1.

It was reported that the Jet-X foam did not escape the confines of the hangar and was drained through the floor drains to the OWS, and subsequently to the city of Gulfport WWTP, located just north of the facility boundary, via the city sanitary sewer system. Given the uncertainty of the chemical composition of Jet-X, PFAS may have infiltrated to the subsurface via leaks in drains, the OWS, underground wastewater conveyance piping beneath the hangar, or along such piping from the facility to the municipal WWTP. Under such scenarios ground disturbing activities in these areas could result in construction worker exposure to PFAS via inhalation of dust or ingestion of exposed subsurface soil. Construction activities also have the potential to intersect the shallow water table. Therefore, the soil and groundwater PFAS contamination exposure pathways for construction workers are potentially complete.

Potential PFAS contamination may have further infiltrated to shallow groundwater, which is anticipated to flow north-northwest. It is possible that PFAS could have migrated to water wells identified within 1 mile of the facility boundaries. Reported well depths range from approximately 20 to 800 feet bgs. Wells located immediately downgradient of the facility are classified as municipal, irrigation, or other/unknown based on information in the EDR report (**Appendix A**). Given the presence of wells with domestic uses downgradient of AOI 1, the groundwater pathway to off-facility residents is potentially complete. Industrial, municipal supply, irrigation, and more domestic wells are located within two miles downgradient of the facility, but on the opposite side of the bayou, which likely acts as a hydraulic barrier. There are City of Gulfport municipal supply wells identified to the east of the southern part of the facility. These wells are located hydraulically upgradient from the facility; therefore, the exposure pathway is incomplete for them.

The Gulfport WWTP discharges effluent to local streams. Therefore, the PFAS contamination exposure pathways for surface water and sediment to off-facility residents are potentially complete. The preliminary CSM for AOI 1 is shown on **Figure 6-2**.

6.2 AOI 2 Release Area B

AOI 2 encompasses Release Area B (**Figure 6-1**). Due to uncertainties regarding the management of AFFF during a bladder change of the AFFF tank during 2018, PFAS may have been released into the environment. No remediation activities have occurred at AOI 2.

During the PA site visit, staining and corrosion were noted on the exterior of the AFFF tank and the floor of the tank room which feeds to the Main Hangar AFFF suppression system, which indicate potential PFAS release during the fall 2018 bladder change. There are multiple uncertainties regarding the bladder change process. It is unknown who conducted the bladder change, how the AFFF was managed during the change, and whether any AFFF were spilled or otherwise discharged during the process. Due to these uncertainties and the visual evidence of AFFF released inside the tank room, there is the potential that PFAS have been released to the environment.

AFFF released outside of the tank room would have contacted concrete and/or surface soil and infiltrated in the area immediately surrounding the tank room. Ground disturbing activities to surface soil could result in facility worker, construction worker, and visitor/trespasser exposure to potential PFAS contamination via ingestion and inhalation of airborne particulates. Ground disturbing activities to subsurface soil could result in construction worker exposure to potential PFAS contamination via ingestion and inhalation of airborne particulates, and ingestion of contaminated shallow groundwater. Therefore, these pathways are potentially complete. Multiple municipal wells are located downgradient of 1108th TASMG, therefore, the PFAS exposure pathway for groundwater to off-facility residents is potentially complete. There are no surface water features in this area; therefore, the surface water and sediment pathways for PFAS are incomplete for all receptors. The preliminary CSM for AOI 2 is shown on **Figure 6-3**.

6.3 AOI 3 Release Area C

AOI 3 encompasses Release Area C which is a part of the MSANG Parking Ramp discussed in Section 5.1 (**Figure 6-1**). The northern portion of the ramp is divided between the MSANG and the MSARNG by a trench drain that runs northeast to southwest down the middle of the ramp. In the 1990s, nozzle testing with AFFF was conducted by MSANG personnel and is known to have occurred on both sides of the Aircraft Parking Ramp (Leidos, 2019). No remediation activities have occurred at AOI 3 to date.

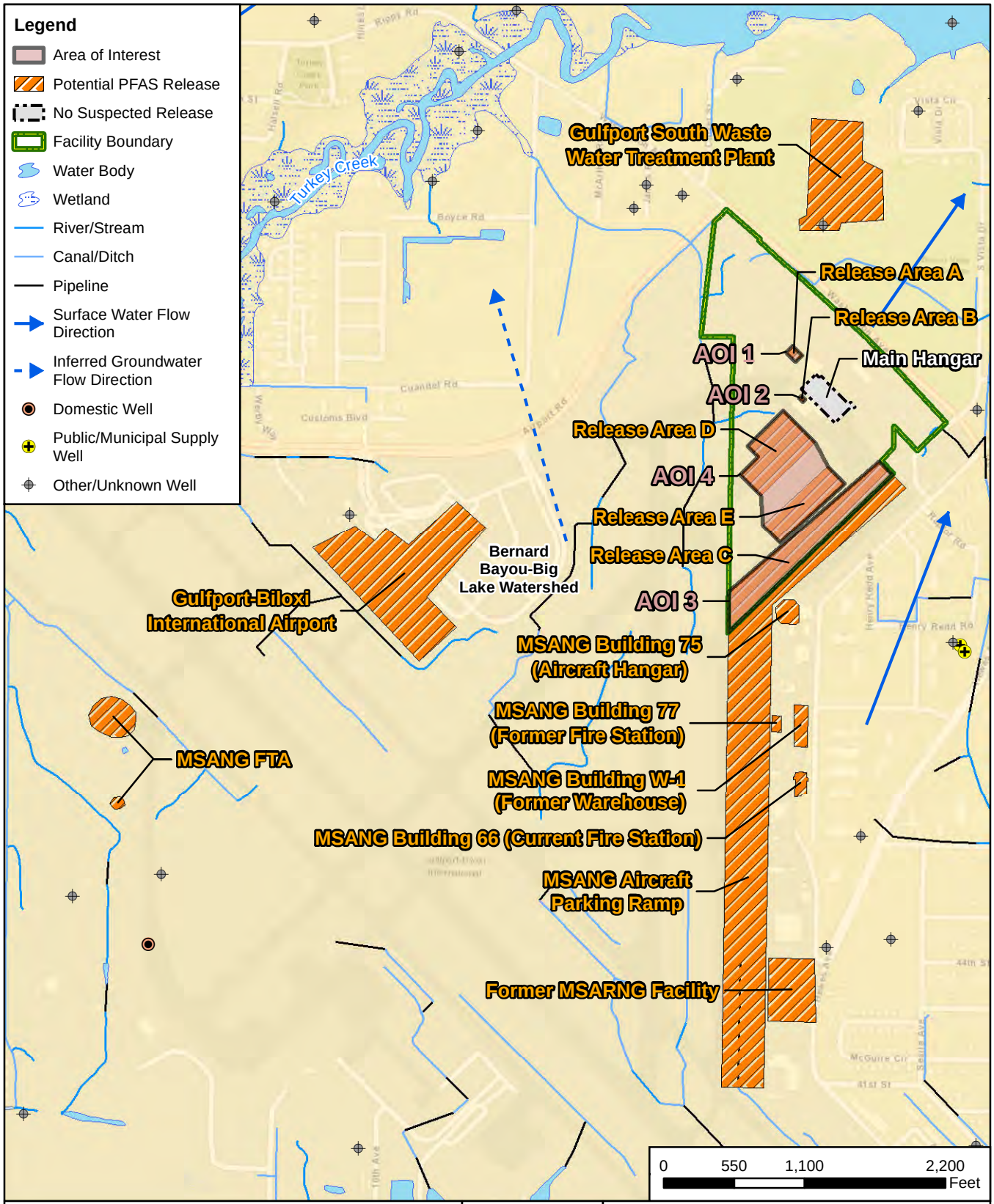
The AFFF released on the Aircraft Parking Ramp would have been left to dissipate or enter the trench drains on the ramp. Some AFFF may have directly contacted surface soil adjacent to the ramp. The northeast to southwest-trending drain leads to a detention pond and Outfall 003, an off-facility outfall to the northeast. During the 2019 MSANG PFAS SI, PFAS were detected in soil, groundwater, sediment, and surface water samples collected at Outfall 003. AFFF also has the ability to mobilize through potential cracks and seams in the Aircraft Parking Ramp and into the soil or shallow groundwater.

