RELATIVE RISK SITE EVALUATION

Truax Field Air National Guard Base, Wisconsin

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 Truax Field Air National Guard (ANG) Base (Madison) PFAS PA and SI can be found at the AFCEC 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, scroll down the Installation List and click on Truax Field (Madison), WI then enter the AR Number 469954 in the "AR #" field for the PA. For the SI, enter the AR Number 585830. 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

PFOA - Perfluorooctanoic acid

PFOS - Perfluorooctane sulfonate

PRL - Potential Release Location

RCRA – Resource Conservation and Recovery

Act RF – Receptor Factor

RI – Remedial Investigation

RRSE – Relative Risk Site Evaluation

SI – Site Inspection

SWMU – Solid Waste Management Unit

RELATIVE RISK SITE EVALUATION, cont.

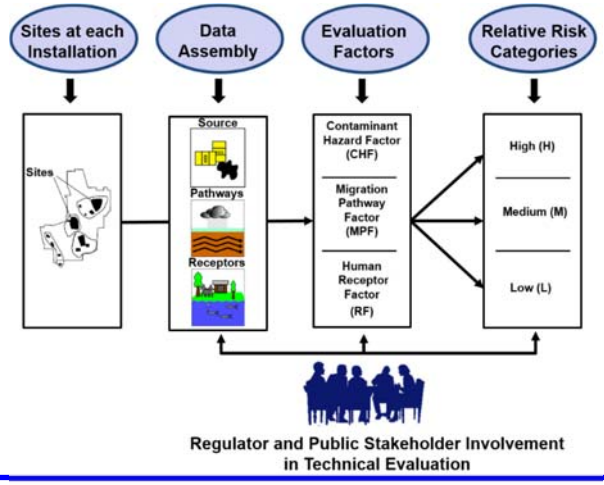
Q. What is the Relative Risk Site Evaluation (RRSE)?

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

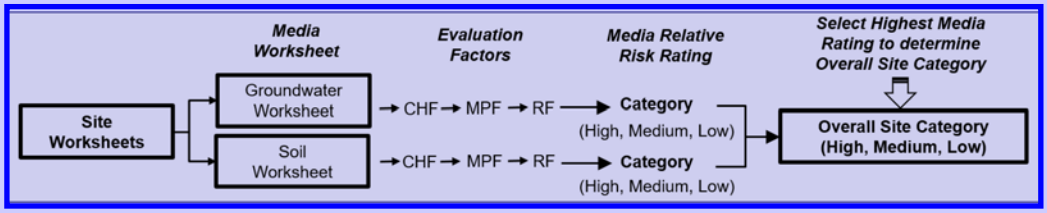


Sites at Each Installation

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., 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/

POINT OF CONTACT

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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

1. CHF = Significant	Identified	Potential	Limited
Evident	H	H	M
MPF Potential	H	H	M
Confined	M	M	L

2. CHF = Moderate	Identified	Potential	Limited
Evident	H	H	M
MPF Potential	H	M	L
Confined	L	L	L

3. CHF = Minimal	Identified	Potential	Limited
Evident	H	M	L
MPF Potential	M	L	L
Confined	L	L	L

RF (Receptor Factor)

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**.

