# RELATIVE RISK SITE EVALUATION

## Mansfield Lahm Air National Guard Base, Ohio

**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 (ANG). 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 drinking water lifetime Health Advisories (HAs) for PFOS and PFOA, and health-based soil-based surface soil regional screening levels (RSLs) for PFOS, PFOA, and two RSLs, surface soil and drinking water for PFBS.

The Air Force is systematically evaluating potential AFFF releases on all Installations and former Installations. It began with the Preliminary Assessments (PAs) that identified potential release areas. Historical records were reviewed, and first responders, fire chiefs, and hangar staff were interviewed to determine where a release or a spill may have occurred on an Installation (for example, aircraft crash site or an accidental hangar AFFF release). Once the information in the PA was collected, Site Inspections (SIs) were initiated to collect soil and groundwater samples and analyze those media for 16 different PFAS at the potential release areas. The intent of the SI is to determine if a release has occurred and determine if there are impacts to soil and/or groundwater. The next step in the process is the Relative Risk Site Evaluation (RRSE). The RRSE is a DoD-wide methodology to evaluate the relative risks posed by chemicals present at a site in relation to other sites. The RRSE is a tool used to sequence funding for which installations have the highest priority to begin a Remedial Investigation (RI). The DoD premise in installation sequencing is “worst first,” meaning the DoD Component shall address installations that pose a relatively greater potential risk to public safety, human health, or the environment before installations posing a lesser risk.

The Mansfield Lahm Air National Guard Base (ANGB) PFAS PA, SI, and Supplemental SI Sampling Memo can be found at the Air Force 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 Mansfield Municipal Airport, OH, then enter the AR Number 471722 in the “AR #” field for the PA. For the SI, enter the AR Number 597629. For the Supplemental SI Sampling Memo, enter the AR Number 625241. Then click “Search” at the bottom of the page. Click on the image of the eye 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

ANG - Air National Guard

ANGB - Air National Guard Base

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

RF – Receptor Factor

RI – Remedial Investigation

RRSE – Relative Risk Site Evaluation

SI – Site Inspection

# RELATIVE RISK SITE EVALUATION, cont.

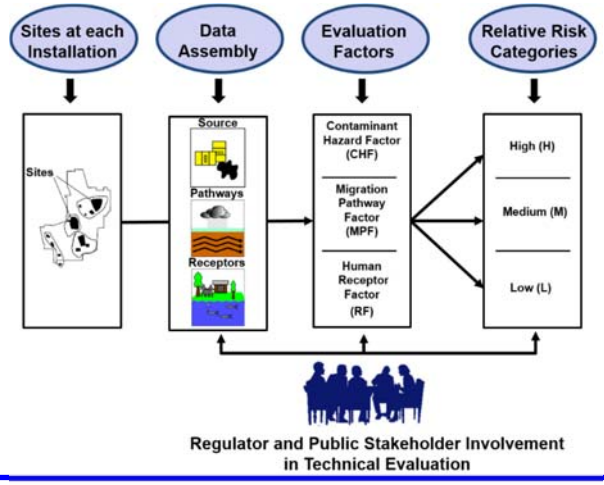
**Q. What is the Relative Risk Site Evaluation (RRSE)?**

**A.** RRSE is a methodology to sequence environmental restoration work used by the 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**

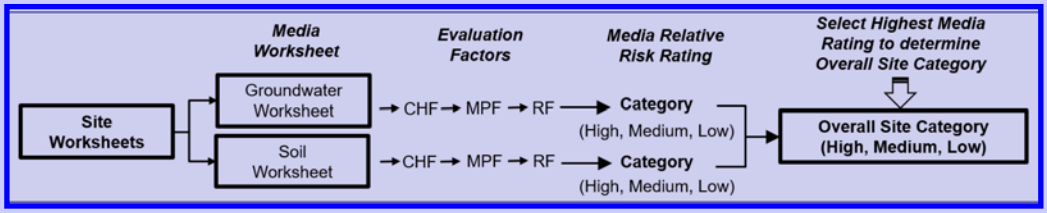



## Sites at Each Installation

**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 **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 **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**
**Troy Sanders NGB/A4VR**
**(240) 612-8506**
**troy.sanders.3.ctr@us.af.mil**

