RELATIVE RISK SITE EVALUATION

Savannah/Hilton Head International Airport, Georgia

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, we began Site Inspections, or SIs, 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 Savannah/Hilton Head (S/HH) International Airport (IAP) Air National Guard Base (ANGB) PFAS PA and SI can be found at the Air Force 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 Savannah/Hilton Head Int Airport, GA, then enter the AR Number 474838 in the “AR #” field for the PA. For the SI, enter the AR Number 590063 (1 of 4). 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

PRL - Potential Release Location

RF – Receptor Factor

RI – Remedial Investigation

RRSE – Relative Risk Site Evaluation

SI – Site Inspection

RELATIVE RISK SITE EVALUATION, cont.

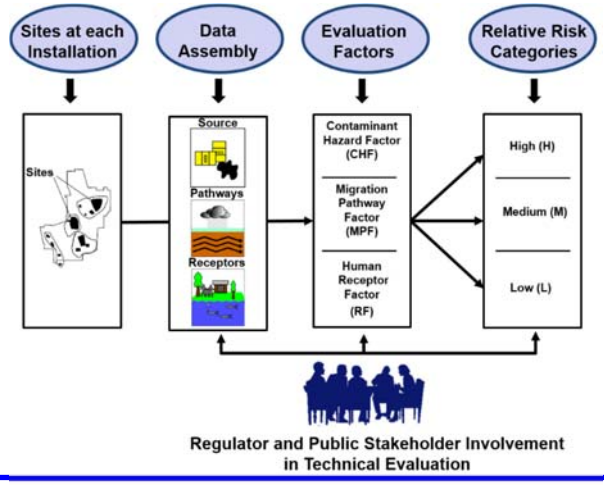
Q. What is the Relative Risk Site Evaluation (RRSE)?

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 Comprehensive Environmental Response, Compensation, and Liability Act (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.

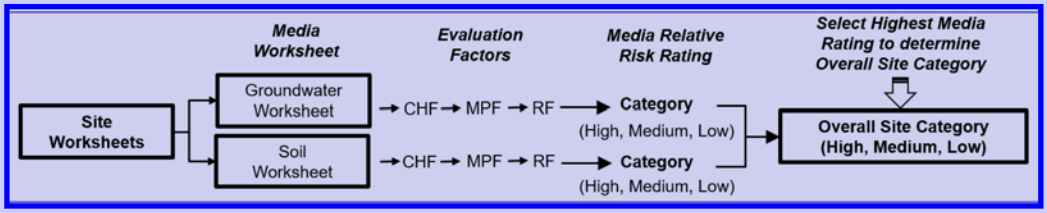
Relative Risk Site Evaluation Concept Summary



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., 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?

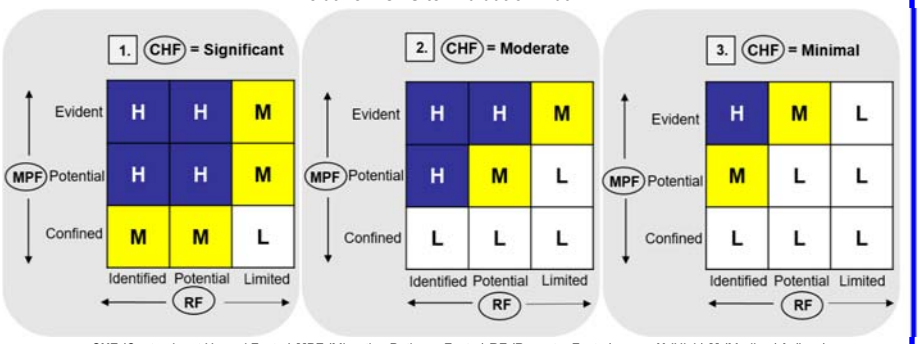
A. The **Receptor Factor (RF)** is determined by a receptor's, such as humans, potential to come into contact with contaminated media. **RFs** are designated as: identified, potential, or limited **(High, Medium, and Low). Identified** rating is given when receptors are in contact or threat of contact 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



CHF (Contaminant Hazard Factor) **MPF** (Migration Pathway Factor) **RF** (Receptor Factor) **H** (High) **M** (Medium) **L** (Low)

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**.

