FINAL
Preliminary Assessment Report Army Aviation Support Facility #1, Williamstown, West Virginia

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

July 2020

Prepared for:

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

UNCLASSIFIED

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AASF	Army Aviation Support Facility
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
EDR™	Environmental Data Resources, Inc.™
FTA	fire training area
gal	gallon
HA	Health Advisory
lb	pound
LQU	large quantity user
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
Ppt	parts per trillion
OWS	oil-water separator
SI	Site Inspection
UCMR3	Unregulated Contaminant Monitoring Rule 3
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
USPFO	United States Property and Fiscal Office
WVARNG	West Virginia Army National Guard
WVDEP	West Virginia Department of Environmental Protection
WVEHS	West Virginia Office of Environmental Health Services
WWTP	wastewater treatment plant

Executive Summary

The Army National Guard (ARNG) is performing Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities nationwide. A PA for per- and polyfluoroalkyl substances (PFAS)-containing materials was completed for Williamstown Army Aviation Support Facility (AASF) #1 (also referred to as the "facility") in Williamstown, West Virginia, to assess potential PFAS release areas and exposure pathways to receptors. AASF #1 is constructed on a parcel of land owned by the Wood County Airport Authority and is leased to the West Virginia ARNG (WVARNG). According to the lease document, the lease began in 1986, initially set to a term of 50 years, but an addendum in 2017 changed the lease to a 5-year term, eligible for renewal in 2022.

The performance of this PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)^{TM} Report packages to obtain information relevant to potential PFAS releases, such as drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 2 October 2019 and completed visual site inspections at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current AASF #1 personnel, including environmental managers and operations staff during the site visit;
- Identified areas of interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential PFAS source-pathway-receptor linkages for each AOI.

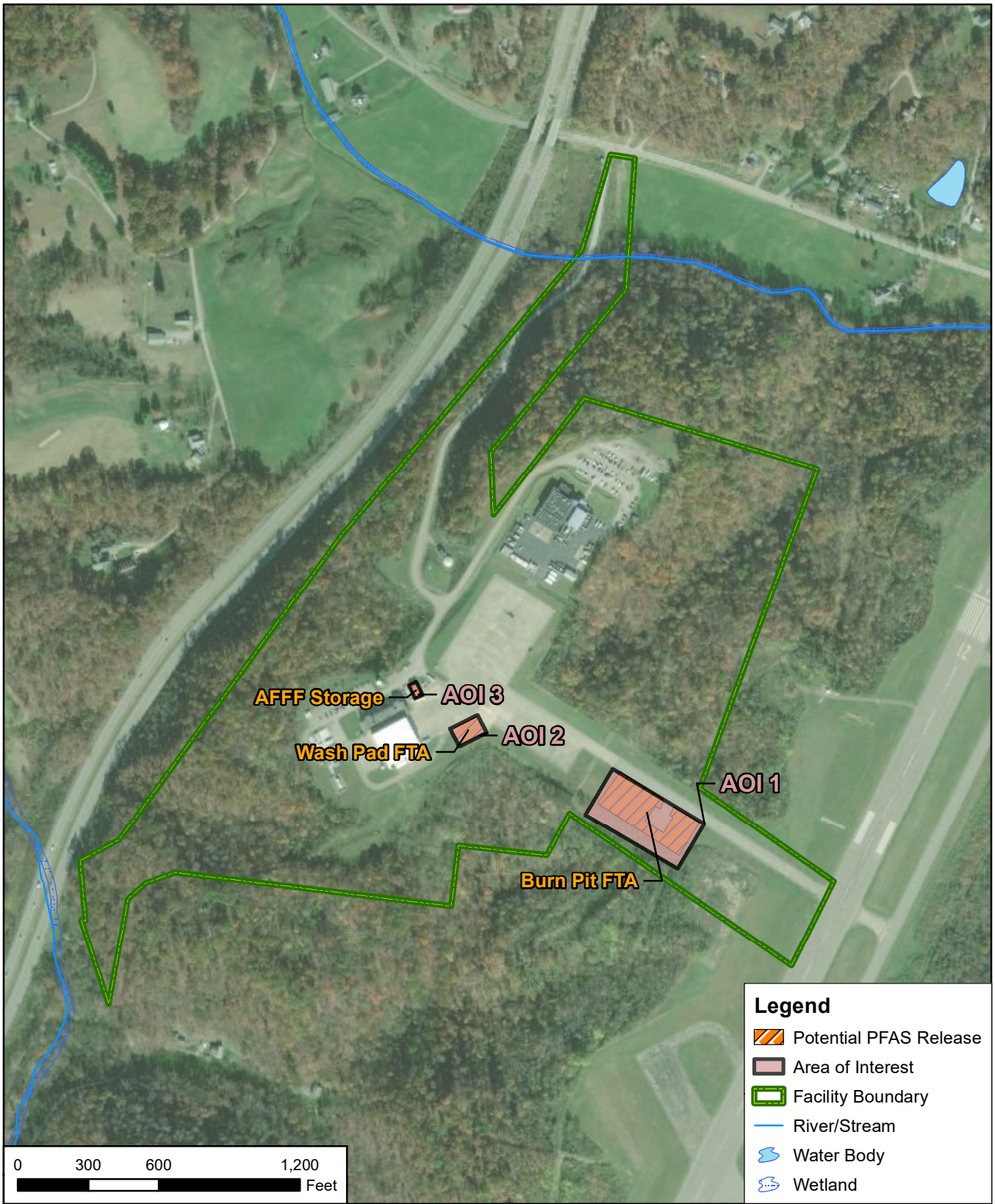
Three AOIs (referred to as "AOI 1," "AOI 2," and "AOI 3") related to potential PFAS releases were identified at AASF #1 during the PA. The AOIs are shown on **Figure ES-1** and described in **Table ES-1** below.