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

**A.** The movement of contamination at a site is evaluated and assigned a **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?**

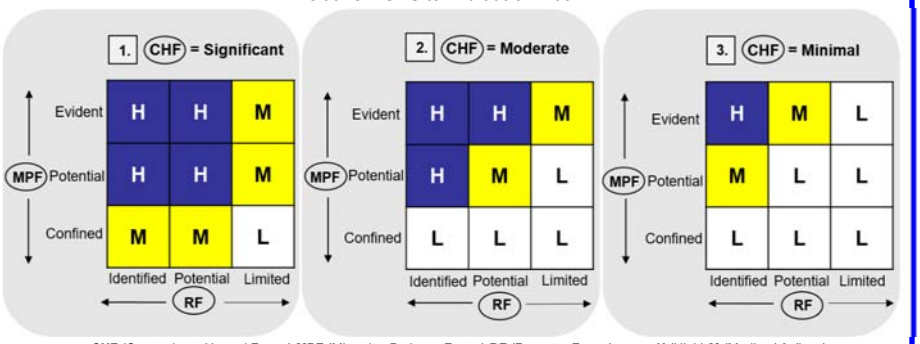
**A.** The **RF** is determined by a receptor's, such as humans, potential to come into contact with contaminated media. **RFs** are designated as: identified, potential, or limited **(High, Medium, and Low). Identified** rating is given when receptors are in contact or threat of contact with contaminated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

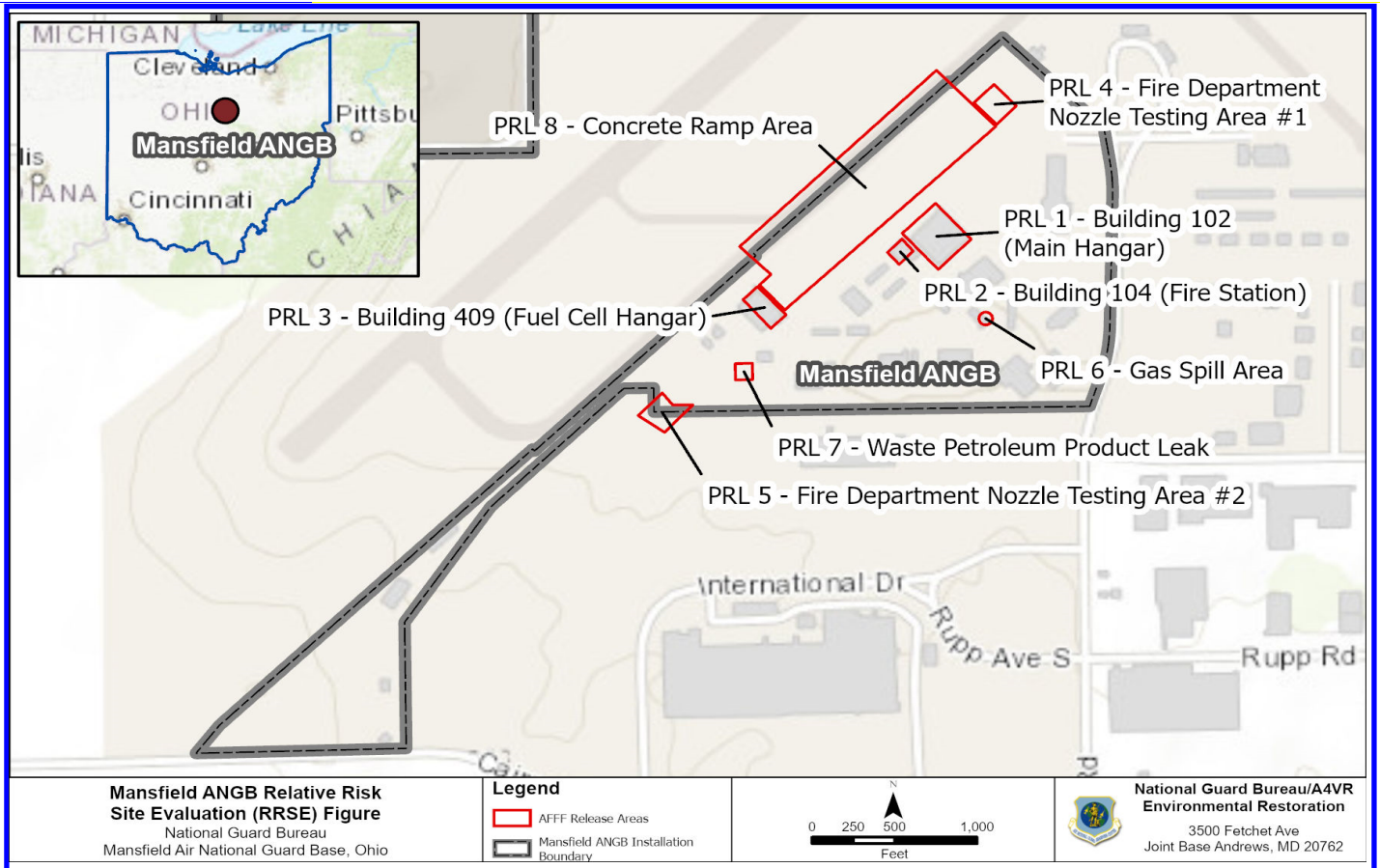
## Regulatory and Stakeholder Involvement