Ground-disturbing activities to surface soil at AOI 3 may result in facility worker, construction worker, and visitor/trespasser exposure to potential PFAS contamination via ingestion or inhalation of airborne particulates. Ground-disturbing activities to subsurface soil could result in construction worker exposure to potential PFAS contamination via ingestion of soil, ingestion of shallow groundwater, or inhalation of airborne particulates. Given the detections of PFAS in the surface water and sediment at the off-facility outfall, the exposure pathways for these media to off-facility residents are potentially complete. The preliminary CSM for AOI 3 is shown on **Figure 6-4**.

6.4 AOI 4 Release Areas D & E

AOI 4 encompasses Release Areas D and E (**Figure 6-1**). Tri-Max™ units were historically staged in this area. Given a lack of information prior to 1991 and uncertainty regarding the maintenance of these units, there is the potential for PFAS to have been released into the environment. No remediation activities have occurred at AOI 4.

Potential releases of AFFF on the Old Aircraft Staging Ramp (Release Areas D & E) would have directly contacted the concrete, soil, or entered the surface water drainage ditch located immediately to the north of the area. Due to their proximity to each other, the potential migration and exposure pathways to receptors at AOI 4 are the same as those discussed in **Section 6.3** for AOI 3. The preliminary CSM for AOI 4 is shown on **Figure 6-4**.



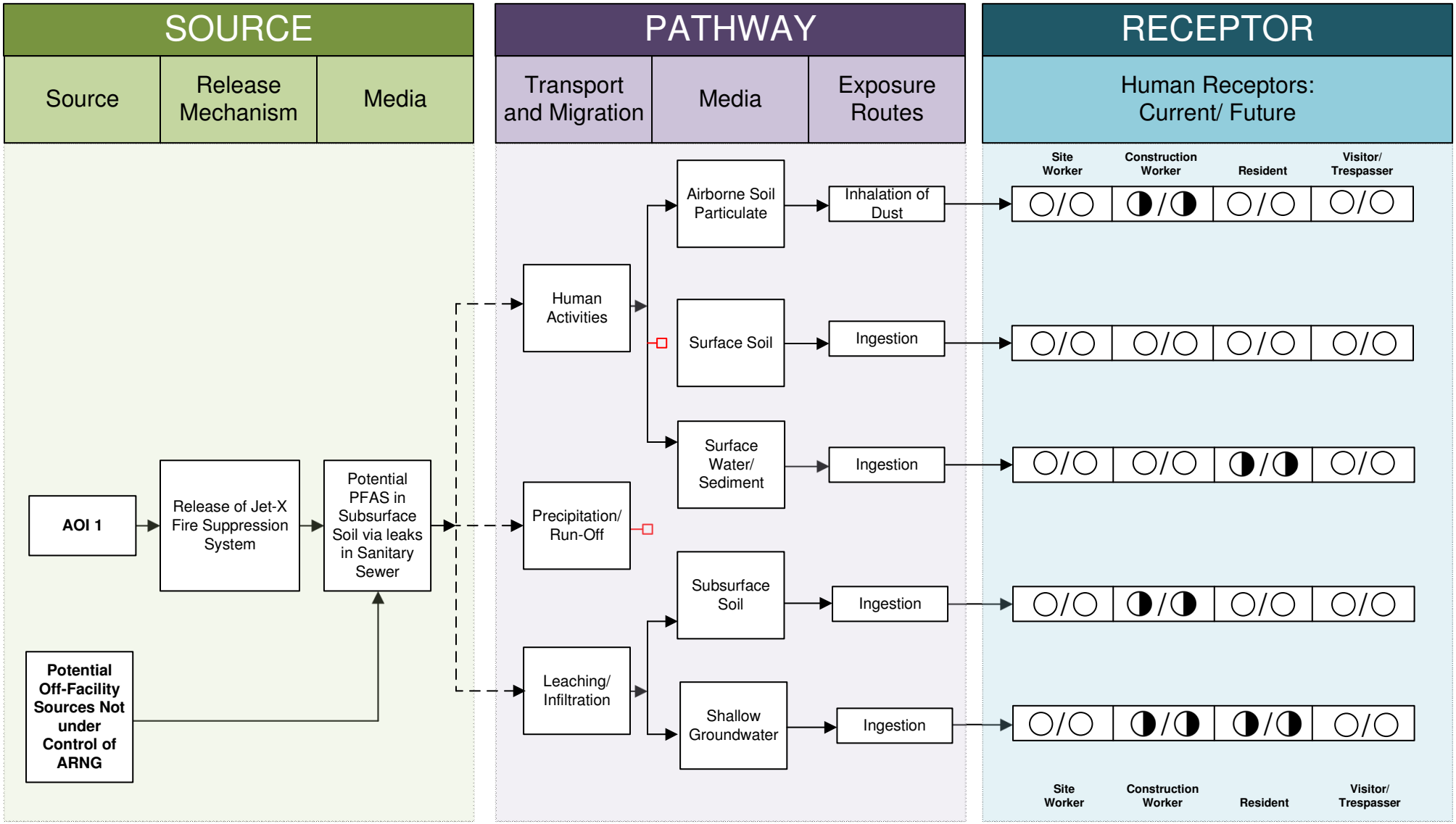
CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:13,200	CHK BY	PD	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/9/2020