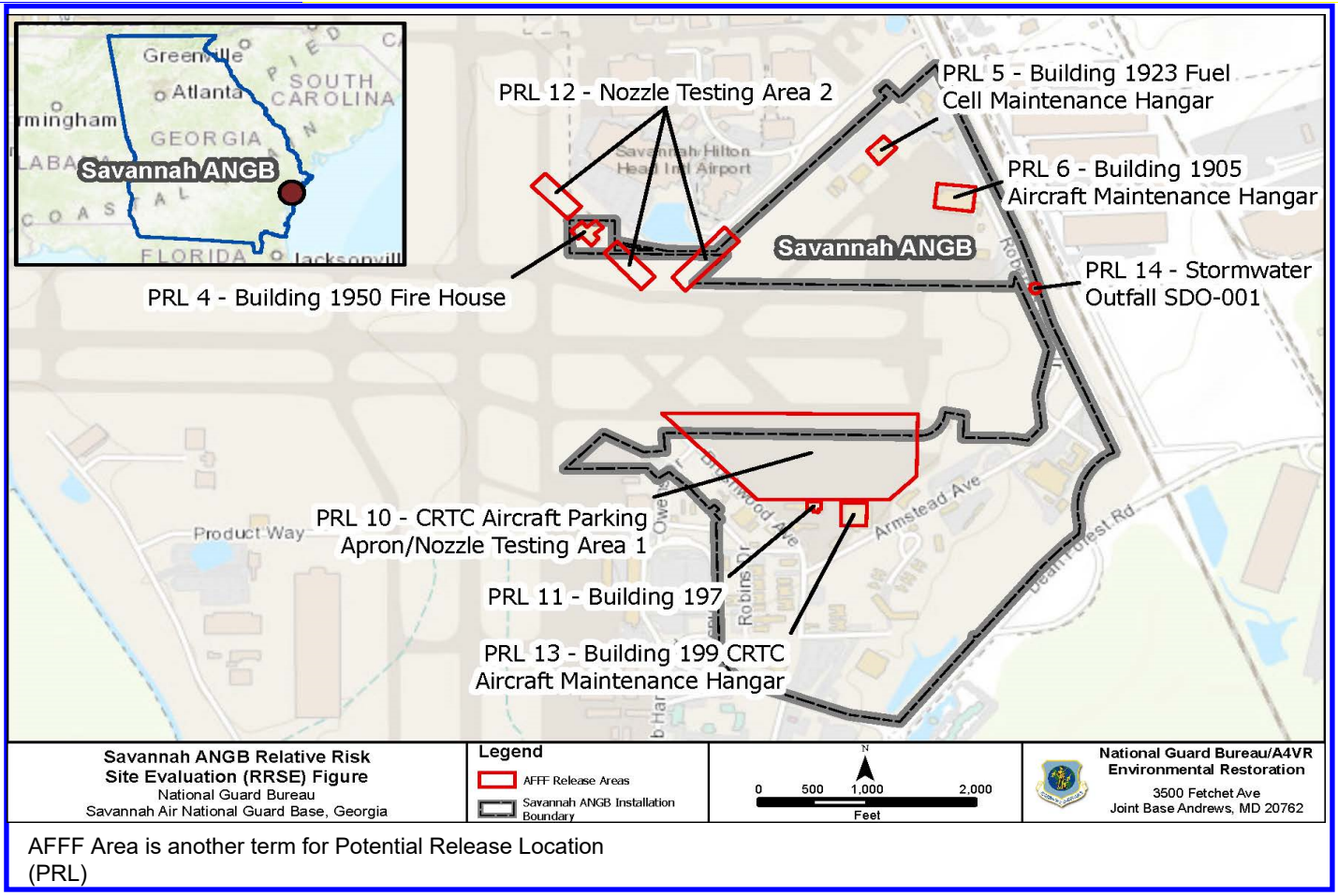
Regulatory and Stakeholder Involvement

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 Savannah/Hilton Head IAP ANGB, GA