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 Mansfield Lahm ANGB, OH

| 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 5, PRL 6, PRL 7, PRL 8 |
| MEDIUM | PRL 4 |
| LOW | |




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

| Site Background Information | | | |
|---|---|---|---|
| **Installation:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | Bldg 102- Main Hangar - PRL 1 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | The Main Hangar (Building 102) was built in 1950, and at the time of the Preliminary Assessment (PA) site visit, it contained an aqueous film forming foam (AFFF) fire suppression system (FSS) installed after 1998; according to the PA, conversion to high-expansion foam (HEF) was reportedly planned. The FSS consisted of an above ground 500-gallon (gal) tank in a mechanical room, which contained approximately 400 gal of AFFF, a series of above ground pipes, and two cannons in the hangar bay. Floor drains were connected to an oil-water separator (OWS) and sanitary sewer system, and discharged to the City of Mansfield waste water treatment plant (WWTP). There were two reported releases at PRL 1. The first occurred in August 2003, when approximately 200 gal of AFFF and 3,500 gal of water were discharged inside the hangar, and entered the floor drains. The City of Mansfield WWTP told Base personnel to cease discharging to the WWTP, but approximately 2,000 gal of the mixture was released to the sanitary sewers before personnel could isolate the discharge. Approximately 1,500 gal was pumped into a vacuum truck for proper off-site disposal. The second release was in February 2014. A FSS valve broke due to freezing temperatures. AFFF discharged inside the hangar, entered the floor drains, but the sanitary sewer lines were frozen, so no AFFF discharged to the WWTP. The City of Mansfield's WWTP was notified. Approximately 2,500 gal was collected in a vacuum truck. At the time of the PA site visit, FSS tests were conducted by an outside contractor annually using only water. No records were available, so it is unknown if earlier testing used AFFF. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the Site Inspection (SI) ranged from 3.42 to 17.8 ft below ground surface (bgs), and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields 25 to 250 gal per minute (gpm) and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20- 300 feet (ft) below ground surface (bgs) across Mansfield Lahm ANGB. Hangar 102 contains floor drains, and the area surrounding PRL 1 is mostly covered by concrete, so infiltration would be minimal. Any AFFF leaving the hangar may drain to the grassy area to the immediate north where the soil borings and a monitoring well were completed. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the Environmental Data Resources (EDR) Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio Department of Natural Resources (DNR) Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. As PRL 1 is within the base boundary fence and adjacent to the taxiway and aircraft apron, receptors would be limited to commercial/industrial workers with special permission to be in a restricted area. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.32 | 0.04 | 8.0 |
| PFOA | 0.54 | 0.04 | 13.5 |
| PFBS | 0.18 | 0.602 | 0.3 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 21.8 |
|---|---|---|---|
| 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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.41 | 0.126 | 3.25 |
| PFOA | 0.008 | 0.126 | 0.06 |
| PFBS | 0.0024 | 1.9 | 0.00 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **3.31** |
| **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** | **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:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | Bldg 104- Fire Station - PRL 2 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | The Fire Station was built in 1952. At the time of the PA site visit, the Fire Station housed three fire trucks and one foam trailer. The combined fire truck AFFF capacity was 1,560 gal, and the foam trailer's capacity was 750 gal. According to the PA report, there had been undocumented minor leaks of AFFF at the Fire Station. The bay is equipped with floor drains that lead to a sediment separator, which then leads to the City of Mansfield's WWTP. The Fire Department did not store containers of AFFF; all storage was in the foam trailer, which was used to fill fire trucks if needed. AFFF that was received in drums/buckets was loaded into the foam trailer inside the Fire Station. A gravity pump was then used to fill the fire trucks from the foam trailer. In the fall/winter of 2012, the foam trailer was parked outside the building overnight and the AFFF froze. It was disposed of into a sanitary sewer manhole with permission from the City of Mansfield's WWTP. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. Building 104 contains floor drains, and the area surrounding PRL 2 is mostly covered by concrete, so infiltration would be minimal. Any AFFF leaving the Fire Station may drain to the grassy area to the north, and northwest where soil borings were completed. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. As PRL 2 is within the base boundary fence and adjacent to the taxiway and aircraft apron, receptors would be limited to firefighters and commercial/industrial workers with special permission to be in a restricted area. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.32 | 0.04 | 8.0 |
| PFOA | 0.54 | 0.04 | 13.5 |
| PFBS | 0.18 | 0.602 | 0.3 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 21.8 |
|---|---|---|---|
| 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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.91 | 0.126 | 7.2 |
| PFOA | 0.037 | 0.126 | 0.3 |
| PFBS | 0.0097 | 1.9 | 0.0 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 7.5 |
|---|---|---|---|
| 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 | 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:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | Bldg 409- Fuel Cell Hangar - PRL 3 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | This building was constructed in 1978 with an AFFF FSS. The FSS utilized AFFF until it was retrofitted in 2002 and was converted to HEF. The building is equipped with concrete floors and floor drains that lead to an OWS, which then discharge to the City of Mansfield's WWTP. According to the PA Report, there were no known releases of AFFF at this building. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. Building 409 contains floor drains, and PRL 3 is mostly covered by concrete so infiltration would be minimal; however, there are grassy/landscaped areas adjacent to the building. Any AFFF leaving the hangar may drain to the adjacent grassy areas. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. As PRL 3 is within the base boundary fence and adjacent to the taxiway and aircraft apron, receptors would be limited to commercial/industrial workers with special permission to be in a restricted area. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.18 | 0.04 | 4.5 |
| PFOA | 0.32 | 0.04 | 8.0 |
| PFBS | 0.22 | 0.602 | 0.4 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **12.9** |
| **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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.053 | 0.126 | 0.4 |
| PFOA | 0.0027 | 0.126 | 0.0 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **0.4** |
| **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 | |
| **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:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | FD Nozzle Testing Area #1 - PRL 4 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: MEDIUM** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | The Fire Department conducted monthly equipment tests from the 1970's until the early 2000's at the northeastern end of the apron, in a location known as Nozzle Testing Area #1. These tests were conducted using AFFF and reportedly used less than 5 gallons each time. The AFFF would then be hosed off with water. According to the PA Report, the tests are now conducted with water only. It should be noted that supplemental field sampling was conducted by the ANG in October 2019 at this PRL following the SI, therefore, the data has been incorporated herein. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. The area surrounding PRL 4 is mostly covered by grass, so infiltration with precipitation at the source area is likely, depending on soil conditions. This infiltration could then become part of the shallow groundwater system. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. PRL 4 is located adjacent to a walking track within the base boundary fence so receptors would be limited to commercial/industrial workers with permission to be on base. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.014 | 0.04 | 0.4 |
| PFOA | 0.0053 | 0.04 | 0.1 |
| PFBS | 0.0071 | 0.602 | 0.0 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 0.5 |
|---|---|---|---|