Table ES-1: AOIs at Williamstown AASF #1

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Burn Pit FTA	Airport Fire Department	Early 2000s
AOI 2	Wash Pad FTA	AASF #1 Personnel	2000-2010
AOI 3	AFFF Storage	AASF #1 Personnel	2000-2010

Based on potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for the AASF, which presents the potential receptors and media impacted, is shown on **Figure ES-2**. Four potential adjacent sources of PFAS were identified in the PA.

Based on the US Environmental Protection Agency's (USEPA) Unregulated Contaminant Monitoring Rule 3 (UCMR3) data, PFOA was detected in a public water system above the USEPA lifetime Health Advisory (HA) within 20 miles of the facility in Vienna, West Virginia (USEPA, 2017). The HA is 70 parts per trillion for PFOS and PFOA, individually or combined. PFOS was not detected in a public water system within 20 miles of the facility. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR3 but might be detected if analyzed today.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Williamstown AASF #1, WV			
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SCALE	1:7,200	CHK BY	AM	4/28/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	4/28/2020

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Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure ES-1

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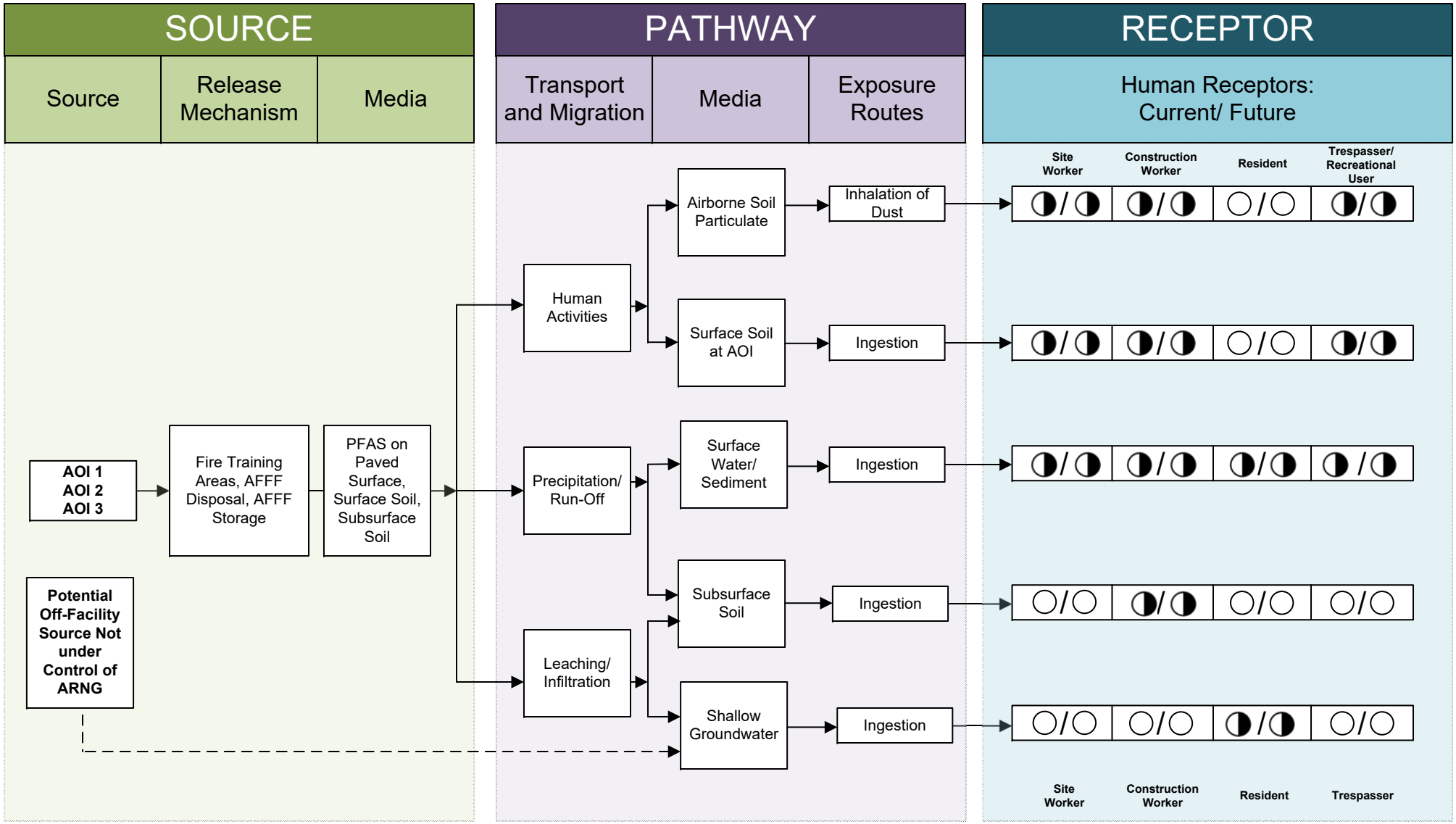


LEGEND

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

Notes:
1. The residential and recreational user receptors refer to off-facility receptors.
2. Human consumption of agricultural products and fish potentially affected by PFAS is possible.

