



RELATIVE RISK SITE EVALUATION

Jacksonville International Airport, Florida

Introduction

The Department of Defense (DoD) identified certain per- and polyfluoroalkyl substances (PFAS) as emerging contaminants of concern which affected installations across the Air Force. When the term "Air Force" is used in this fact sheet, it includes Air National Guard. Specifically, perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS) are components of legacy Aqueous Film Forming Foam (AFFF) that the Air Force began using in the 1970s as a firefighting agent to extinguish petroleum fires. The U.S. Environmental Protection Agency (EPA) issued lifetime drinking water Health Advisories (HA) for PFOS and PFOA, and health-based regional screening levels for PFBS.

The Air Force has systematically evaluated potential AFFF releases on all Installations and former Installations. It began with the Preliminary Assessments, or PAs, that identified potential release areas. First responders, fire chiefs, and hangar staff were interviewed to determine where a release or a spill may have occurred on an Installation (for example, aircraft crash site or an accidental hangar AFFF release). Once the information in the PA was collected, Site Inspections, or SIs, were initiated to take soil and water samples and analyzed the media for PFAS compounds at the potential release areas. The intention of the SI was to determine if a release had occurred and to determine the impacts to soil and/or groundwater. The next step in the process is called the Relative Risk Site Evaluation, or RRSE, which is a tool used to sequence Sites/Installations to begin a Remedial Investigation, or RI. Air Force Installations are at the beginning of the more detailed investigative stage, the RI to determine, where action is needed and to identify remedial technologies.

The Jacksonville Air National Guard Base (ANGB) PFAS PA and SI can be found at the Air Force Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Administrative Record (AR): <https://ar.afcec-cloud.af.mil/> Scroll to the bottom of the page and click on "Continue to site", then select Air National Guard (e.g., Active, ANG, BRAC), scroll down the Installation List and click on Jacksonville Int Airport, FL, then enter the AR Number 468997 in the "AR #" field for the PA. For the SI, enter the AR Number 585117. Then click "Search" at the bottom of the page. Click on the spy glass to view the document.

More information on the Air Force response to PFOS and PFOA can be found at: <https://www.afcec.af.mil/WhatWeDo/Environment/Perfluorinated-Compounds/>

Acronyms

AFFF - Aqueous Film Forming Foam

AST – Aboveground Storage Tank

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

CHF – Contaminant Hazard Factor

DoD - Department of Defense

EPA – US Environmental Protection Agency

FTA – Fire Training Area

HA – Health Advisory

MPF – Migration Pathway Factor

PA – Preliminary Assessment

PFAS - Per-and polyfluoroalkyl substances

PFBS – Perfluorobutanesulfonic acid

PFOS - Perfluorooctane sulfonate

PFOA - Perfluorooctanoic acid

RF – Receptor Factor

RI – Remedial Investigation

RRSE – Relative Risk Site Evaluation

PRL - Potential Release Location

SI – Site Inspection



RELATIVE RISK SITE EVALUATION, cont.

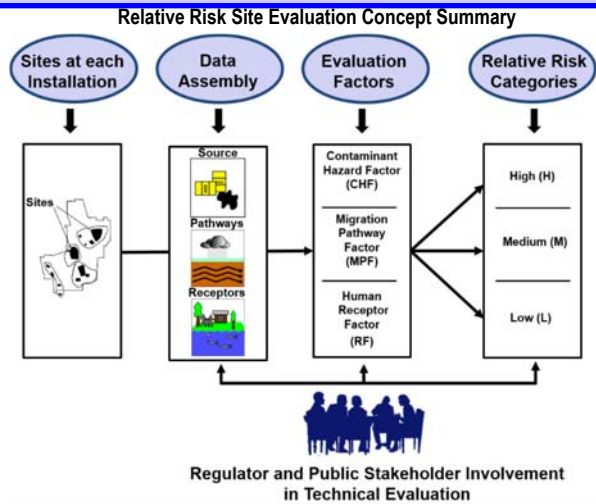


Q. What is the Relative Risk Site Evaluation (RRSE)?

A. RRSE is a methodology to sequence environmental restoration work used by the Department of Defense (DoD). The RRSE process is used to evaluate the relative risk posed by an environmental restoration site in relation to other sites. The DoD fundamental premise in site prioritization is "worst first," meaning the DoD Component shall address sites that pose a relatively greater potential risk to public safety, human health, or the environment before sites posing a lesser risk. Relative risk is not the sole factor in determining the sequence of environmental restoration work, but it is an important consideration in the priority setting process. The methodology is described in the DoD, Relative Risk Site Evaluation Primer, Summer 1997 Revised Edition: <https://denix.osd.mil/references/dod/policy-guidance/relative-risk-site-evaluation-primer/>