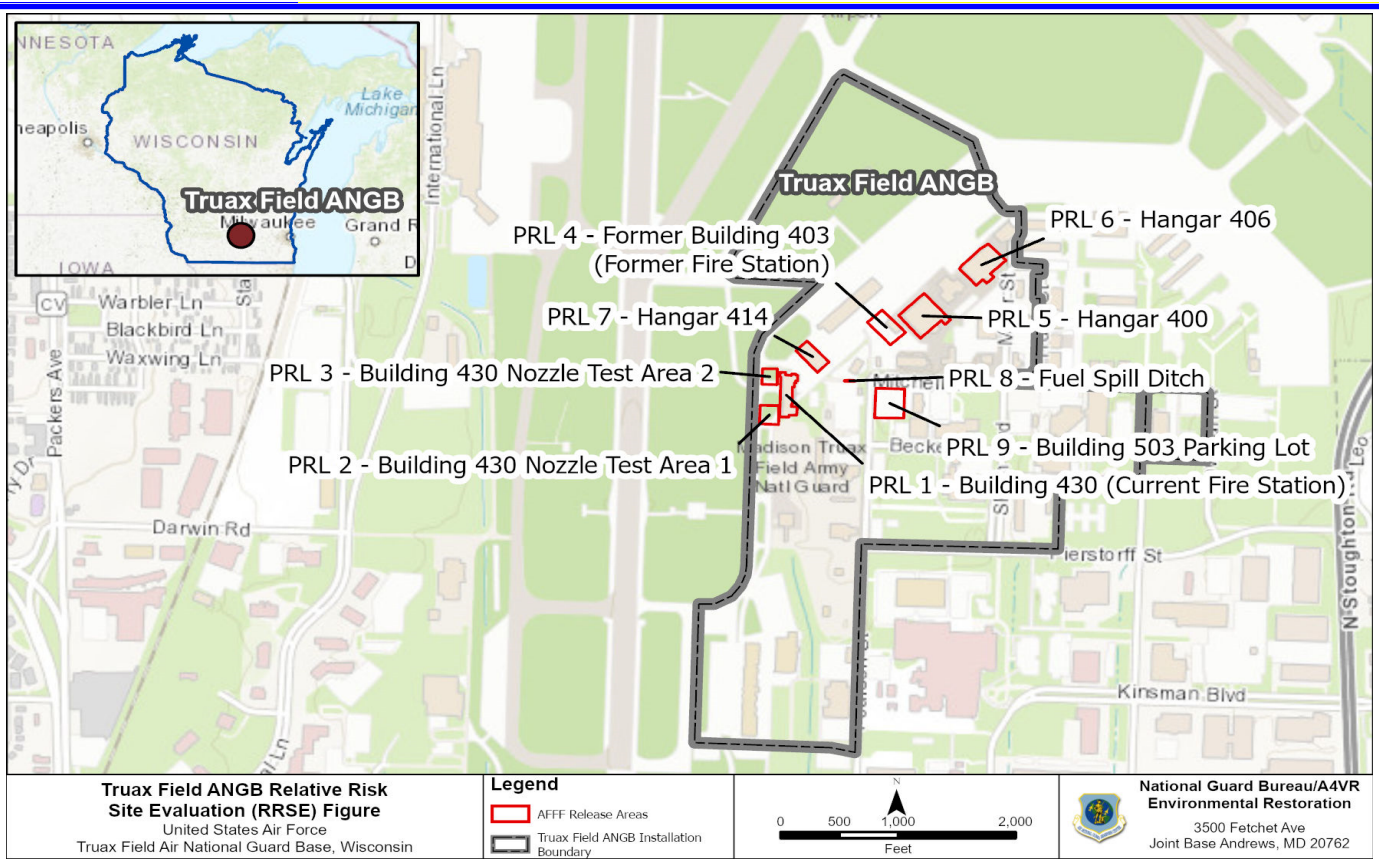
Regulatory and Stakeholder Involvement

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 Truax Field (Madison), WI

Overall Site Category	Site Name (Sites are shown on the map below and RRSE Worksheets are attached)
HIGH	PRL 1, PRL 2, PRL 3, PRL 4, PRL 5, PRL 6, PRL 7, PRL 8, PRL 9
MEDIUM	None
LOW	None



Notes:
Aqueous Film Forming Foam (AFFF) Area is another term for Potential Release Location (PRL).

Site Background Information			
Installation:	Truax Field ANG Base	**Date:**	9/3/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 430 (Current Fire Station) - PRL 1	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	At the time of the preliminary assessment (PA) site visit in 2015, aqueous film forming foam (AFFF) had been used by the Base Fire Department for at least 20 years and had been stored in Building 430 since it was built, circa 1995. In 2015, there were approximately 471 gallons (gals) of AFFF carried in Fire Department trucks and approximately 821 gals of AFFF serving as a backup supply, stored in the fire station. AFFF was transferred from storage to vehicles within the fire station via an overhead fill. Fire Department vehicles were washed within the fire station or in the outside truck bays when necessary. Trench drains are located in the fire station and downgradient of the truck bays; therefore, AFFF releases due to vehicle washing would be captured by the trench drains, which discharge into the sanitary sewer system.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the Installation Restoration Program (IRP) sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 1 is primarily covered in the building and/or pavement. There are grassy/landscaped areas located to the east, west (PRL 2), and south.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast (downgradient) of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtained during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use (Amec 2019). The closest downgradient (southeast) water well is located 0.5 to 1 mile from the base. PRL 1 is within the base boundaries and located in an area surrounded by other buildings. PFAS including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorobutane sulfonate (PFBS) have been detected at multiple on-site wells at varying concentrations. Receptors would likely include military and civilian personnel in a commercial/industrial setting.