Figure ES-2
Preliminary Conceptual Site Model
Williamstown AASF #1, West Virginia

1. Introduction

1.1 Authority and Purpose

The Army National Guard (ARNG) G9 is the lead agency in performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) at Impacted Sites at ARNG Facilities Nationwide*. This work is supported by the United States (US) Army Corps of Engineers (USACE) Baltimore District and their contractor AECOM Technical Services, Inc. (AECOM) under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017.

The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS), a suite of related chemicals, primarily in the form of aqueous film forming foam (AFFF) released as part of firefighting activities, although other PFAS sources are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of PFAS compounds in the environment varies. The regulatory framework at both federal and state levels continues to evolve. The US Environmental Protection Agency (USEPA) issued drinking water lifetime Health Advisories (HAs) for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water (USEPA, 2016a; USEPA, 2016b). The HA is 70 parts per trillion (ppt) for PFOS and PFOA, individually or combined.

This report presents the findings of a PA for PFAS-containing materials at Williamstown Army Aviation Support Facility (AASF) #1 (also referred to as the “facility”) in Williamstown, West Virginia, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; USEPA, 1980), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations [CFR] Part 300; USEPA, 1994), and Army requirements and guidance.

This PA documents potential locations where PFAS may have been released into the environment at AASF #1. The term PFAS will be used throughout this report to encompass all PFAS chemicals being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ Report packages to obtain information relevant to potential PFAS releases, such as drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 2 October 2019 and completed visual site inspections (VSIs) at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current and retired AASF #1 personnel including environmental managers and operations staff during the site visit; and

- Identified areas of interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential PFAS source-pathway-receptor linkages for each AOI.

1.3 Report Organization

This report has been prepared in accordance with the USEPA *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA, 1991). The report sections and descriptions of each are presented below:

- **Section 1** – **Introduction:** identifies the project purpose and authority and describes the facility location, environmental setting, and methods used to complete the PA;
- **Section 2** – **Fire Training Areas:** describes the fire training areas (FTAs) at the facility identified during the site visit;
- **Section 3** – **Non-Fire Training Areas:** describes other locations of potential PFAS releases at the facility identified during the site visit;
- **Section 4** – **Emergency Response Areas:** describes areas of potential PFAS release at the facility, specifically in response to emergency situations;
- **Section 5** – **Adjacent Sources:** describes sources of potential PFAS release adjacent to the facility that are not under the control of ARNG;
- **Section 6** – **Preliminary Conceptual Site Model:** describes the pathways of PFAS transport and receptors for the AOIs and the facility;
- **Section 7** – **Conclusions:** summarizes the data findings and presents the conclusions and uncertainties of the PA;
- **Section 8** – **References:** provides the references used to develop this document.
- **Appendix A** – Data Resources;
- **Appendix B** – Preliminary Assessment Documentation;
- **Appendix C** – Photographic Log.

1.4 Facility Location and Description

AASF #1 occupies 102.8 acres in Williamstown, West Virginia (**Figure 1-1**). The facility is located adjacent to the Mid-Ohio Valley Regional Airport, west of Runway 21. Land to the south and east of the facility is a combination residential and forested, while land to the north and west is primarily forested and agricultural. The nearest suburban area is Parkersburg, West Virginia, and is located 7.8 miles southwest of the facility.

The AASF is located on a portion of land the West Virginia National Guard leased from the Wood County Airport Authority for a term of 50 years starting in August 1986. In July 2017, an addendum to the lease changed the agreement to a 5-year term that is up for review in 2022. AASF #1 has operated as a military facility since construction was completed around 1992, and the unit moved from their previous location on the opposite side of the airport to the southeast.

1.5 Facility Environmental Setting

Williamstown AASF #1 is located in Wood County, West Virginia, directly south of the residential area of Williamstown, and northeast of Parkersburg, West Virginia. The facility is approximately 627 feet above mean sea level (US Climate Data, 2019). This area of West Virginia is located in the Appalachian Plateau Physiographic Province, which formed during the last glacial recession

through the levelling of terrain beneath the retreating ice sheet. Typical surface features in the surrounding area include steep hillslopes and ravines formed through post-glacial erosional processes (United States Geological Survey [USGS], 1987). AASF #1 sits at the top of a plateau, with forested land in its immediate surroundings. AASF #1 is within the Middle Ohio South Watershed, the tributaries of which feed the major geographic feature in this area, the Ohio River, which is found between 2.5 to 3.5 miles from the facility to the east, north, and west (West Virginia Department of Environmental Protection [WVDEP], 2013b).

1.5.1 Geology

The exposed geologic group in the Williamstown area is the Upper Pennsylvanian or Permian Dunkard group, which consists of shale, sandstone, limestone, and coal. Underlying is the Lower Pennsylvanian group, also comprised of shale, sandstone, limestone, coal, and a sandstone conglomerate in the older section of the stratum. Below that is the Mississippian group, consisting of undivided sedimentary rocks, siltsone, shale, sandstone, Pleistocene age glacial deposits, and Maxville Limestone. Soils in this area are composed of shale, sandstone, limestone, and coal, the same rocks that make up the underlying Pennsylvanian or Permian Dunkard group (USGS, 1987).