Q. What is the RRSE framework?

A. The RRSE framework provides a DoD-wide approach for evaluating the relative risk to human health and the environment posed by contamination present at sites. The **Relative Risk Site Evaluation Concept Summary** (shown in the figure) illustrates the selection of sites, evaluation of the site data using three evaluation factors, and placement into high, medium, and low categories. The relative risk site evaluation framework is based on information fundamental to risk assessment: sources, pathways, and receptors to sequence restoration work. The RRSE is not a baseline risk assessment or health assessment in the CERCLA process. Regulators and public stakeholders in the environmental restoration process are provided the opportunity to participate in the process in accordance with the DoD Defense Environmental Restoration Program.



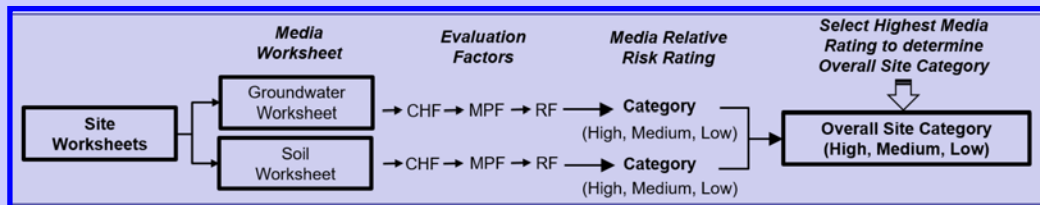
Sites at Each Installation

Q. What restoration sites are required to be evaluated in the RRSE process?

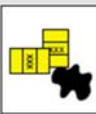


A. Restoration sites in CERCLA phases prior to remedy-in-place are evaluated in the process. Worksheets are developed for environmental media at each site. For consistency across all the Installations, only surface soil (0-1 foot deep) and groundwater media were evaluated in the RRSE.

The figure shows the process for a media to be evaluated using the contaminant hazard factor (CHF), the migration pathway factor (MPF), and the receptor factor (RF). Each media is scored to obtain a relative risk rating of High, Medium, or Low. The highest media rating determines the Overall Site Category.



Q. How is the Contaminant Hazard Factor (CHF) determined?



A. The **Contaminant Hazard Factor (CHF)** is determined by dividing the maximum level for a contaminant at each site by the approved screening values (i.e., risk-based comparison values). Contaminant concentration ratios are totaled to arrive at a **Contaminant Hazard Factor (CHF)**. A CHF sum of greater than 100 earns a **Significant (High)** ranking. **Moderate (Medium)** is when the total is 2 to 100. **Minimal (Low)** is when a CHF is less than two.

FOR MORE INFORMATION

Air Force Civil Engineer Center
Environmental Restoration Program
www.afcec.af.mil

AFCEC CERCLA
Administrative Record (AR)
<https://ar.afcec-cloud.af.mil/>

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Q. How is the Migration Pathway Factor (MPF) determined?

A. The movement of contamination at a site is evaluated and assigned a **Migration Pathway Factor (MPF)** rating.



Ratings for MPFs are designated as: **evident**, **potential**, or **confined** (for High, Medium, and Low). **Evident** exposure means the contamination is at a point where exposure to humans or the environment can occur, such as at a drinking water well. **Potential** ratings are given to sites where exposure may happen. A **confined** rating is given to sites where a low possibility for exposure may occur.

Q. How is the Receptor Factor (RF) determined?



A. The **Receptor Factor (RF)** is determined by a receptor's, such as humans, potential to come into contact with contaminated media. RFs are designated as: identified, potential, or limited (**High, Medium, and Low**). **Identified** rating is given when receptors are in contact or threat of contact with contaminated media. **Potential** is given when receptor may contact contaminated media. **Limited** is given when there is little or no contact with contaminated media.