Overall Site Category	Site Name (Sites are shown on the map below and RRSE Worksheets are attached)
HIGH	PRL 4, PRL 5, PRL 10, PRL 12, PRL 14
MEDIUM	PRL 6
LOW	PRL 11, PRL 13



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

Site Background Information			
Installation:	Savannah/Hilton Head IAP ANGB IAP	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 1950 - Fire House - PRL 4	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	Building 1950 is the Fire House that was constructed in 1999. Activities at the Fire House include refueling firefighting vehicles, vehicle washing at the wash rack in the north side of the building and vehicle storage. Wastewater generated from the wash rack is diverted through an oil/water separator (OWS) and drains to the sanitary sewer when the wash rack is in use; when not in use, water drains into the storm water system. Additional floor drains within the maintenance bay drain to the OWS. At the time of the 2016 Preliminary Assessment (PA) site visit in January 2016, twenty 55-gallon drums of Air Force Firefighting Foam (AFFF), in addition to vehicles associated with AFFF capacities were stored within the Fire House. No known spills have occurred at Building 1950.
Brief Description of Pathways:	Surface runoff from the majority of the Savannah/Hilton Head IAP ANGB Air National Guard Base (SANGB) flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal.The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 feet (ft) to 10 ft below ground surface (bgs) which extends up to 80 feet thick; and 2) the Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 ft thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Groundwater Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 4 **AFFF Release Area #** AFFF 4

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	4.2	0.04	105.0
PFOA	0.59	0.04	14.7

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	119.7
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	H

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: S/HH IAP ANGB

Site ID: PRL 4 **AFFF Release Are** AFFF 4

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.0081	0.126	0.1
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**0.1**
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**L**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

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:	S/HH IAP ANGB IAP	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 1923 Fuel Cell Maintenance Hangar - PRL 5	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	Building 1923 is the 165th AW Fuel Cell Maintenance Hangar used for aircraft fuel cell maintenance and aircraft and equipment washing. From 1998 to 2013, the hangar was equipped with an AFFF fire suppression system (FSS); AFFF was stored in two 250-gallon aboveground storage tank (AST). In 2013, the FSS was converted to High Expansion Foam (HEF). A trench drain conveys spills inside the hangar through an OWS to the sanitary sewer. During the January 2016 PA visit, base personnel noted FSS testing was not conducted at Building 1923.
Brief Description of Pathways:	Surface runoff from the majority of the SANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs which extends up to 80 feet thick; and 2) the Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Shallow unconfined aquifer at SANGB flows to the northeast. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells (#1901 and #1899) are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Groundwater Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 5 **AFFF Release Area #** AFFF 5

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.042	0.04	1.0
PFOA	0.092	0.04	2.3
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**3.3**
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: S/HH IAP ANGB

Site ID: PRL 5 **AFFF Release Area #** AFFF 5

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.0019	0.126	0.0
PFOA	0.00067	0.126	0.0
PFBS	0.0005	1.9	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.0
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
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:	S/HH IAP ANGB	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 1905 Aircraft Maintenance Hangar - PRL 6	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: MEDIUM			

Site Summary	
Brief Site Description:	The 165th Airlift Wing Aircraft Maintenance Hangar (Building 1905) is composed of a maintenance bay and various shops used for maintenance, painting, abrasive blasting and parts washing. The main drainage system in the hangar is the south trench drain, which conveys discharges to an oil/water separator (OWS) before entering the sanitary sewer system; the majority of floor drains located in the shops, in addition to the north trench drain, have been closed. The hangar utilized an AFFF FSS from 1999 to 2016, and AFFF was stored in a 200-gallon aboveground storage tank (AST) in the hangar. An automatic shutoff valve located on the south trench drain would activate in the event of a discharge, preventing entry to the sanitary sewer system. A full release of AFFF occurred in 2010; most material was removed using vacuum trucks, though some was discharged to the drainage ditch east of the hangar. In 2016, the AFFF FSS system was converted to HEF. During the January 2016 PA visit, base personnel noted FSS testing was not conducted at Building 1905.
Brief Description of Pathways:	Surface runoff from the majority of the SANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs which extends up to 80 feet thick; and 2) Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Shallow groundwater flows to the northeast. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Groundwater Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 6 **AFFF Release Area #** AFFF 6