1.5.2 Hydrogeology

The Pleistocene sands and gravel form an alluvial aquifer directly above bedrock that is between 15 and 25 feet thick in nearby Parkersburg, West Virginia wells. Groundwater in this area is generally between 30 and 40 feet below ground surface (bgs) (USGS, 2004). In the area around the facility, under normal conditions, the hydraulic gradient is such that groundwater flows northwest from the surrounding hills, towards the Ohio River, as shown on **Figure 1-2** (USGS, 1997). During floods and high-water events that happen over a short period of time, the hydraulic gradient can reverse, causing river water to flow into and recharge the aquifer. This process during high-water events could affect the flow of contaminants in the aquifer (USGS, 2004). There is a semi-confining silt-clay layer over the alluvial aquifer; however, the bedrock and alluvium are hydraulically interconnected. This connectivity was determined by observing identical well responses during high-water events (USGS, 1997).

West Virginia's water resources come from alluvial valleys (West Virginia Office of Environmental Health Services [WVEHS], 1999). Multiple entities draw water from the Middle Ohio South Watershed for public water supply. Fourteen cities receive most of their public water supply from groundwater of the Middle Ohio South Watershed, three of which specifically draw groundwater from Wood County. The city of Williamstown public water supply is also completely sourced from groundwater in Wood County, but from within the Middle Ohio North Watershed (WVDEP, 2013b).

An EDR™ Report conducted a well search for a 1-mile radius surrounding the facility (**Appendix A**). Using additional online resources, such as state and local GIS databases, wells were researched to a 4-mile radius of the facility. Based on the EDR™ Report, no public water supply wells, private domestic wells, or monitoring wells were identified within 1 mile of the facility (EDR™, 2019). According to the USGS National Water Information System Mapper, there are two active USGS monitoring wells located within a 4- mile radius of the facility; one 2.5 miles east and one 3.2 miles north of the AASF (USGS, 2020). Additional inactive USGS monitoring wells were identified within 4 miles and are shown on **Figure 1-2**. GIS data for wells within a 4-mile radius of the facility was unavailable at the city, county, state, and national levels. Therefore, it is possible that additional unidentified public or private wells may be located within 4 miles of the facility. Drinking water at the facility is provided by the city of Williamstown public water supply.

Based on the USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR3) data, PFOA was detected in a public water system above the HA within 20 miles of the facility in Vienna, West Virginia (USEPA, 2017). The HA is 70 ppt for PFOS and PFOA, individually or combined. PFOS

was not detected in a public water system within 20 miles of the facility. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of other PFAS were not detected during the UCMR3 but might be detected if analyzed today.

1.5.3 Hydrology

The Ohio River is the major water feature near the facility, beginning in Pittsburgh, Pennsylvania, at the union of the Allegheny and Monogahela Rivers. From there, the Ohio River flows southwest, ending at the border of Kentucky, Illinois, and Missouri, when it meets with the Mississippi River. Williamstown, West Virginia is within the Middle Ohio South Watershed, one of many watersheds along the banks of the Ohio River. The Ohio River is used for recreational activities in the area of the facility. The Middle Ohio South Watershed is spread through Wood, Wirt, Jackson, Roane, and Mason counties (WVDEP, 2013b). There is no single, major tributary in this area of Wood County, as it consists of multiple Ohio River tributaries flowing through valleys, toward the river (USGS, 1987). This watershed contributes 7% of the public water supply within West Virginia. Wood County overall is one of three counties with the largest reported withdrawals by Large Quantity Users (LQUs) for public water supply (WVDEP, 2013a). Approximately 80% of water withdrawn in Wood County for public supply is groundwater withdrawn by LQUs and groundwater privately withdrawn for self-supply (WVDEP, 2013a).