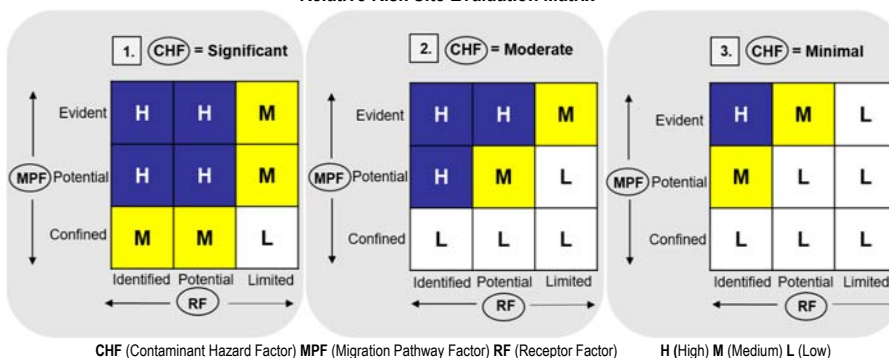
RELATIVE RISK SITE EVALUTION, cont.

Media Relative Risk Rating

Q. How is the media relative risk rating determined?

A. Use the chart to determine the relative risk rating for each media evaluated. Start by choosing the CHF result of the evaluation. If the CHF is **Significant**, use **box 1.**; if **Moderate**, use **box 2.**; if **Minimal**, use **box 3.** Then find the MPF and RF results and move to the square where the results meet. That square indicates the media relative risk rating. For example, if the CHF is **Significant** (go to **box 1.**), the MPF is **Potential** and the RF is **Identified**, then the rating is **High (H)**.

Relative Risk Site Evaluation Matrix



Overall Site Category

Q. How do I determine the Overall Site Category?

A. The highest relative risk media rating becomes the **Overall Site Category** for the site. For example, if a site has a groundwater relative risk rating of **High**, and soil relative risk rating of **Low**, then the Overall Site Category rating for the site is **High**.

Regulatory and Stakeholder Involvement

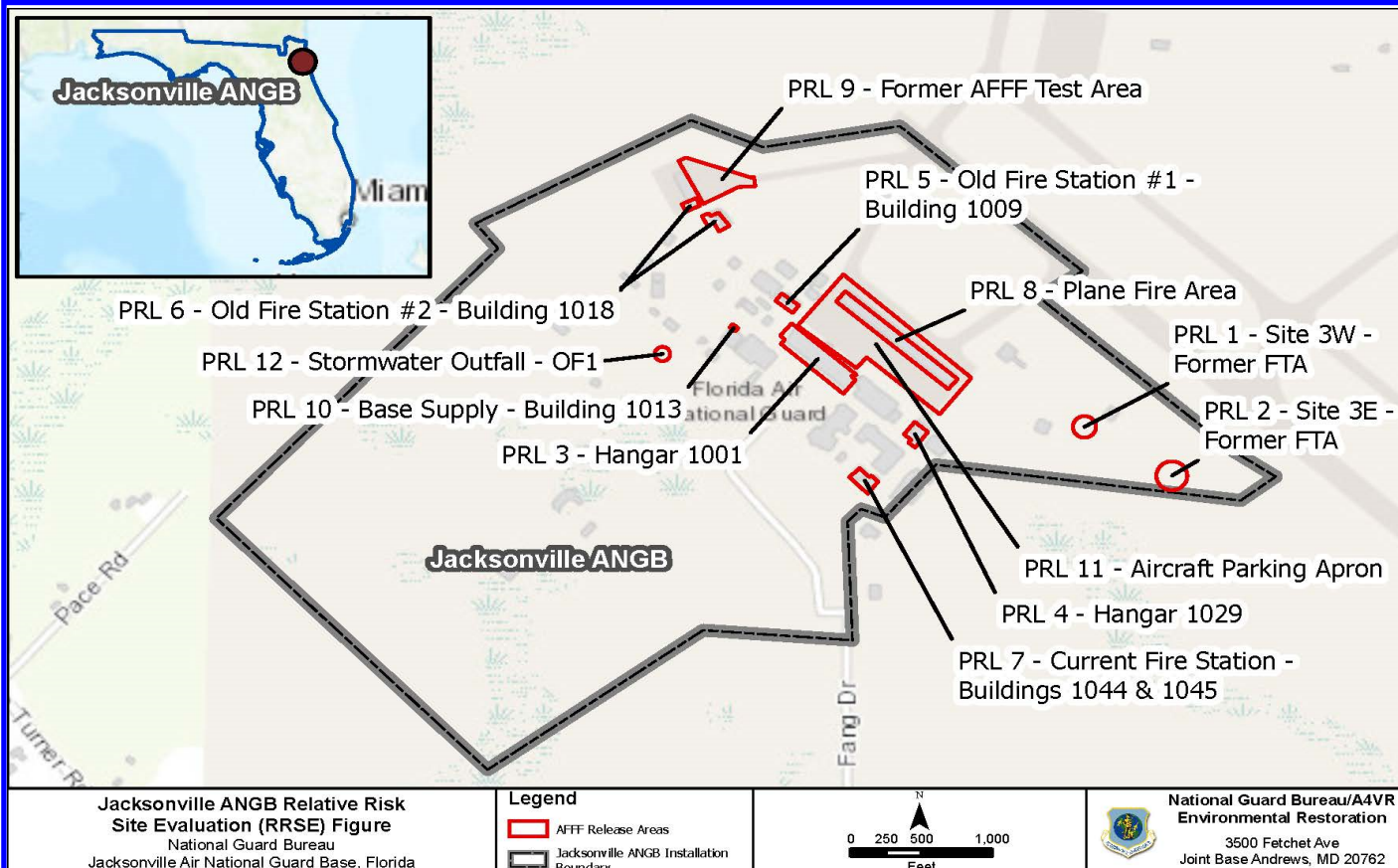
Q. How do I participate as Stakeholder?