N

Area of Interest

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-1



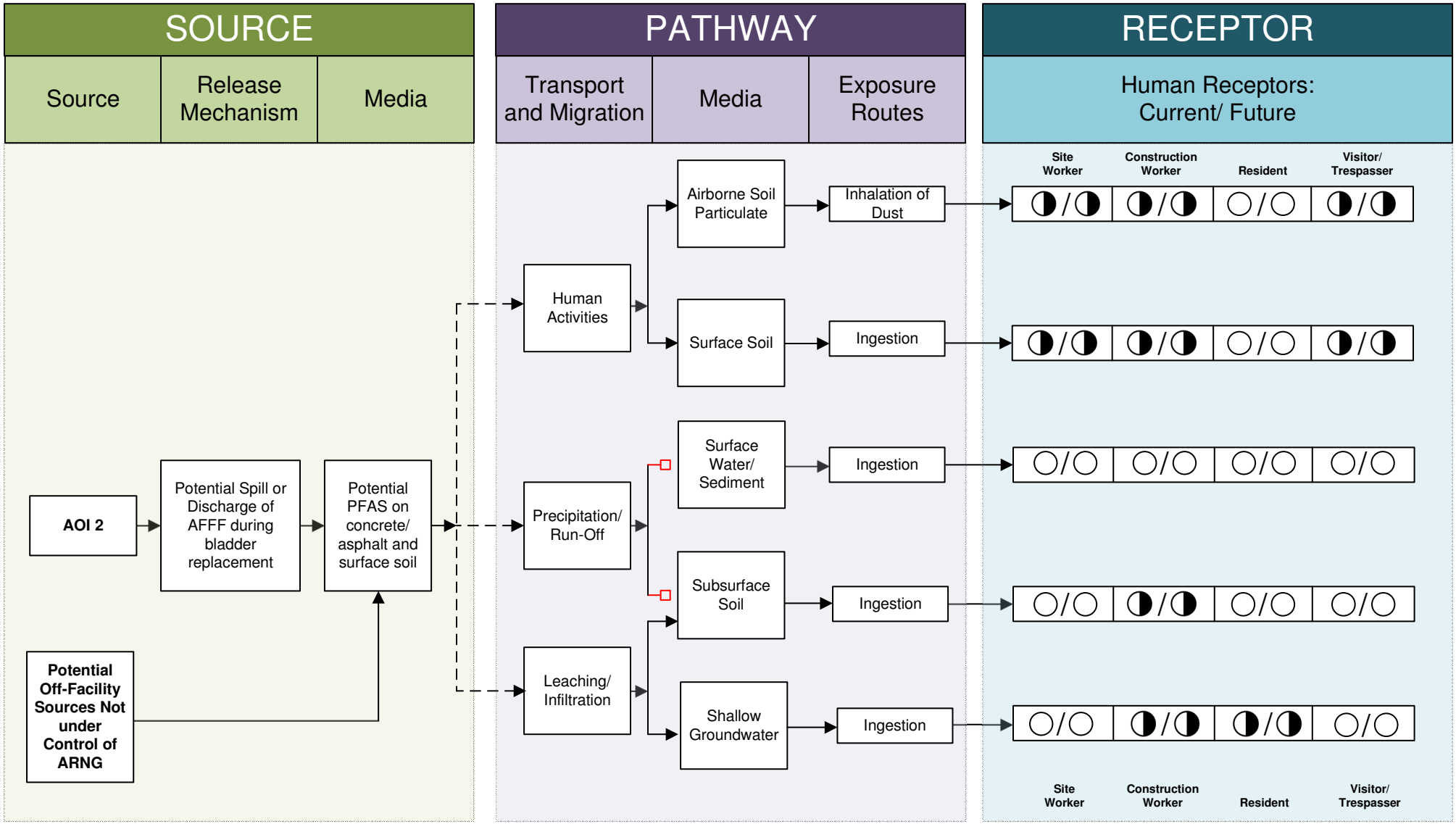
LEGEND

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

Notes:

1. The resident and recreator receptors refer to an off-site receptor.
2. Dermal contact exposure pathway is incomplete for PFAS.