Groundwater Worksheet

Installation: Truax Field ANG Base

Site ID: PRL 1 **AFFF Release Area #:** AFFF 1

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	39	0.04	975.0
PFOA	0.841	0.04	21.0
PFBS	0.357	0.602	0.6

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	996.6
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

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

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: Truax Field ANG Base

Site ID: PRL 1 **AFFF Release Area #:** AFFF 1

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	1.32	0.126	10.5
PFOA	0.00241	0.126	0.0
PFBS	0.00039	1.9	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	10.5
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	M

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

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	**HIGH**

Site Background Information			
Installation:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 430 Nozzle Test Area #1 - PRL 2	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	At the time of the PA site visit in 2015, the AFFF nozzle systems on Fire Department vehicles had been tested every six months in the grassy areas near Building 430. Nozzle Test Area 1 is located southwest of Building 430.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 2 is a grassy area located southwest of PRL 1 (Building 430).
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtained during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The closest downgradient (southeast) water well is located 0.5 to 1 mile from the base. PRL 2 is within the base boundaries and located in an area surrounded by other buildings. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations. Receptors would likely include military and civilian personnel in a commercial/industrial setting.

Groundwater Worksheet

Installation: Truax Field ANG Base

Site ID: PRL 2 **AFFF Release Area #:** AFFF 2

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	28.4	0.04	710.0
PFOA	0.349	0.04	8.7
PFBS	0.134	0.602	0.2

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	718.9
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: Truax Field ANG Base

Site ID: PRL 2 **AFFF Release Area #:** AFFF 2

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	36.8	0.126	292.1
PFOA	0.151	0.126	1.2
PFBS	0.0171	1.9	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**293.3**
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**	**H**

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	**HIGH**

Site Background Information			
Installation:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 430 Nozzle Test Area 2 - PRL 3	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	At the time of the PA site visit in 2015 the AFFF nozzle systems on Fire Department vehicles had been tested every six months in the grassy areas near Building 430. Nozzle Test Area 2 is located northwest of Building 430.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 3 is covered in grass and is located northwest of Building 430.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtained during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The closest downgradient (southeast) water well is located 0.5 to 1 mile from the base. PRL 3 is within the base boundaries and located in an area surrounded by other buildings. PPFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations. Receptors would likely include military and civilian personnel in a commercial/industrial setting.

Groundwater Worksheet

Installation: Truax Field ANG Base

Site ID: PRL 3 **AFFF Release Area #:** AFFF 3

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	13.8	0.04	345.0
PFOA	0.528	0.04	13.2
PFBS	0.133	0.602	0.2

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	358.4
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

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: Truax Field ANG Base

Site ID: PRL 3 **AFFF Release Area #:** AFFF 3

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.169	0.126	1.3
PFOA	0.00257	0.126	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:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 403 (former Fire Station) - PRL 4	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	Prior to relocation to Building 430, the Fire Department was stationed in Building 403, which was demolished in 1995/1996. According to Base personnel, AFFF had been in use since at least 1988 and was stored in Former Building 403. There are no records of AFFF nozzle testing from this time period. At the former fire station, water was transferred into fire trucks through an overhead fill, but foam was stored in drums and 5-gallon containers. Fire Department vehicles were likely washed within the fire station or outside when necessary. An oil-water separator (OWS) and associated underground storage tank were removed during demolition.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 4 is currently covered by a new building and parking lot with some landscaped areas to the north.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtained during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The closest downgradient (southeast) water well is located 0.5 to 1 mile from the base. PRL 4 is within the base boundaries and located in an area surrounded by other buildings. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations. Receptors would likely include military and civilian personnel in a commercial/industrial setting.

Groundwater Worksheet

Installation: Truax Field ANG Base

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

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.149	0.04	3.7
PFOA	0.0849	0.04	2.1
PFBS	0.0163	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	5.8
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	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: Truax Field ANG Base

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

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.368	0.126	2.9
PFOA	0.0016	0.126	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**2.9**
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	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	**HIGH**

Site Background Information			
Installation:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Hangar 400 - PRL 5	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	Hangar 400 was equipped with an AFFF fire suppression system until approximately 2009, when the system was retrofitted for use of high expansion foam (HEF); the installation date of the AFFF fire suppression system is unknown. According to Base personnel, hangar fire suppression systems have been tested annually; foam is discharged every other year during testing. No records of accidental AFFF releases exist. AFFF releases during testing or accidental release within the hangar would have been routed to trench drains that historically led to an OWS which then discharged into the sanitary sewer system. However, it is possible that AFFF could have been released into the environment during testing through cracks in the floor or through doorways. The OWS was removed in 2009. HEF is currently stored in the mechanical room of Hangar 400. According to Base personnel, AFFF may have been stored in the mechanical room prior to the switch to HEF. Floor drains are present which discharge to the sanitary sewer system.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group.Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 5 is mostly covered by the building and pavement with small landscaped areas nearby.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtained during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The closest downgradient (southeast) water well is located 0.5 to 1 mile from the base. PRL 5 is within the base boundaries and located in an area surrounded by other buildings. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations. However, based on its proximity to the flightline and its use as a hangar, access is likely limited to authorized personnel.