A. To offer opportunity to participate in RRSE, the Air Force announces a public comment period in your local newspaper. There is also opportunity to participate during installation Restoration Advisory Committees where active. Installation Restoration Advisory Committee meetings are also announced in your local newspaper.

Relative Risk Site Evaluation Summary Jacksonville ANGB, FL

Overall Site Category	Site Name (Sites are shown on the map below and RRSE Worksheets are attached)
HIGH	PRL 1, PRL 2, PRL 4, PRL 5, PRL 6, PRL 7, PRL 9, PRL 10, PRL 11, PRL 12
MEDIUM	PRL 3
LOW	PRL 8



AFFF Area is another term for Potential Release Location (PRL)

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Site 3W - Former FTA - PRL 1	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>Site 3W is the location of a former Fire Training Area (FTA) operated by Port Authority located in the southeastern area of the base. The area is currently grassy and open, and surrounded by woods and a fence line to the south, Building 1043 to the west, the trim pad and Building 1405 to the northeast, and an access road to the north. This area served as the FTA from 1968 to the mid-1970s, when fire training activities were transferred to a burn area approximately 400 feet to the southeast to Site 3W. Site 3W formerly included a small burn pit used from 1968 to the mid-1970s, and was described as using large amounts of waste fuel including JP-4 for training exercises. The FTA was abandoned sometime in the mid-1970s in favor of Site 3E - Former FTA (PRL 2). At the time of the 2015 preliminary assessment (PA) site visit, surface water at Site 3W drained approximately 395 feet to the south to a drainage channel, which then flowed through a number of drainage canals to Cedar Creek.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet below ground surface (BGS) and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. PRL-1 is a grassy open area.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-1 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 1

AFFF Release Area #: AFFF 1

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	56	0.04	1400.0	
PFOA	0.89	0.04	22.2	
PFBS	0.44	0.602	0.7	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	1423.0	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 1

AFFF Release Area #: AFFF 1

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.25	0.126	2.0	
PFOA	0.0077	0.126	0.1	
PFBS	0.0003	1.9	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	2.0	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		M	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure		H	
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil			
Limited	No potential for receptors to have access to contaminated soil		L	
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Soil Category			MEDIUM	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Site 3E - Former FTA - PRL 2	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>Site 3E is the location of a former FTA located in the southeast corner of the base. The area is a grassy clearing surrounded by trees with no fence, and a former jetway to the north, that was placed at the site for use as a search and rescue facility by Port Authority. Similar to Site 3W, this site was also used for fire training activities from the mid-1970s until live fire training activities ceased sometime between 1986 and 1988. Training activities at Site 3E – Former FTA burned a variety of flammable liquids, including JP-4, spent solvents, used oils and slop wastes. At the time of the 2015 PA site visit, surface water drained approximately 50 feet to the south to a drainage channel, which flowed through a number of drainage canals to Cedar Creek.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. PRL-2 is a grassy open area.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-2 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 2

AFFF Release Area #: AFFF 2

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	320	0.04	8000.0	
PFOA	17	0.04	425.0	
PFBS	2.1	0.602	3.5	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	8428.5	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 2