Figure 6-2
Preliminary Conceptual Site Model
AOI 1 – Release Area A



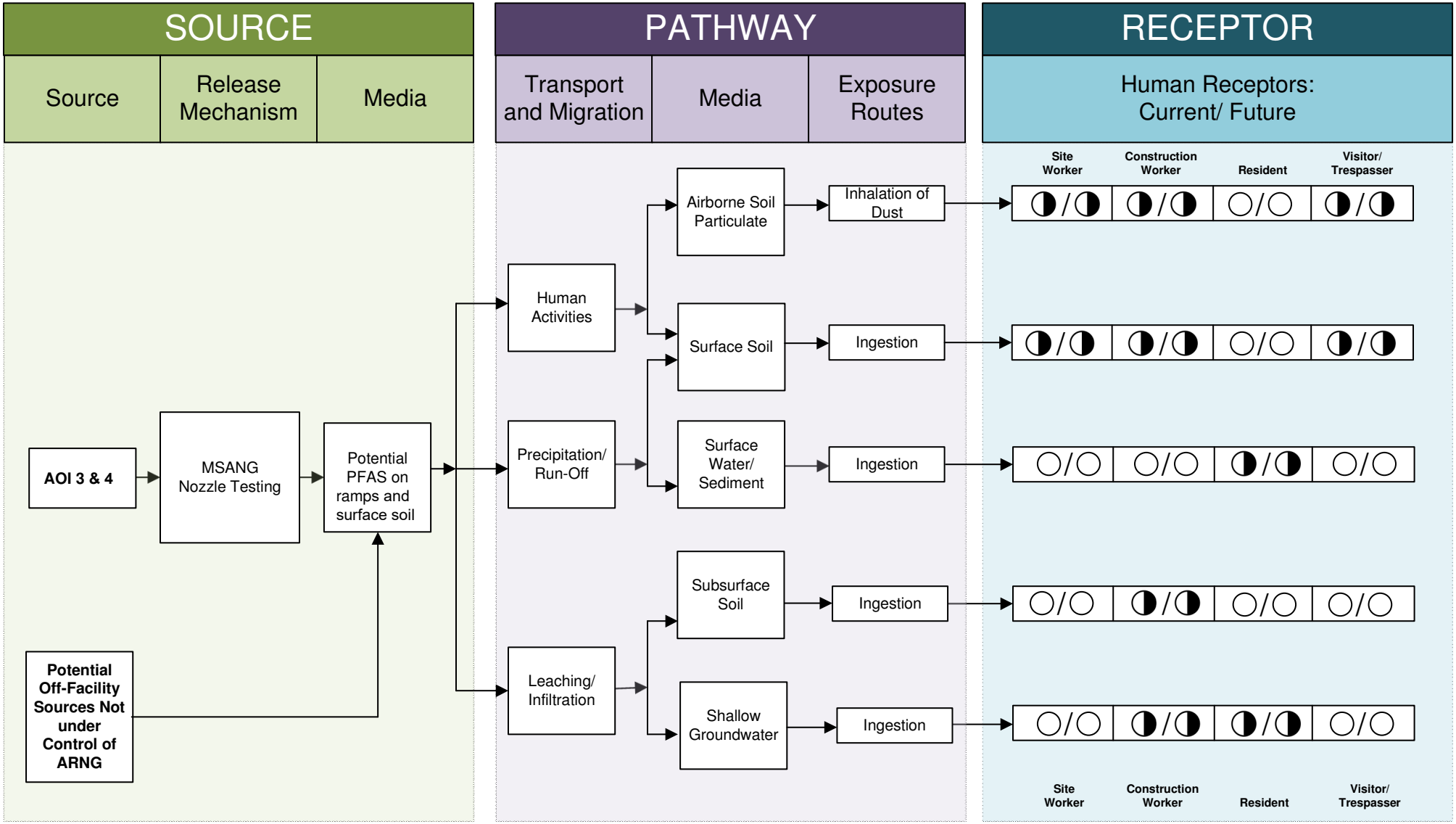
LEGEND

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

Notes:

1. The resident and recreator receptors refer to an off-site receptor.
2. Dermal contact exposure pathway is incomplete for PFAS.

Figure 6-3
Preliminary Conceptual Site Model
AOI 2 – Release Area B



LEGEND

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

Notes:

1. The resident and recreator receptors refer to an off-site receptor.
2. Dermal contact exposure pathway is incomplete for PFAS.

Figure 6-4
Preliminary Conceptual Site Model
AOIs 3 & 4 – Release Areas C, D & E

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 1108th TASMG. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Four AOIs related to potential PFAS releases were identified at 1108th TASMG during the PA (**Figure 7-1**) and are described in **Table 7-1** below.

Table 7-1 AOIs at 1108th TASMG

Area of Interest	Name	Used By	Release Dates
AOI 1	Release Area A	MSARNG	2018
AOI 2	Release Area B	MSARNG	2018
AOI 3	Release Area C	MSANG	1990s
AOI 4	Release Area D & E	MSARNG	1980s - 2016

Based on the potential PFAS releases at AOI 1, AOI 2, AOI 3, and AOI 4, there is potential for exposure to PFAS contamination in surface soil to site workers, construction workers, and visitors/trespassers; in surface water/sediment to off-facility residents; in subsurface soil to construction workers; and in shallow groundwater to construction workers and residents.

Multiple potential off-facility sources of PFAS were noted as being present in the local area surrounding 1108th TASMG. These areas include: the Gulfport-Biloxi International Airport, Gulfport South WWTP, the former MSARNG occupied facility, and the adjacent MSANG CRTC (Aircraft Parking Ramp – overlaps MSARNG property and AOI 2, Building 75 [Aircraft Hangar], Building W-1 [Former Warehouse], Building 77 [Former Fire Station], and Building 66 [Current Fire Station]). Details regarding these areas are provided in **Section 5**.

The MSANG CRTC is located upgradient from the 1108th TASMG. MSANG conducted an SI for PFAS at the CRTC in 2019, and PFAS were detected in soil, sediment, surface water, and groundwater samples collected during the assessment (Leidos, 2019).

7.2 Uncertainties

A number of information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been present, used, or released at the facility. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept by the facility or available during the PA on the use of PFAS in training, firefighting, or other non-traditional activities, or on its disposition.

The conclusions of this PA are predominantly based on the information provided during interviews with personnel who had direct knowledge of PFAS use at the facility. Sometimes the provided information was vague, and personal accounts from interviews did not extend back farther than 1991. 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 potential PFAS release locations, dates of release, volume

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

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

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

Table 7-2 Sources of Uncertainty

Area of Interest	Source of Uncertainty
General	Interview information obtained during the PA only extended back to 1991. The facility has been operating in its current location since 1989.
AOI 1 Release Area A	It is unknown whether Jet-X contains PFAS.
AOI 1 Release Area A	It is unknown whether pipes and conduits from the New Paint Hangar to the WWTP have leaked in the subsurface.
AOI 3 Release Area C	It is unknown whether AFFF has leached from the concrete parking ramp into subsurface soil and/or groundwater.
AOI 3 Release Area C	The amount and concentration of AFFF released at AOI 2 throughout the 1990s is unknown.
Main Hangar Tank Room	No information regarding the AFFF tank bladder change process was available.
Former MSARNG Facility	It is unknown whether AFFF was stored, managed, or used at this former location.
AOI 4 Release Areas D & E	The potential management and use of Tri-Max units from 1989 - 1991 is unknown. No information was available regarding the maintenance of Tri-Max™ units that were historically staged on the ramp after 1991.