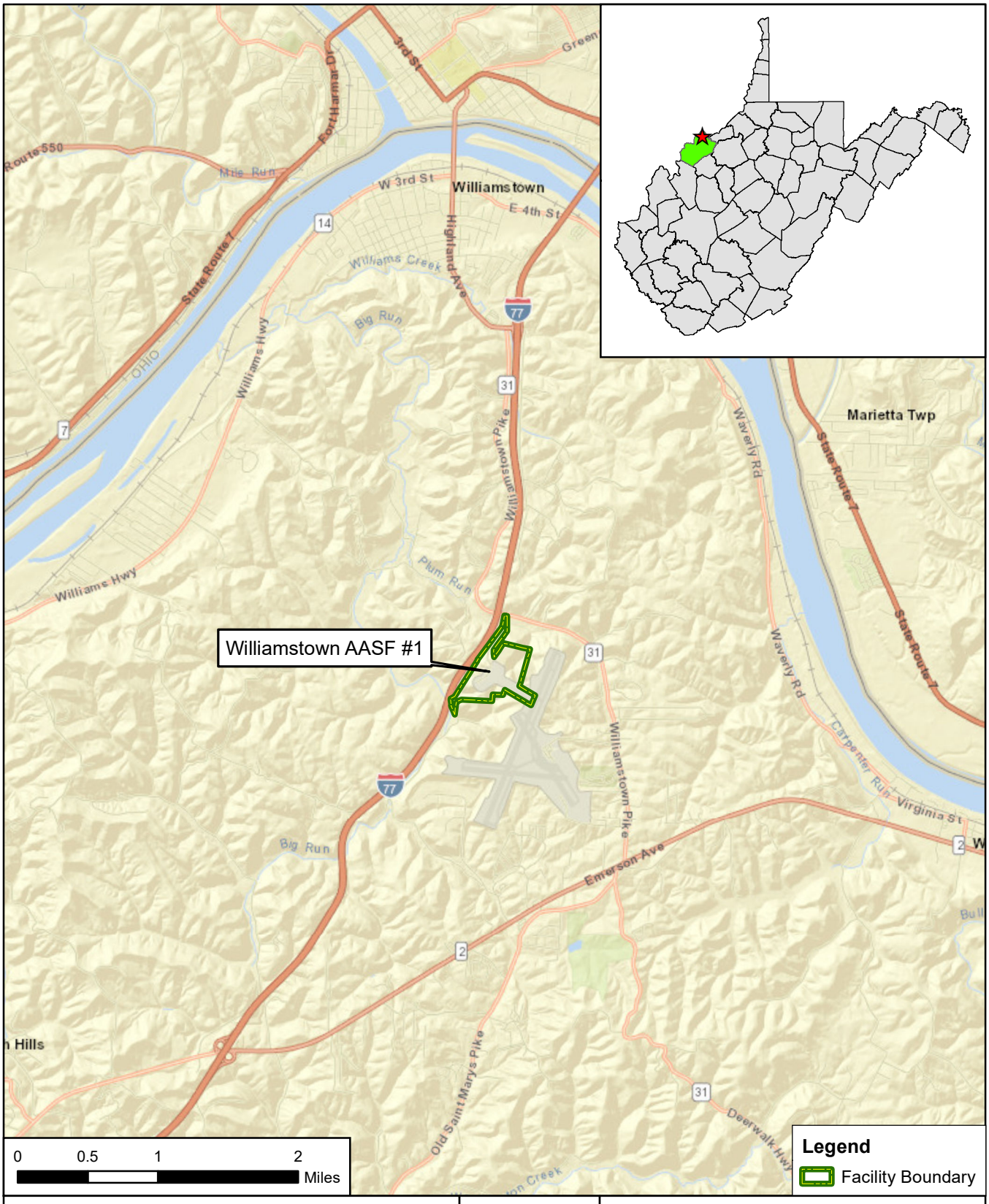
Surface water flow at the facility follows topography. Surface water runoff on the northwest side of the facility flows north to Plum Run. From Plum Run, water flows northwest to join Big Run. On the southern end of the facility, surface water runoff flows southwest to Big Run. Big Run continues north for approximately 3 miles before discharging into the Ohio River, which has a southwestern flow.

1.5.4 Climate

Williamstown, West Virginia has a continental climate, which is characterized by four distinct seasons with moderately severe winters and warm, rainy summers (USGS, 1987). Topography and elevation are primary influences on climatic variations and temperature in West Virginia. The eastern region of West Virginia is generally a few degrees cooler than the western region of the state, including AASF #1, due to higher elevation. Climate data from Parkersburg, approximately 8.5 miles from the facility, records an annual average high temperature of 65.3 degrees Fahrenheit (°F), the annual average low temperature is 44.1°F, annual rainfall precipitation is 42.09 inches, and annual average snowfall precipitation is 11 inches (US Climate Data, 2019).

1.5.5 Current and Future Land Use

AASF #1 currently resides on a portion of land leased from the Mid-Ohio Valley Regional Airport under the terms of a five-year lease. AASF #1 has been an operational military facility for an active National Guard unit since 1992, following the completion of construction. Future land use is not anticipated to change.



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Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	10/18/2019

Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-1

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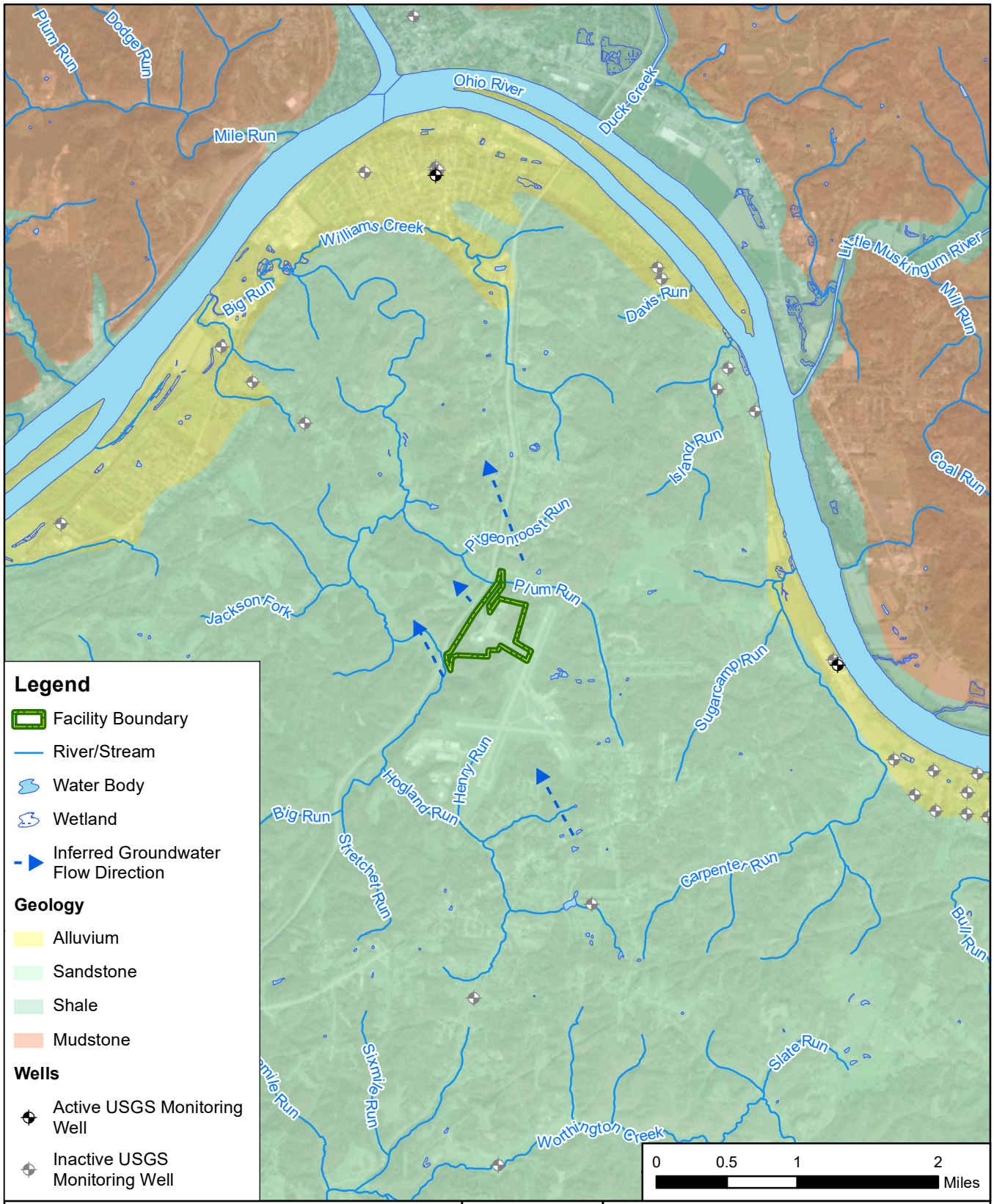

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/17/2020

Groundwater Features

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Figure 1-2

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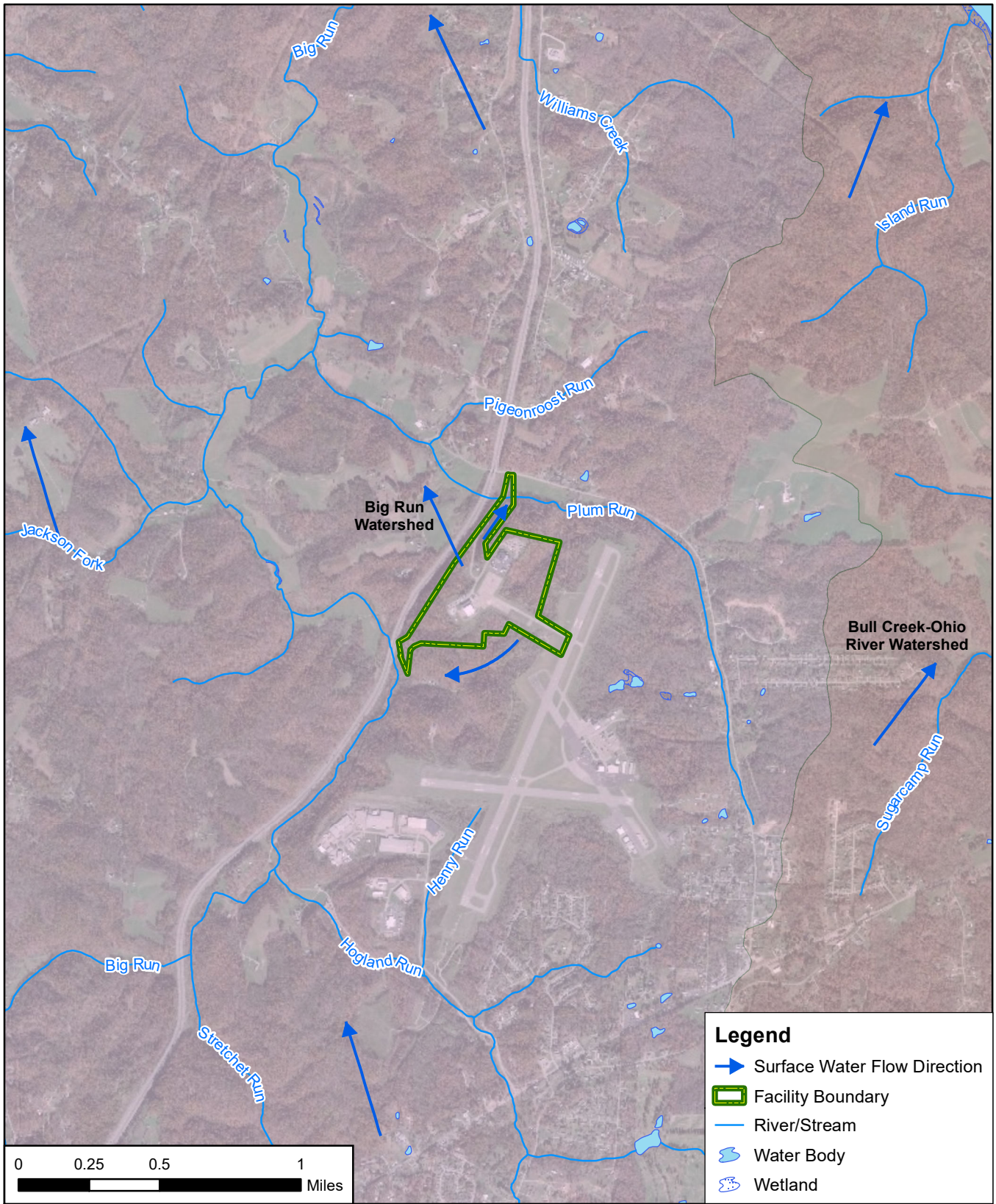