AFFF Release Area #: AFFF 2

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.23	0.126	1.8	
PFOA	0.0014	0.126	0.0	
PFBS	0.00025	1.9	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	1.8	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure		H	
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil			
Limited	No potential for receptors to have access to contaminated soil		L	
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Soil Category			LOW	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Hangar 1001 - PRL 3	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: MEDIUM			

Site Summary	
Brief Site Description:	<p>Hangar 1001 is a mechanical hangar that maintained an aqueous film forming foam (AFFF) underwing system that was installed in 1990 and removed from 2008 to 2010. Each bay had two cannons along the back wall and connected to a 300 gallon tank of AFFF. The hangar had a large drain at the front running the full length of the hangar doors and connected to an oil-water separator that connected to the sanitary system. One known discharge took place in 1994 because of a lightning strike. The AFFF was contained and flushed into the drains.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. Surface cover is this PRL is primarily paved areas, with landscaped areas adjacent to the apron.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-3 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 3

AFFF Release Area #: AFFF 3

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	0.009	0.04	0.2	
PFOA	0.016	0.04	0.4	
PFBS	0.016	0.602	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.7	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			MEDIUM	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 3

AFFF Release Area #: AFFF 3

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.032	0.126	0.3	
PFOA	0.00029	0.126	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.3	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M	
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			LOW	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Hangar 1029 - PRL 4	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>Hangar 1029 is a fuel cell maintenance hangar located along the southeastern edge of the Base, bordered by Hangar 1049 to the southeast, a construction area to the west and a parking lot and road to the south. It was constructed in 1987 and maintained an AFFF system that was installed in 1990 and removed from 2008 to 2010. Each bay had two cannons along the back wall and connected to a 200 gallon tank of AFFF. The hangar had a large drain at the front running the full length of the hangar doors and down the middle of the hangar and connected to an oil-water separator that connected to the sanitary system. No documentation of a release at this site.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. Surface cover includes both paved and unpaved areas.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-4 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 4

AFFF Release Area #: AFFF 4

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	0.37	0.04	9.3	
PFOA	0.42	0.04	10.5	
PFBS	0.32	0.602	0.5	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	20.3	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		M	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 4

AFFF Release Area #: AFFF 4

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.027	0.126	0.2	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.2	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M	
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			Low	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Old Fire Station #1 (Bldg 1009) - PRL 5	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>The old fire station was in operation from 1968 till 1993. The Fire Station was next to the flight line area in Building 1009 from 1968 to 1993 and is located northwest of the flight line, and is bordered by Building 1023 to the northwest, Buildings 1022A to the north and Building 1010 to the south. Trucks carrying AFFF were kept in the four bays on the west side of the station with an additional truck parked outside on the western side. The station kept a total of 260 gallons of AFFF in trucks on base, and trucks were filled using a pump or 5-gallon buckets. Trucks were washed at the oil/water separator station. Spills were contained and cleaned at either fire station.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. Surface cover includes both paved and unpaved areas.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-5 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 5

AFFF Release Area #: AFFF 5

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	9.1	0.04	227.5	
PFOA	1.5	0.04	37.5	
PFBS	0.066	0.602	0.1	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	265.1	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 5

AFFF Release Area #: AFFF 5

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.032	0.126	0.3	
PFOA	0.0018	0.126	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.3	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
<u>Receptor Factor</u>				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			LOW	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Old Fire Station #2 (Bldg 1018) - PRL 6	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>The Old Fire Station #2 (Building 1018) was constructed in 1968 and used as an alert facility until loss of the active alert facility from the base in 1993. The fire station consisted of Building 1018 and an alert plane cover used to house fire trucks. It is located northwest of the flight line near the alert plane covers and is surrounded by grassy area to the southwest, Building 1031 to the northeast and the alert flight line area to the northwest. Trucks carrying AFFF were parked under the southernmost of four plane cover areas to the northwest of the station. The station kept a total of 260 gallons of AFFF in the trucks. Trucks were filled at the fire training area offbase. Spills were contained and cleaned up at the station.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. Surface cover adjacent to the Old Fire Station is primarily open grassy area.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-6 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 6

AFFF Release Area #: AFFF 6

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	8.8	0.04	220.0	
PFBS	0.23	0.602	0.4	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	220.4	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 6