| 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 | 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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.3 | 0.126 | 2.4 |
| PFOA | 0.015 | 0.126 | 0.1 |
| PFBS | 0.014 | 1.9 | 0.0 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **2.5** |
| **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 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:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | FD Nozzle Testing Area #2 - PRL 5 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | The Fire Department conducted monthly equipment tests from the 1970s until the early 2000s just west of former Building 400 at the southwestern end of the apron, in a location known as Nozzle Testing Area #2. These tests were conducted using AFFF and used less than 5 gal each time. The AFFF would then be hosed off with water. According to the PA Report, the tests are now conducted with water only. It should be noted that supplemental field sampling was conducted by the ANG in October 2019 at this PRL following the SI, therefore, the data has been incorporated herein. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. The area surrounding PRL 5 is mostly covered by grass, so infiltration with precipitation at the source area is likely, depending on soil conditions. This infiltration could then become part of the shallow groundwater system. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. Surface soil receptors have potential access to the impacted soil as portions of PRL 5 extend off base and outside of the base boundary fence. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.59 | 0.04 | 14.8 |
| PFOA | 1.1 | 0.04 | 27.5 |
| PFBS | 0.3 | 0.602 | 0.5 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 42.8 |
|---|---|---|---|
| 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 | 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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 1 | 0.126 | 7.94 |
| PFOA | 0.0048 | 0.126 | 0.04 |
| PFBS | 0.003 | 1.9 | 0.00 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF** | **8.0** |
| **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:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | Gas Spill Area - PRL 6 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | A gas spill of unknown volume occurred sometime between 1985 and 1988 in the area of the old motor pool, which was located to the southeast of the current location of Building 203. The Fire Department applied an unknown quantity of AFFF to the area and then washed it down into the wash rack, which was connected to an OWS. During the SI visit, Base personnel indicated that the Gas Spill Area is located southeast of where it was depicted in the PA Report. The area is located within a gravel parking area southeast of Building 203; therefore, soil borings completed during the the SI were focused in this gravel parking area noted by Base personnel. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. The area surrounding PRL 6 is mostly covered by gravel where the soil borings were completed; so infiltration with precipitation at the source area is likely. This infiltration could then become part of the shallow groundwater system. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. Surface soil receptors such as commercial/industrial workers have potential access to the impacted soils as this site is located in a parking lot near occupied base buildings. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.64 | 0.04 | 16.0 |
| PFOA | 2.2 | 0.04 | 55.0 |
| PFBS | 0.16 | 0.602 | 0.3 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **71.3** |
| **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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.088 | 0.126 | 0.7 |
| PFOA | 0.0045 | 0.126 | 0.0 |
| PFBS | 0.00022 | 1.9 | 0.0 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **0.7** |
| **CHF > 100** | **H (High)** | | |
| **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 | M |
| **Confined** | Low possibility for contamination to be present at or migrate to a point of exposure | |
| **Migratory Pathway Factor** | DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H). | M |
| **Receptor Factor** | | |
| **Identified** | Receptors identified that have access to contaminated soil | |
| **Potential** | Potential for receptors to have access to contaminated soil | M |
| **Limited** | No potential for receptors to have access to contaminated soil | |
| **Receptor Factor** | DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H). | M |
| | **Soil Category** | **LOW** |