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

Two FTAs were identified at AASF #1 during the PA through interviews. The exact dates of the fire training activities are unknown, because interviewee recollection varied, but there was general consensus that training events using AFFF occurred at the facility. A description for each FTA is presented below, and the areas are shown on **Figure 2-1**.

2.1 Burn Pit FTA

In the early 2000s, the Williamstown AASF gave the adjacent Airport's Fire Department a truck equipped with AFFF. The Airport Fire Department had permission to conduct a fire training event on AASF #1 property to see how the firetruck operated. For this exercise, a training location was chosen on the southeastern side of the facility, near a large concrete pad. The exact location is unknown, but the estimated area is shown on **Figure 2-1**. The Airport Fire Department poured water into the pit, followed by fuel, then ignited the water-fuel mixture. The exercise fire was then extinguished using the Department's firetruck, which contained AFFF. The quantity of foam used is unknown, but personnel remember the truck's foam being sprayed for about 1-2 minutes. Following the exercise, the truck was not cleaned at the AASF #1 wash pad. Instead, the truck returned to the airport, and it is not known if the truck was washed after returning. This training event was a one-time occurrence. The foam released likely infiltrated soils on the surface as well as subsurface soils within the pit. The general burn pit location is a potential PFAS release area.

2.2 Wash Pad FTA

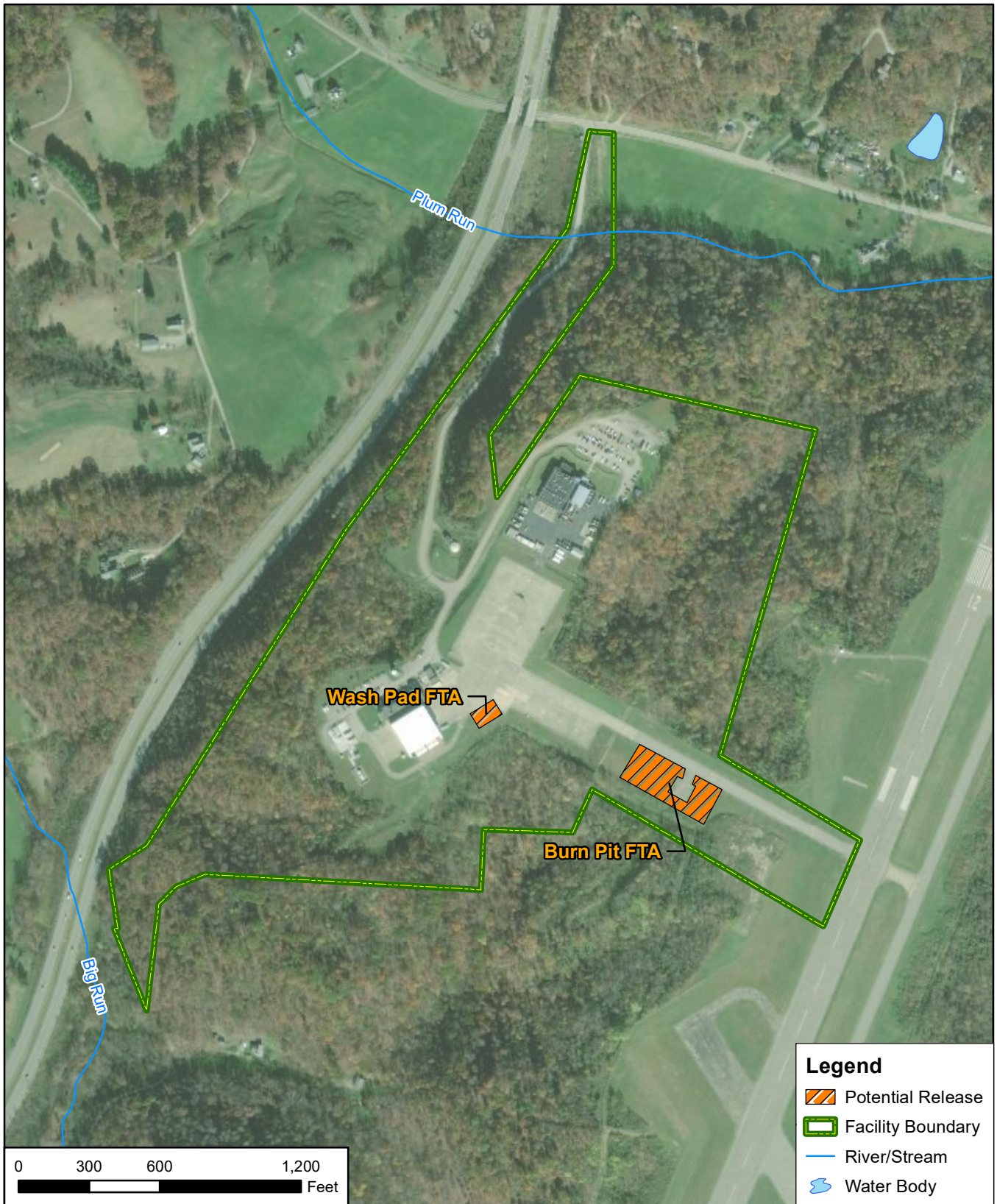
Annual fire training took place with AFFF at the wash pad of the facility. Interviewees recall AFFF being incorporated into the facility's emergency response equipment between 2000 and 2001 and removed in 2010. During this timeframe, annual fire training with AFFF took place on the facility's wash pad (**Figure 2-1**). During these events, wood was placed on the wash pads and ignited for participants to practice using Tri-Max™ AFFF extinguishers. Interviewees recall Airport Fire Department personnel and employees from Fire Extinguisher Specialists, the company contracted for annual inspections of AFFF extinguishers, observing the annual fire training. Neither group brought outside extinguishers to the facility, but Fire Extinguisher Specialists supplied propane torches to assist in lighting wood for the exercises. During these training events, the contents of one 150-pound (lb), or 30-gallon (gal), extinguisher would be expended in the wash pad area and rinsed down the drain with a water hose.