7.3 Potential Future Actions

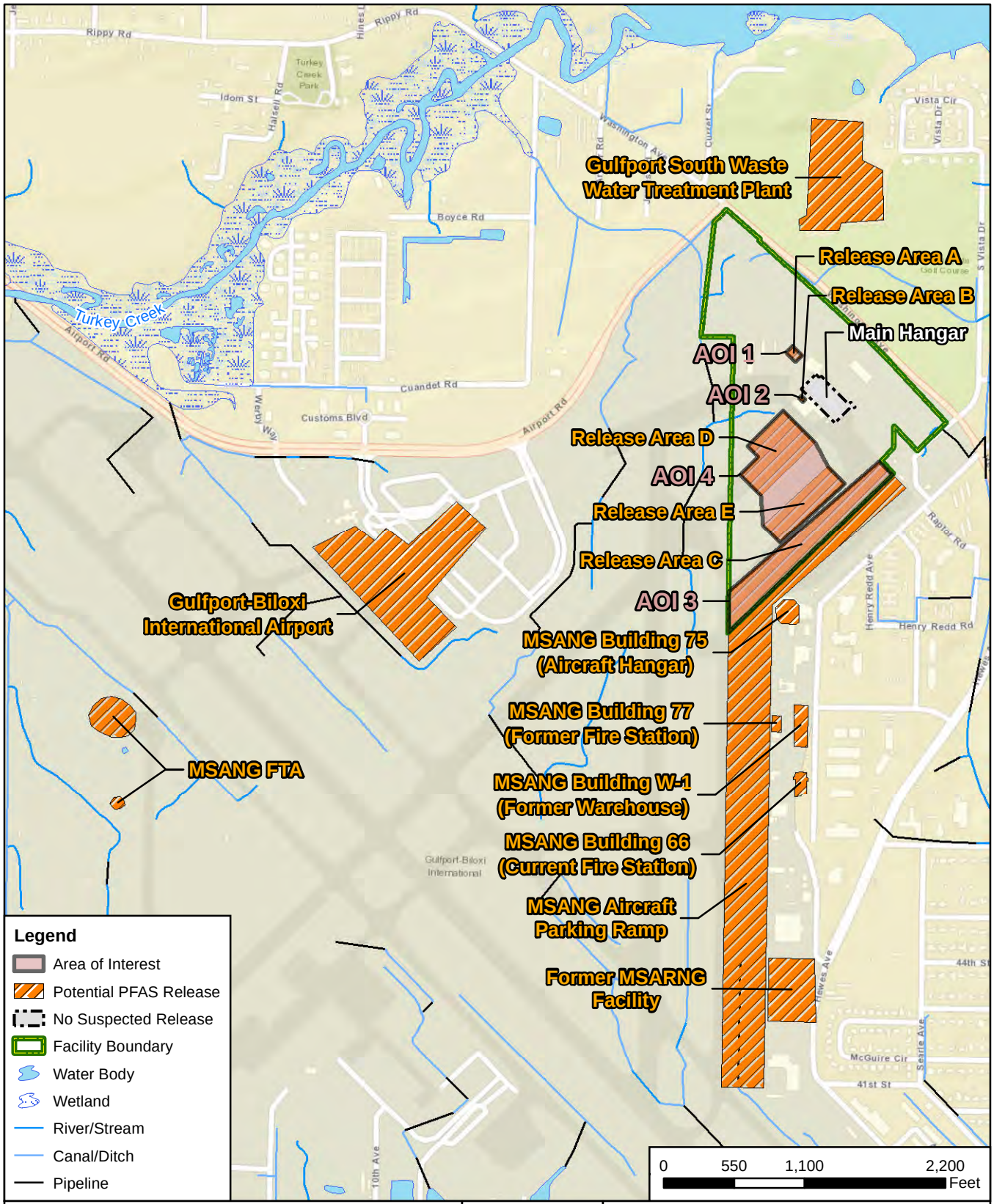
Interviews and records (covering 1991 to present) indicate that current or former ARNG activities may have resulted in potential PFAS releases at the AOIs identified during the PA. Based on the CSM developed for the AOI, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater, surface water, and sediment at these AOIs. **Table 7-3** summarizes the rationale used to determine if the AOI should be considered for further investigation under the CERCLA process and undergo an SI.

ARNG will evaluate the need for an SI at AOI 1, AOI 2, and AOI 4 at 1108th TASMG based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources. MSANG is investigating AOI 3 as a part of their May 2016 PA report and

January 2019 SI report (Leidos, 2019). As such, future actions at AOI 3 under the CERCLA process are anticipated to be performed by the MSANG, not the MSARNG.

Table 7-3 PA Findings Summary

Area of Interest	Rationale	Potential Future Action
AOI 1 Release Area A	In 2018 a full test of the suppression system was conducted using Jet-X foam, which may contain PFAS.	Proceed to an SI, focus on soil and groundwater.
AOI 2 Release Area B	The bladder change in the AFFF tank may have resulted in AFFF releases to the environment.	Proceed to an SI, focus on soil and groundwater.
AOI 3 Release Area C	In the 1990s, MSANG performed nozzle testing with AFFF along the ramp.	Proceed to the next step in the CERCLA process under the MSANG program.
AOI 4 Release Areas D & E	Interview records do not cover the entire timeline of Tri-Max™ presence, and there is uncertainty regarding the maintenance procedures.	Proceed to an SI, focus on soil, groundwater, surface water, and sediment.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at TASMG Gulfport, MS			
REVISED	7/9/2020	GIS BY	MS	7/9/2020
SCALE	1:13,200	CHK BY	PD	7/9/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	7/9/2020

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

8. References

BB&E. 2016. *Final Perfluorinated Compounds Preliminary Assessment Site Visit Report Mississippi Air National Guard Combat Readiness Training Center Gulfport, Mississipi and C-17 Assault Strip Adjacent to Camp Shelby Hattiesburg, Mississippi*. May.

Grubb, Hayes F. 1986. *Gulf Coast Regional Aquifer-System Analysis--A Mississippi Perspective*. US Geological Survey Water-Resources Investigations Report 86-4 162.

Leidos. 2019. *Final Site Inspection Report for Perfluorooctane Sulfonate and Perfluorooctanoic Acid at Gulfport Regional Airport, Mississippi*. January.

MSARNG 2017. *Gulfport TASMG, Final Storm Water Pollution Prevention Plan, Volume 2*.

Otvos, Ervin G. 2001. *H. Mississippi Coast: Stratigraphic and Quaternary Evolution in the Northern Gulf Coastal Plain Framework*. US Geological Survey Open-file Report 01-415-H.

United States Climate Data. 2018. Available at https://www.usclimatedata.com/climate/des-moines/iowa/united-states/usia0231 (Accessed August 23, 2018).