Groundwater Worksheet

Installation: Truax Field ANG Base

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

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.174	0.04	4.3
PFOA	0.0649	0.04	1.6
PFBS	0.013	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	5.9
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: Truax Field ANG Base

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

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.333	0.126	2.6
PFOA	0.00458	0.126	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	2.6
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 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:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Hangar 406 - PRL 6	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	According to Base personnel at the time of the BB&E PA, Hangar 406 was equipped with an AFFF fire suppression system until approximately 2006, when the system was retrofitted for use of HEF. According to Base personnel, hangar fire suppression systems have been tested annually; foam is discharged every other year during testing. No records of accidental AFFF releases exist. AFFF releases during testing or accidental release within the hangar would have been routed to trench drains which then discharged into the sanitary sewer system. However, it is possible that AFFF could have been released into the environment during testing through cracks in the floor or through doorways. There were no records available for AFFF fire suppression system testing at Hangar 406. At the time of the PA site visit in 2015, HEF was stored in the mechanical room of Hangar 406. According to Base personnel, AFFF may have been stored in the mechanical room prior to the switch to HEF. Floor drains were present which discharge to the sanitary sewer system.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 6 is primarily covered by the building/pavement with small landscaped areas present to the south/southeast.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtained during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The closest downgradient (southeast) water well is located 0.5 to 1 mile from the base. PRL 6 is within the base boundaries and located in an area surrounded by other buildings. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations. However, based on its proximity to the flightline and its use as a hangar, access is likely limited to authorized personnel.

Groundwater Worksheet

Installation: Truax Field ANG Base

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

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.121	0.04	3.0
PFOA	0.0202	0.04	0.5
PFBS	0.0127	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	3.5
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	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: Truax Field ANG Base

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

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.0164	0.126	0.1
PFOA	0.00101	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	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:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Hangar 414 - PRL 7	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	At the time of the PA site visit in 2015, Hangar 414 was equipped with an AFFF fire suppression which was installed in 1994. According to Base personnel, hangar fire suppression systems had been tested annually; foam was discharged every other year during testing. No records of accidental AFFF releases exist. Any AFFF releases during testing or accidental release within the hangar would have been routed to the trench drains which discharge into the sanitary sewer system.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 7 is primarily covered by the building/pavement with small landscaped areas present around the building.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtain during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. PRL 7 is within the base boundaries and located in an area surrounded by other buildings. PFAS including PFOA, PFOS, and PFBS have been detected at multiple on-site wells at varying concentrations. However, based on its proximity to the flightline and its use as a hangar. Access is likely limited to authorized personnel.

Groundwater Worksheet

Installation: Truax Field ANG Base

Site ID: PRL 7 **AFFF Release Area #:** AFFF 7

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	3.56	0.04	89.0
PFOA	0.116	0.04	2.9
PFBS	0.0219	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	91.9
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: Truax Field=

Site ID: PRL 7 **AFFF Release Area #:** AFFF 7

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.175	0.126	1.4
PFOA	0.00125	0.126	0.0
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**1.4**
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	
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:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Fuel Spill Ditch - PRL 8	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	On 6 March 1981, approximately 2,000 gal of JP-4 jet fuel spilled due to an overflow during refilling at the petroleum, oil, and lubricant (POL) pump house (Building 405). In response to the spill, an existing drainage ditch (approximately 100 ft. long) next to the spill was dammed off (ditch northwest of building 415). The fire department foamed the fuel and flushed it toward the ditch, where it soaked into the ground and was covered with straw. By 9 April 1981, as directed by the Wisconsin Department of Natural Resources (WDNR), the affected soil in the bottom of the ditch was removed to a depth of approximately 6 ft. and to the limit of odor detection on side slopes. The type of foam used during the 1981 fuel spill is not specified on the incident report but may have been AFFF based on its historic use. As PFOA/PFOS/PFBS sampling was not conducted during soil excavation, PFOA/PFOS/PFBS from the foam may still be present in this area, particularly the ditch sidewalls, which were excavated based on odor detection. Excavated soil from the spill area was relocate to what is now the parking lot west of Building 503 (PRL 9).
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 8 is primarily covered by pavement.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtain during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The nearest on-base production well is located approximately 374 feet to the south and hydrologically cross/up-gradient. The closest downgradient well was not identified. PRL 8 is within the base boundaries and located in an area surrounded by other buildings. PFAS including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorobutane sulfonate (PFBS) have been detected at multiple on-site wells at varying concentrations. Receptors would likely include military and civilian personnel in a commercial/industrial setting.