AFFF Release Area #: AFFF 6

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.041	0.126	0.3
PFOA	0.00041	0.126	0.0
PFBS	0.0014	1.9	0.0
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.3
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value	CHF VALUE		L
Migratory Pathway Factor			
Evident	Analytical data or observable evidence that contamination is present at a point of exposure		
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M
Confined	Low possibility for contamination to be present at or migrate to a point of exposure		
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M
Receptor Factor			
Identified	Receptors identified that have access to contaminated soil		
Potential	Potential for receptors to have access to contaminated soil		
Limited	No potential for receptors to have access to contaminated soil		L
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L
Soil Category			LOW

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Current Fire Station Buildings 1044 and 1045 - PRL 7	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>The base's Current Fire Station (Building 1044 and 1045) was constructed in 2003 and consists of living quarters and offices in Building 1044, and a truck bay area in 1045. The fire station is surrounded by Building 1028 to the east, Building 1054 to the northeast, and a road and parking lot to the southwest. At the time of the 2015 PA site visit, the fire station maintained 5 trucks with AFFF storage in tanks or in barrels on the trucks. The trucks were refilled at the station either with a pump or by hand using 5-gallon barrels. The fire station also had a small stockpile of AFFF stored in 5-gallon barrels within a spill-proof liner on the floor in the northwest corner of the truck bay area.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. Surface cover is primarily landscaped grassy areas.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-7 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 7

AFFF Release Area #: AFFF 7

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	10	0.04	250.0	
PFOA	0.56	0.04	14.0	
PFBS	1.9	0.602	3.2	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	267.2	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 7

AFFF Release Area #: AFFF 7

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.082	0.126	0.7	
PFOA	0.00064	0.126	0.0	
PFBS	0.00022	1.9	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.7	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M	
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil		H	
Potential	Potential for receptors to have access to contaminated soil			
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Soil Category			MEDIUM	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Soil
Site Name and ID:	Plane Fire Area - PRL 8	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: LOW			

Site Summary	
Brief Site Description:	In 1994 an F15 aircraft caught fire in the middle of the flight line. The flight line is located in the middle of the installation and is surrounded by two hangars and a large grassy area. The fire took place on a concrete area, and the first truck to respond malfunctioned, discharging approximately 100 gallons of AFFF concentrate to the concrete area. A 3% AFFF solution was used by a second truck to put out the fire, and the site was cleaned with absorbent cloths after the fire was put out.
Brief Description of Pathways:	Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. PRL 8 is located within the large asphalted aircraft parking apron.
Brief Description of Receptors:	The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south. Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-8 is located in an active aircraft parking area and access is limited. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 8

AFFF Release Area #: AFFF 8

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.019	0.126	0.2	
PFOA	0.00089	0.126	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.2	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil			
Limited	No potential for receptors to have access to contaminated soil		L	
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Soil Category			LOW	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Former AFFF Test Area - PRL 9	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>The former AFFF Test Area was the test location concrete area for AFFF truck equipment from 1991 until 1993 or 1994, used once a year. This area is surrounded by the two new alert plane covers and Buildings 1016 and 1014 to the southwest, a large grassy area to the north and northwest, and Building 1018 to the southeast. As a Former AFFF Test Area, a fire pan was placed at a set distance away from the truck, and the hose fired for less than five seconds towards the pan to catch the release. The AFFF from this test was subsequently washed off the concrete block into the grass beside the taxiway to the north for cleanup.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. PRL 9 is in a large open grassy area.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-9 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 9

AFFF Release Area #: AFFF 9

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	20	0.04	500.0	
PFOA	0.51	0.04	12.7	
PFBS	0.64	0.602	1.1	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	513.8	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 9

AFFF Release Area #: AFFF 9

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.18	0.126	1.4	
PFOA	0.00056	0.126	0.0	
PFBS	0.0017	1.9	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	1.4	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure		H	
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			MEDIUM	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Base Supply-Building 1013 - PRL 10	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	<p>Since at least 1990 AFFF has been kept in Building 1013 at base supply. This building is roughly in the middle of the installation and surrounded by grassy areas and buildings. The storage facility contains AFFF in 5-gallon buckets in a room with no drainage and has no known spills. AFFF was also formerly kept outdoors but has since been moved to a covered storage area behind Building 28.</p>
Brief Description of Pathways:	<p>Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. Surface cover is paved in most areas or grassy cover overlying fill.</p>
Brief Description of Receptors:	<p>The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south.</p> <p>Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-10 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.</p>