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.029	0.04	0.7
PFOA	0.03	0.04	0.7
PFBS	0.027	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	1.5
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	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: S/HH IAP ANGB

Site ID: PRL 6 **AFFF Release Area #** AFFF 6

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.0033	0.126	0.0
PFOA	0.00023	0.126	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**0.0**
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**L**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

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:	S/HH IAP ANGB	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	CRTC Aircraft Parking Apron & Nozzle Test Area - PRL 10	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	The Combat Readiness Training Center (CRTC) Aircraft Parking Apron and Nozzle Testing Area 1 (NTA1) is used for parking and fueling of aircraft. Stormwater from the apron flows along the pavement to the east, or into various catch basins. Spills that occur on the apron are either pooled locally or drained via the catch basins. Nozzle testing was performed on the apron on a weekly basis until 2015. AFFF released during testing was left to dissipate into the ground and quantities that were released are unknown. Soils located along the downgradient edges of the apron may have received run-off.
Brief Description of Pathways:	Surface runoff from the majority of the SANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. PRL 10 surface runoff drains to the east of the parking apron. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs which extends up to 80 feet thick; and 2) Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Shallow groundwater ranges in flow direction from east to southeast. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Groundwater Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 10 **AFFF Release Area #** AFFF 10

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	110	0.04	2750.0
PFOA	1.1	0.04	27.5
PFBS	0.28	0.602	0.5

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	2778.0
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

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)	H
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined	
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).	H

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: S/HH IAP ANGB

Site ID: PRL 10 **AFFF Release Area #** AFFF 10

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.076	0.126	0.6
PFOA	0.00041	0.126	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**0.6**
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**L**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

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:	S/HH IAP ANGB	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Soil
Site Name and ID:	Building 197 - PRL 11	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: LOW			

Site Summary	
Brief Site Description:	Building 197 houses the visiting unit fire station. Between 1986 and 2002, this building stored AFFF in 55-gallon drums and pails. No known releases have occurred.
Brief Description of Pathways:	Surface runoff from the majority of the SANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs which extends up to 80 feet thick; and 2) Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Shallow groundwater flow direction is to the southeast. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Soil Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 11 **AFFF Release Area #** AFFF 11

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.065	0.126	0.5
PFOA	0.0011	0.126	0.0
PFBS	0.00085	1.9	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**0.5**
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**	**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:	S/HH IAP ANGB	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Nozzle Test Area 2 - PRL 12	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	Nozzle testing was performed on concrete and asphalt runways and taxiways outside Building 1950 on a weekly basis until 2015. AFFF released during testing was left to dissipate into the ground and quantities that were released are unknown. The PRL is composed of three large areas separated by PRL 4 (Fire House).
Brief Description of Pathways:	Surface runoff from the majority of the SANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs which extends up to 80 feet thick; and 2) Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Shallow groundwater flow is assumed to range from northeast to southeast. Actual observed groundwater directions and gradients were not measured. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Groundwater Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 12 **AFFF Release Area :** AFFF 12

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	110	0.04	2750.0
PFOA	3.9	0.04	97.5
PFBS	2	0.602	3.3

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	2850.8
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

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: S/HH IAP ANGB

Site ID: PRL 12 **AFFF Release Area #** AFFF 12

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.15	0.126	1.2
PFOA	0.00079	0.126	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**1.2**
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**L**

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

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:	S/HH IAP ANGB	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Soil
Site Name and ID:	Building 199 - CRTC Hangar - PRL 13	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: LOW			