Groundwater Worksheet

Installation: Truax Field ANG Base

Site ID: PRL 8 **AFFF Release Area #:** AFFF 8

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	7.98	0.04	199.5
PFOA	0.0898	0.04	2.2
PFBS	0.0421	0.602	0.1

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	201.8
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: Truax Field ANG Base

Site ID: PRL 8 **AFFF Release Area #:** AFFF 8

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.0381	0.126	0.3
PFOA	0.000831	0.126	0.0
PFBS	0.000339	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	
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:	Truax Field ANG Base	**Date:**	9/03/2021
Location (State):	Wisconsin	**Media Evaluated:**	Groundwater, Soil
Site Name and ID:	Building 503 Parking Lot - PRL 9	**Phase of Execution (e.g., RI, Record of Decision (ROD)):**	N/A
RPM's Name:	Bill Myer	**Agreement Status (e.g., Federal Facility Agreement date signed):**	N/A
OVERALL SITE CATEGORY: HIGH			

Site Summary	
Brief Site Description:	The soil removed from the 1981 POL spill area, PRL 8, was relocated to what is now the parking lot west of Building 503. The soil was placed on four concrete pads, spread at a depth of 6 to 10 inches, and was turned throughout the summer of 1981 to enhance volatilization. In the summer of 1982, the contaminated soil was removed, the area was excavated to a depth of 3 ft. and the materials were transported off-site for disposal. The area was paved the same year. AFFF runoff from this area could have impacted soil and may have impacted groundwater.
Brief Description of Pathways:	The Base is located directly above a thick (approximately 300 ft.) section of glacial drift; thus, directly beneath the glacial till lies approximately 350 ft. of Mt. Simon Sandstone bedrock. Regionally, groundwater is found in the unconsolidated glacial deposits and underlying bedrock formations including sandstone of the Trempealeau Group, the deeper Tunnel City Group, and the underlying Elk Mound Group. These bedrock aquifers comprise the principal water supply aquifers in Dane County. The Mt. Simon Sandstone underlying the glacial deposits in the vicinity of the Base is the lowermost formation of the Elk Mound Group. Based on information collected during 2017 investigation activities at the IRP sites, monitoring wells within the water table zone indicate shallow groundwater flow is generally toward the south and southeast. The water table at the Base is generally encountered at depths of 5 to 10 ft. bgs. The groundwater flow gradients calculated from IRP investigations indicate groundwater flow velocities of 0.5 to 0.9 ft. per day. PRL 9 is primarily covered by pavement with small landscaped areas around its perimeter.
Brief Description of Receptors:	Drinking water is supplied to the Base and surrounding residential population by the City of Madison. The City of Madison obtains its public water supply from the Mt. Simon Sandstone from a network of pumping wells. The nearest municipal water supply wells are located approximately 1.0 miles southeast of the Base. There are currently no known drinking water supply wells at the Base, and the shallow groundwater system in the vicinity of the Base is not used as a source of drinking water. Based on information obtain during the IRP investigations, four private wells may have been located in the immediate vicinity of the Base prior to initial construction activities in 1942; however, in light of the extensive development in the area, the four private wells are believed to be abandoned or not in use. The nearest on-base production well is located approximately 374 feet to the south and hydrologically cross/up-gradient. The closest downgradient well was not identified. PRL 9 is within the base boundaries and located in an area surrounded by other buildings. PFAS including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorobutane sulfonate (PFBS) have been detected at multiple on-site wells at varying concentrations. Receptors would likely include military and civilian personnel in a commercial/industrial setting.

Groundwater Worksheet

Installation: Truax Field ANG Base

Site ID: PRL 9 **AFFF Release Area #:** AFFF 9

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
PFOS	0.3	0.04	7.5
PFOA	0.0164	0.04	0.4
PFBS	0.00415	0.602	0.0

CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	7.9
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: Truax Field ANG Base

Site ID: PRL 9 **AFFF Release Area #:** AFFF 9

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.000601	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**