| Site Background Information | | | |
|---|---|---|---|
| **Installation:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | Waste Petroleum Product Leak - PRL 7 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | On May 10, 1993, a spill of a 55-gal drum of waste petroleum product was observed in the area around Building 400 where petroleum products were stored. The spilled material was discovered within the containment area. Fire Department personnel applied a vapor barrier. After the vapor barrier was applied, the drums were vented. The spill was cleaned up by an outside contractor using absorbent materials. The cleanup material was contained in three 55-gal drums for proper off-site disposal. It is unknown if AFFF was utilized in spill response activities. According to Base personnel, following the immediate site cleanup, soil remediation activities were conducted under the Installation Restoration Program, and the area of the fuel contamination/potential vapor barrier application was removed and replaced with clean fill. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. The area surrounding PRL 7 is mostly covered by a building and maintained grass where the soil borings were completed; so infiltration with precipitation at the source area is likely. This infiltration could then become part of the shallow groundwater system. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. Surface soil receptors such as commercial/industrial workers have potential access to the impacted soils as this site is located in a parking lot near occupied base buildings. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.011 | 0.04 | 0.3 |
| PFOA | 0.071 | 0.04 | 1.8 |
| PFBS | 0.085 | 0.602 | 0.1 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 2.2 |
|---|---|---|---|
| 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 | 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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.0053 | 0.126 | 0.0 |
| PFOA | 0.00064 | 0.126 | 0.0 |
| PFBS | 0.0003 | 1.9 | 0.0 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **0.0** |
| **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** | **L** |