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 1108th TASMG include:

Adjacent MSANG PFAS Investigations

- 2016 Final Perfluorinated Compounds Preliminary Assessment Site Visit Report Mississippi Air National Guard Combat Readiness Training Center Gulfport, Mississippi and C-17 Assault Strip Adjacent to Camp Shelby Hattiesburg, Mississippi
- 2019 Site Inspection Report for Perfluorooctane Sulfonate and Perfluorooctanoic Acid at Gulfport Regional Airport, Mississippi

Previous Investigations or Reports Completed at 1108th TASMG and Surrounding Area

- 2017 Gulfport TASMG, Final Storm Water Pollution Prevention Plan, Volume 2
- 1986 Gulf Coast Regional Aquifer System Analysis-A Mississippi Perspective

1108th TASMG EDR™ Report

- 2019 1108th TASMG Environmental Data Resources, Inc.™ Report

Other Facility Information

- Ansul Jet-X 2% Foam Concentrate Data Sheet
- Facility Lease Information

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Other

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/26/19 Phone Interview

Interviewee [redacted] **Title:** Facility Maintenance Supervisor **Phone Number:** **Email:**	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Y or N

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

Facility Maintenance Supervisor - 1 year
May 2018 - present

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

	Known Uses
Main Hangar:	Use
Bladder replaced - foam was replaced	Procurement
↳ no documentation, doesn't know what happened to old foam.	Disposition
Dry chem trimax on flightline now, no AFFF	Storage (Mixed)
One year worth of records	Storage (Solution)
	Inventory, Off-Spec
- Paint Hangar drains go to OWS and to the city sewer afterwards	Containment
	SOP on Filling
Paint Hangar test: he was there	Leaking Vehicles
- contained foam inside hangar	Nozzle and Suppression System Testing
- washed down the drains	Dining Facilities
- No similar test in the main hangar	Vehicle Washing
	Ramp Washing
+ No historical trimax records or knowledge	Fuel Spill Washing and Fueling Stations
	Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

Interviewee: CW5 [redacted] **Title:** General Foreman **Phone Number:** [redacted] **Email:** [redacted]	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Y or N _____

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

Fire Marshall. 15 years @ facility.

→ Building Maintenance

[redacted] (not here today) would have records. - We should phone interview him

Or [redacted].

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

	Known Uses
- Not sure if there are maintenance records for [redacted] trimaxes. Contractor inspected them most likely.	Use
	Procurement
- Haven't seen any foam sprayed ever.	Disposition
- Never been used for an incident.	Storage (Mixed)
- Doesn't think used for training either.	Storage (Solution)
- ANG Fire Dept. covers this facility for fire protection. (ANG is adjacent).	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 - Environmental Manager

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

Interviewee: [redacted] **Title:** Environmental Officer **Phone Number:** [redacted] **Email:** [redacted]	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Y or N _____

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

   Environmental Management for 6 years.

2. Where can I find previous facility ownership information?

   ARNG leasing from ANG

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.

   Haz Waste storage units have fire suppression.

   Maintenance
   Fire Training Areas
   Firefighting (Active Fire)
   Crash
   = Fire Suppression Systems (Hangers/Dining Facilities)
   Fire Protection at Fueling Stations
   Non-Technical/Recreational/ Pest Management
   Metals Plating Facility
   Waterproofing Uniforms (Laundry Facilities)
   Other

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?

   55-gal drum in storage for

   Paint Hangar tested suppression system in fall of 2018.

   → using "Jet-X High Expansion Foam" [redacted] says this stuff has PFAS in it

   → we have a data sheet from the manufacturer. Doesn't list specific chemicals in it.

PA Interview Questionnaire - Environmental Manager

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

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?

Currently have AFFF.
Systems in Main Hangar and Paint Hangar

Paint Hanger system uses Jet-X. - PD (9.3.19)

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

Contractors. State procurement for suppression systems.

Fire extinguishers on flight line might be ordered through safety officers.
Not sure.

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)?

We have data sheet. Not exactly sure what it is.
"Ansul Jet-X 2 3/4% High-Expansion Foam Concentrate"

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?

One 55-gallon drum in storage building behind the Main Hangar.

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. Likely FTAs on ANG property.
Check ANG PA/SI report.

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

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?

N/A

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

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

N/A

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?

No

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?

N/A

PA Interview Questionnaire - Environmental Manager

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

16. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

No. N/A.

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

No.

18. Are there mutual aid/use agreements between county, city, and local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement?

No.

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)?

No. Just one release for system test in Paint Hangar. Oct. 2018.

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

No

PA Interview Questionnaire - Environmental Manager

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

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?

We have electronic copies from [redacted].

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

Adjacent ANG facility reports (PFAS PA + SI).

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.?

N/A

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

Unknown. Main Hangar suppression system bladder was replaced. Not sure if foam was replaced at that time.

PA Interview Questionnaire - Environmental Manager

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

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

Yes, [redacted] set up other interviews.

- No wells on-site
- City water for potable

PA Interview Questionnaire - Other

Facility: TASMG Gulfport
Interviewer: [redacted]
Date/Time: 3/13/19

Interviewee: CW5 [redacted] Title: Aviation Safety Officer Phone Number: [redacted] Email: [redacted]	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Ø or N CW5 [redacted]

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

28 years

CW5 [redacted] = fire marshall. Has more info. We will speak w/ him.

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

- Not sure what type extinguishers on flight line now	**Known Uses**
- Used to have trimaxes, at least. May be currently also.	Use
↳ Not sure of timeframe.	Procurement
- Training has been done, but doesn't recall	Disposition
actually using them. Videos and talking	Storage (Mixed)
about it.	Storage (Solution)
- AirNG adjacent to the facility. They've	Inventory, Off-Spec
likely used foam.	Containment
- No heavy industry close by	SOP on Filling
- Civilian airport here also	Leaking Vehicles
- Floor drains in hangar. Not sure where they go.	Nozzle and Suppression System Testing
- Suppression system added in last 5-10 years.	Dining Facilities
- This hangar built in 1989.	Vehicle Washing
- ARNG used to be @ another location	Ramp Washing
at this site. Until 1989.	Fuel Spill Washing and Fueling Stations
-	Chrome Plating or Waterproofing

Preliminary Assessment Sign-In Sheet

TASMG Gulfport

Rank	Name	Position	Years at the Facility	Phone Number/Email	May AECOM use your name in the PA Report?
CW5	[redacted]	Aviation Safety Officer	28	[redacted]	yes
CW5		General Foreman	15		yes
Civ.)		Env. Officer	6		yes
	[redacted]	Facilities Maintenance	1 year		

Follow up phone interview on 3/26/19 (PD)

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

Names(s) of people performing VSI: [redacted]

Recorded by: [redacted]

ARNG Contact: [redacted]

Date and Time: 3/13/19

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

Source/Release Information

Site Name / Area Name / Unique ID: (TASMG Gulfport) – Main Hangar

Site / Area Acreage:

Historic Site Use (Brief Description): Aircraft maintenance hangar

Current Site Use (Brief Description): Aircraft maintenance hangar

Physical barriers or access restrictions: On-base.

1. Was PFAS used (or spilled) at the site/area? Y / N No documented releases.

1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):
Evidence of corrosion and possible slight leakage in room holding the AFFF tank. Floor drains are on a raised platform. Any AFFF leaking from tank would not reach floor drains.