Site Summary	
Brief Site Description:	The CRTC Aircraft Maintenance Hangar was used for maintenance of aircraft temporarily parked on-site. During the 2016 PA site visit, base personnel noted that in 1998, Building 199 was equipped with an AFFF FSS including two 500-gallon AFFF ASTs, though FSS testing was not conducted in the building. All drainage in the building has been closed or filled to prevent discharges. PRL 13 is located south of PRL 10 and east of PRL 11.
Brief Description of Pathways:	Surface runoff from the majority of the Savannah/Hilton Head IAP ANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs which extends up to 80 feet thick; and 2) Floridian aquifer, which is confined. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Assumed shallow groundwater direction is to the east to southest. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from SANGB is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Soil Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 13 **AFFF Release Area #** AFFF 13

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.035	0.126	0.3

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.3
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	L

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

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:	S/HH IAP ANGB	**Date:**	11/14/2023
Location (State):	Georgia	**Media Evaluated:**	Groundwater
Site Name and ID:	Stormwater Outfall SDO-001 - PRL 14	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Jody Murata	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	Stormwater Outfall (SDO-001) is a concrete lined pipe that drains the northern portion of the Savannah/Hilton Head IAP ANGB. Drainage Area 001 (DA-001) encompasses 45-acres of the northern portion of the base consisting of drainage from impervious surfaces from industrial areas within DA-001 including those at the eastern portion of the NTA2 Outside Building 1950 (PRL 12), Building 1905 (PRL 6), Building 1923 (PRL 5), and the 165th AW Parking Apron (PRL 9). SDO-001 is located along Robert B. Miller Jr. Road in the vicinity of the Trichloroethene (TCE) Babbling Station, and its drainage flows south along Robert B. Miller Jr. Road.
Brief Description of Pathways:	Surface runoff from the majority of the Savannah/Hilton Head IAP ANGB flows to the southeast towards Pipemakers Canal, which flows northeast for 5 miles before reaching the Savannah River. Surface runoff on-site flows into storm drains, stormwater ditches, canals and a stormwater retention pond before entry into the Canal. The groundwater at the Site consists of two aquifers: 1) a surficial aquifer, encountered between 2 ft to 10 ft bgs and extends up to 80 feet thick; and 2) Floridian aquifer is a confined aquifer. The surficial and Floridian aquifer are separated by the Hawthorn Group, which is composed of sandy clay, approximately 120 feet thick. Many years of extensive pumping in the Savannah area has lowered the natural hydraulic heads. Because of the pumping, the Floridian aquifer is no longer artesian in this part of Georgia. Furthermore, groundwater elevations indicate that a downward hydraulic gradient exists at SANGB between the surficial and Floridian aquifer systems. Soil pathways exist by transport from wind and soil movement from mechanical equipment during construction.
Brief Description of Receptors:	Exposure to surface and sub-surface soils may occur during routine activities or during construction and excavation activities. The surface water from the base is not a primary source of drinking water so there is currently not an exposure pathway to on-base human health receptors. However, surface water discharges to Pipemakers Canal and the Savannah River, which could impact other potential downstream human health. Groundwater obtained from the Floridian aquifer principally supplies industrial and municipal users in the Savannah area. SANGB obtains drinking water from the City of Savannah's drinking water distribution system, which sources its water from Abercorn Creek, located approximately 8 miles north of the airport. The City of Savannah water supply network contains two emergency backup potable water wells within the airport boundary that obtain water from the Floridian aquifer. Two potable water supply wells are located within the base boundary plus a third emergency backup potable water well. The water supply wells obtain potable water from the Floridian aquifer at a depth of approximately 600 ft.

Groundwater Worksheet

Installation: S/HH IAP ANGB

Site ID: PRL 14 **AFFF Release Area #** AFFF 14

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.53	0.04	13.2
PFOA	0.043	0.04	1.1
PFBS	0.028	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	14.4
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	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**