| | | |
|---|---|---|
| **Migratory Pathway Factor** | | |
| **Evident** | Analytical data or observable evidence that contamination is present at a point of exposure | |
| **Potential** | Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined | M |
| **Confined** | Low possibility for contamination to be present at or migrate to a point of exposure | |
| **Migratory Pathway Factor** | DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H). | M |
| **Receptor Factor** | | |
| **Identified** | Receptors identified that have access to contaminated soil | |
| **Potential** | Potential for receptors to have access to contaminated soil | M |
| **Limited** | No potential for receptors to have access to contaminated soil | |
| **Receptor Factor** | DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H). | M |
| | **Soil Category** | **LOW** |

| Site Background Information | | | |
|---|---|---|---|
| **Installation:** | Mansfield Lahm ANGB | **Date:** | 10/14/2021 |
| **Location (State):** | Ohio | **Media Evaluated:** | Groundwater, Soil |
| **Site Name and ID:** | Concrete Ramp Area - PRL 8 | **Phase of Execution (e.g., RI, Record of Decision (ROD)):** | N/A |
| **RPM's Name:** | Troy Sanders | **Agreement Status (e.g., Federal Facility Agreement date** | N/A |
| **OVERALL SITE CATEGORY: HIGH** | | | |

| Site Summary | |
|---|---|
| **Brief Site Description:** | Although there are no records of AFFF usage on the concrete apron and ramp area at the Base, the area could potentially have been impacted by AFFF if used on parked aircraft. Stormwater in this area is routed to two stormwater outfalls (Outfalls 003 and 004) through stormwater catch basins and underground piping. Runoff from the Concrete Ramp Area is collected via a trench drain which extends across the entire NW side of apron. Runoff is conveyed through the trench drain towards the two outfalls. Potential also exists for runoff to enter grassy areas adjacent to the Concrete Ramp Area. The monitoring well used to evaluate groundwater down gradient of this PRL was co-located/associated with PRL 1. The soil used to evaluate soil for this PRL was co-located/associated with PRLs 1, 2, 3, and 4. |
| **Brief Description of Pathways:** | Depth to groundwater observed in the monitoring wells installed during the SI ranged from 3.42 to 17.8 ft bgs, and flows north-northwest, but this depends primarily on surface topography. The range of depths to first water within a relatively small area across the Base can be explained by the presence of a number of small, perched, water-bearing lenses of more porous and permeable sand and silt confined by layers of less-permeable silts and clays. Bedrock in the Mansfield area consists of the Black Hand Sandstone member of the Cuyahoga Formation. The Mississippian-age Cuyahoga Formation yields from 25 to 250 gpm and is used for municipal, industrial, and residential production. The Cuyahoga aquifers are recharged by surface water where the Cuyahoga outcrops in Richland County, as well as by seepage from overlying glacial till. Vertical communication may occur between aquifers via fractures. Beneath the Mansfield, OH region, Pleistocene-aged glacial sediments consisting of sand and gravel outwash, and fine-grained glacial till, overlie the Mississippian-aged sandstone and conglomerate bedrock of the Waverly Group. Bedrock at the Base is usually encountered at approximately 50 ft. bgs, but the low permeability glacial till can reportedly extend as much as 20 - 300 ft. bgs across Mansfield Lahm ANGB. PRL 8 is covered in concrete, with surface runoff infiltrating into nearby grassy areas adjacent to the ramp or flowing into the trench drain/catch basins, which then discharge to Outfalls 003 and 004. |
| **Brief Description of Receptors:** | Multiple water wells are downgradient (north-northwest) and within a 4-mile radius of the Base, and the EDR Radius Map shows 171 water wells within a 1-mile radius of Mansfield Lahm ANGB. There are 30 potable water wells within a 0.5-mile radius, with 21 of those offsite, and the primary use being domestic drinking water wells for personal residences, as listed in the Ohio DNR Well Database. Of the remaining nine water wells, six are located on airport property; the remaining three have either been abandoned or recommended for no-further action. The potable water well records indicate the wells are installed in the Cuyahoga formation bedrock aquifer, with depths from 58 - 300 ft. bgs. Three private residential drinking water wells located north and northeast of the Base were sampled by the Ohio Environmental Protection Agency with assistance from the Richland County Health Department in December 2016 and January 2017 and exhibited no detectable concentrations of PFOS and PFOA. No public water supply system wells were identified within 1 mile of the Base. The Base, along with Mansfield Lahm Regional Airport are currently served by the Mansfield municipal water supply. Groundwater aquifers in Richland County primarily consist of Pleistocene-age glacial deposits and Mississippian-age fractured bedrock. The Mississippian-age Cuyahoga Formation yields 25 - 250 gpm and is used for municipal, industrial, and residential water production. Multiple sandstone aquifers characterized by intergranular porosity and fracture permeability are produced throughout the bedrock formation at various stratigraphic intervals. Surface soil receptors at PRL 8 have limited access to impacted soil as the area is covered in concrete. |

# Groundwater Worksheet

**Installation** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (ug/L) | Comparison Value (ug/L) | Ratios |
|---|---|---|---|
| PFOS | 0.32 | 0.04 | 8.0 |
| PFOA | 0.54 | 0.04 | 13.5 |
| PFBS | 0.18 | 0.602 | 0.3 |

| CHF Scale | CHF Value | Contamination Hazard Factor (CHF) | 21.8 |
|---|---|---|---|
| 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 | 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** Mansfield Lahm ANGB

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

| Contaminant | Maximum Concentration (mg/kg) | Comparison Value (mg/kg) | Ratios |
|---|---|---|---|
| PFOS | 0.91 | 0.126 | 7.2 |
| PFOA | 0.037 | 0.126 | 0.3 |
| PFBS | 0.014 | 1.9 | 0.0 |
| **CHF Scale** | **CHF Value** | **Contamination Hazard Factor (CHF)** | **7.5** |
| **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** | **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** |