2. Has usage been documented? Y (N)

2a. If yes, keep a record (place electronic files on a disk):
Foam not needed to be replaced.

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

3a. Indicate what businesses are located near the site

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

4a. If yes, provide a description of the airport/flightline tenants:
Aviation Support flightline. ANG is close by.

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:

Chemguard AFFF

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

Possible slight leakage from tank. See front page.

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

No documented replacements. Bladder was replaced — not sure if foam was changed or removed at this time.

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

Floor drains are on an elevated surface. Any leaks from the tank would not reach them.

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

N/A

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

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

N/A

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

3a. If so, please note the location:

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

4a. If so, please note the location:

5. Can wind dispersion information be obtained? Y / (N)

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

6. Does an adjacent non-ARNG PFAS source exist? (Y) / N

6a. If so, please note the source and location.

ANG facility

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

Visual Survey Inspection Log

Significant Topographical Features: NFA. Building.

1. Has the infrastructure changed at the site/area? Y / N

1a. If so, please describe change (ex. Structures no longer exist):

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

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

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

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

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

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

Receptor Information

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

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

On-base. Escort required.

2. Who can access the site? (Site Workers) / Construction Workers / (Trespassers) / Residential / Recreational Users / Ecological

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

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

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

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

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

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

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

Visual Survey Inspection Log

Additional Notes 55-gal drum in storage behind building (AFFF)
There are two hose stations inside the hangar - fed by AFFF suppression system.

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
	9:55	55-gal drum foam
	9:57	Foam tank leading to suppression system
	10:07	Hose station inside hangar

Trench drain & floor drains inside hangar.

Visual Site Inspection Checklist

Names(s) of people performing VSI: [redacted]

Recorded by:

ARNG Contact:

Date and Time: 3/13/19

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

Source/Release Information

Site Name / Area Name / Unique ID: (TASMG Gulfport) – Paint Hangar

Site / Area Acreage:

Historic Site Use (Brief Description): Paint Hangar

Current Site Use (Brief Description): Paint Hangar

Physical barriers or access restrictions: On-base. Escort required.

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):

Oct. 2018 full suppression system test. 4-6 foot depth of foam in hangar. Most likely went into floor/trench drains.

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

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

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

3a. Indicate what businesses are located near the site

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

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

Aviation support flightline. ANG close by.

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:

Ansul Jet-X 2 3/4% High-Expansion Foam Concentrate

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

N/A

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

No records of changing/replacing foam.

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

Trench + floor drains. Go to OWS and eventually drain to city sewer. Sludge from OWS is removed and sent to subtitle D landfill.

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

Floor drains, trench drains

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

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

N/A

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

3a. If so, please note the location:

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

4a. If so, please note the location:

5. Can wind dispersion information be obtained? Y / (N)

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

6. Does an adjacent non-ARNG PFAS source exist? Y / N

6a. If so, please note the source and location.

ANG facility.

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

Visual Survey Inspection Log

Significant Topographical Features: N/A. Building.

1. Has the infrastructure changed at the site/area? **Y / N**

1a. If so, please describe change (ex. Structures no longer exist):

2. Is the site/area vegetated? **Y / N**

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

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

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

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

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

Receptor Information

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

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

On-base. Escort required.

2. Who can access the site? **(Site Workers) / (Construction Workers) / (Trespassers) / Residential / Recreational Users / Ecological**

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

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

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

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

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

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

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

Visual Survey Inspection Log

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
	10:15	Foam tank for Paint Hangar system (400-gal)

October 2018 full system test

4-6 feet depth inside hangar

- some would have gone into ~~[illegible]~~ trench drains most likely
- Cleaned w/ mops and pushed it into the drains most likely.

(*) Did not allow the foam to leave the building.

Closed doors and put plastic on the walls

- Trench drains go to OWS and then to City Sewer
  - Sludge vacuumed out and goes to landfill off-site.

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: TASMG Gulfport

Why has this location been identified as a site?

Foam suppression systems in hangars.

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

Adjacent ANG facility. Read SI – ANG may have sprayed foam onto ARNG property.

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?

Surface Water:

Surface water flow direction? Most surface drainage enters stormwater system or sewer system/oil-water separator.

Average rainfall? 65.19 inches

Any flooding during rainy season? Yes

Direct or indirect pathway to ditches? Yes, stormwater system has outfalls

Direct or indirect pathway to larger bodies of water? Unknown

Does surface water pond any place on site? Yes, one pond on east side.

Any impoundment areas or retention ponds? No

Any NPDES location points near the site? Unknown

How does surface water drain on and around the flight line? Stormwater system

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? North to northwest (as identified in ANG SI report)

Depth to groundwater? 1 – 5 feet

Uses (agricultural, drinking water, irrigation)? No

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? Yes

Is groundwater used for drinking water? Not on base

Are there drinking water supply wells on installation? No

Do they serve off-post populations? N/A

Are there off-post drinking water wells downgradient? Unknown, potentially private wells

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?

N/A

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?

Release (for testing purposes) of Paint Hangar foam fire suppression system in 2018. Went into drains, then oil-water separator, then city sewer.

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker Unlikely

Construction Worker Unlikely

Recreational User Unlikely

Residential Unlikely

Child Unlikely

Ecological Possible, depending on where city sewer discharges to.

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

Foam would have discharged to the city sewer, so groundwater and soil in the area would not have been impacted.