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 10

AFFF Release Area #: AFFF 10

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	0.46	0.04	11.5	
PFOA	0.096	0.04	2.4	
PFBS	0.043	0.602	0.1	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	14.0	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		M	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 10

AFFF Release Area #: AFFF 10

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.017	0.126	0.1	
PFOA	0.00039	0.126	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.1	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			LOW	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater, Soil
Site Name and ID:	Aircraft Parking Apron - PRL 11	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	The parking apron had historic aircraft operations take place here. The entire area is covered in concrete and is bordered by hangars and a large grassy area to the north.
Brief Description of Pathways:	Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. The Aircraft Parking Apron is a large asphalted area.
Brief Description of Receptors:	The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south. Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-11 is located within the base boundaries and is located in an active runway area, with access further limited. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 11

AFFF Release Area #: AFFF 11

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	0.56	0.04	14.0	
PFOA	0.25	0.04	6.3	
PFBS	0.2	0.602	0.3	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	20.6	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		M	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	

Soil Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 11

AFFF Release Area #: AFFF 11

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.027	0.126	0.2	
PFOA	0.00043	0.126	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.2	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined			
Confined	Low possibility for contamination to be present at or migrate to a point of exposure		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil			
Limited	No potential for receptors to have access to contaminated soil		L	
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Soil Category			LOW	

Site Background Information			
Installation:	Jacksonville ANGB	Date:	9/22/2021
Location (State):	Florida	Media Evaluated:	Groundwater
Site Name and ID:	On-site Stormwater Outfall - PRL 12	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	The stormwater outfall is located in the southwest corner of the Base, downgradient from the hangars to the west. This PRL drains to a surface water ditch that drains off base. No activities have been documented at this location.
Brief Description of Pathways:	Jacksonville ANGB is located within the South Atlantic Coastal Plain Province, which extends from Florida up into Georgia and is characterized by low-lying, flat terrain. Local topography is controlled by Pleistocene marine terraces that slope toward the east, created during decreasing sea levels resulting from glaciation around the globe. Most of these terraces run north-south parallel to the Atlantic coast and the base is approximately 20 feet above sea level. The regional geology consists of Eocene limestone karst systems that are porous overlain by Pleistocene unconsolidated sediments and coquina. Surface soils at Jacksonville ANGB are sandy, poorly drained and have moderate to low permeability. Three major geologic units underlie the base, Undifferentiated Quaternary Sediments made up of fine sand, silty clays, and calcareous clayey sands. This formation is 20 to 110 feet thick. The Hawthorn Group, an aquiclude consisting of sandy clays with sand lenses generally 260 to 490 feet thick, and the Ocala Group, a carbonate unit made up of fragmented limestones from 160 to 520 feet thick. The shallow aquifer is as shallow as 2.5 feet bgs and is separated from the Floridian aquifer by the Hawthorn group. The Floridian aquifer is approximately 475 feet bgs and flows to the south. Groundwater flows to the east-southeast in the surface aquifer. The stormwater outfall is located in a grassy portion of the base.
Brief Description of Receptors:	The Floridian aquifer has two wells at approximately 1100 feet bgs installed in 1967 at the Jacksonville International Airport that used to supply water to the base, the airport, and several establishments nearby. These two wells on base have stopped being used but are not known to have been properly abandoned to prevent a conduit to lower aquifers. Rainfall generally ponds on the surface of the land and is directed to swampy areas that drain into creeks and rivers. There were no private wells identified within 1 mile of the Base. The majority of the off-Base population within a 4-mile radius of the Base relies on water from the Floridian Aquifer, therefore, private wells 1 - 4 miles from the Base are likely present. Based on the SI, the closest downgradient well is 1.01 miles to the south. Surface water is not used as a source of drinking water, though it could be used as a source of recreation off-base. Surface water bodies include several retention ponds, canals, ditches, and creeks. Most creeks drain to the St. Johns River and Nassau River. PRL-1 is located within the base boundaries and is accessible to base personnel. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations.

Groundwater Worksheet

Installation: Jacksonville ANGB

Site ID: PRL 12

AFFF Release Area #: AFFF 12

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
PFOS	9.4	0.04	235.0	
PFOA	0.23	0.04	5.8	
PFBS	0.87	0.602	1.4	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	242.2	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		H	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined		M	
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)		H	
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)			
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		H	
Groundwater Category			HIGH	