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

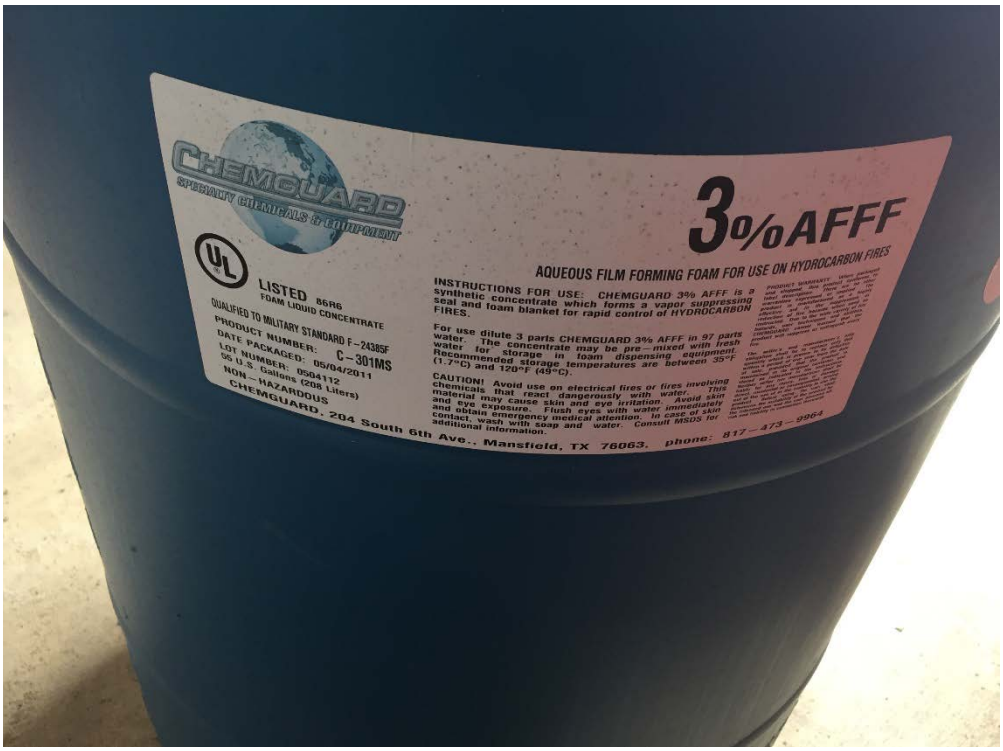
Army National Guard, Preliminary Assessment for PFAS	1108th TASMG	Gulfport, Mississippi

Photograph No. 1

Description:

55-gallon drum of AFFF staged in the Main Hangar Fire Suppression System utility room.

Data taken: 13 March 2019

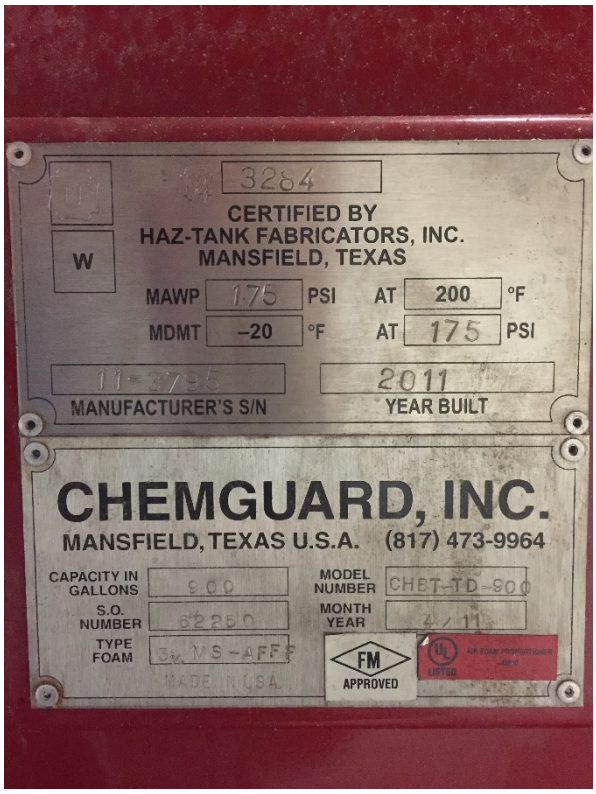


Photograph No. 2

Description:

Label on Main Hangar Fire Suppression System tank.

Data taken: 13 March 2019



APPENDIX C – Photographic Log

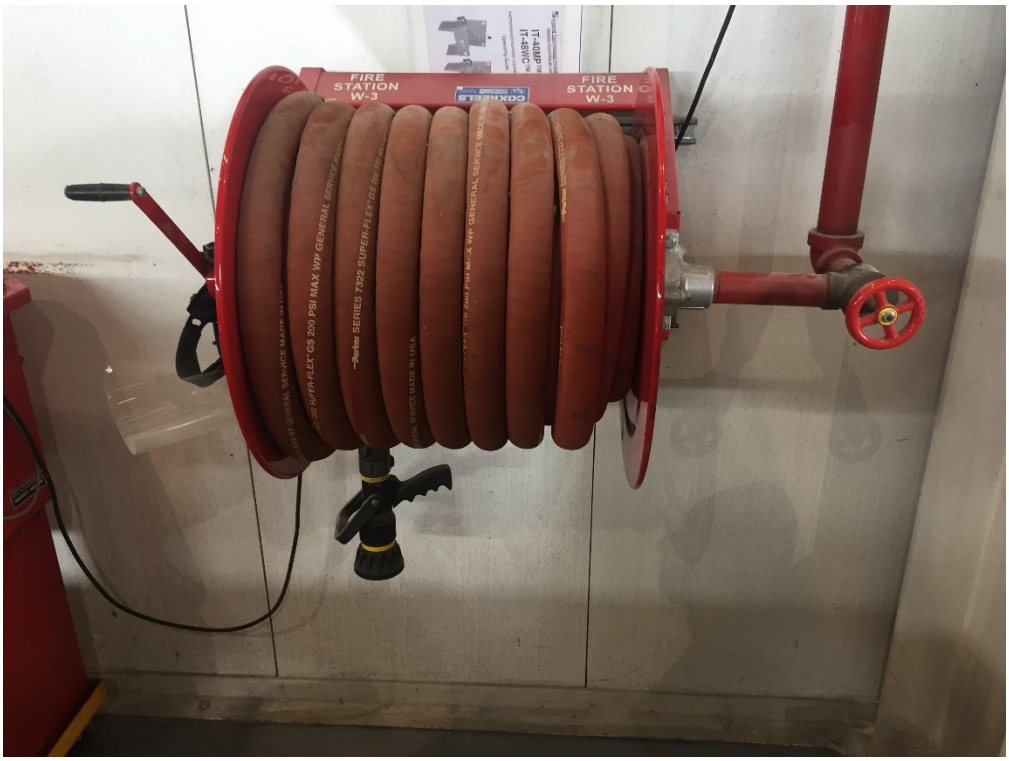
Army National Guard, Preliminary Assessment for PFAS	1108th TASMG	Gulfport, Mississippi

Photograph No. 3

Description:

Hose for Fire Suppression System in Main Hangar.

Data taken: 13 March 2019



Photograph No. 4

Description:

400-gallon tank of Ansul Jet-X foam which charges the Paint Hangar Fire Suppression System.

Data taken: 13 March 2019

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	1108th TASMG	Gulfport, Mississippi

Photograph No. 5

Description:

Label on Paint Hangar Fire Suppression System tank.

Data taken: 13 March 2019

Photograph No. 6

Description:

Dry chemical extinguishers on the flight line outside the Main Hangar.

Data taken: 13 March 2019