Prior to 2006, the wash pad drain led to the facility's oil-water separator (OWS), then to a surface water outfall leading to Plum Run, off-property. In 2006, the drainage system was restructured, and an equalization tank was installed. At this time, a valve was installed that directs liquid draining through the wash pad to the equalization tank, then to municipal sewage and the Williamstown wastewater treatment plant (WWTP). Interviewees recall the valve being turned to the equalization tank during wash pad activities, including fire training. However, if the valve was not turned to the equalization tank, the wash pad water followed its original path to the OWS, followed by release to Plum Run. Therefore, following renovations in 2006, AFFF from fire training activities followed the updated wash water path to the equalization tank, then to municipal sewage and a water treatment plant. The as-built plans for the equalization tank and drain re-routing area included in **Appendix A**.

In addition to fire training exercises, the wash pad was used to dispose of and refill off-spec AFFF. According to the "Fire Extinguishers Inspection Sheet" provided by AASF #1 personnel, there were 18 of the 30-gal Tri-Max™ AFFF extinguishers on the facility that underwent hydrostatic testing every five years (**Appendix A**). When it was time for the extinguishers to be submitted for testing, the contents of each extinguisher were emptied into the wash pad before they were given

to the contractor, Fire Extinguisher Specialists. At this time, Fire Extinguisher Specialists replaced them with re-certified extinguishers. This process was followed every five years, until AASF #1 had Tri-Max™ AFFF extinguishers replaced by Purple K extinguishers in 2010. At this time, all 18 extinguishers were emptied into the wash pad, and the empty extinguishers given to the US Property and Fiscal Office (USPFO). Disposal of large quantities of AFFF via wash pad drain potentially occurred before drainage renovations in 2006, as AFFF was acquired between 2000 and 2001 and required service every five years. Therefore, it is likely that there was one disposal event prior to drainage renovations, resulting in AFFF going to Plum Run, and one disposal event resulting in AFFF going to the municipal water treatment plant.

The foam released during these annual training events and at the disposal of off-spec AFFF likely infiltrated surface water and sediment along drainage pathways from the outfall leading to Plum Run and were introduced to the municipal sewer system. The pathway of potential contamination is dependent on the date of release. Though interviewees assert that the valve was turned to direct flow to municipal water treatment any time AFFF was used in the wash pad area following renovations, there is a degree of uncertainty due to the lack of documentation and reliance on interviewee recollection. The wash pad area is a potential PFAS release area.



CLIENT	ARNG			
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SCALE	1:7,200	CHK BY	AM	4/28/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	4/28/2020

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Fire Training Areas

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Figure 2-1

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3. Non-Fire Training Areas

In addition to FTAs, the PA evaluated areas where PFAS-containing materials may have been broadly used, stored, or disposed. This may include buildings with fire suppression systems, paint booths, AFFF storage areas, and areas of compliance demonstrations. Information on these features obtained during the PA are included in **Appendices A** and **B**. One non-FTA where AFFF was stored was identified during the PA. A description of the non-FTA is presented below and is shown on **Figure 3-1**.

3.1 AFFF Storage

While AFFF was in-use at AASF #1, 5-gal buckets of Tri-Max™ were stored in a materials room on the property with oil and spill kits. The location of this room is shown on **Figure 3-1**. To interviewee knowledge, no spills occurred in this location. Due to the potential for unintended leaks or spills of AFFF, this location is considered a potential PFAS release area.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Williamstown AASF #1, WV			
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Non-Fire Training Areas

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Figure 3-1

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4. Emergency Response Areas

No emergency response areas were identified within AASF #1 during the PA through interviews. In the case of an emergency at AASF #1, the West Liberty Fire Department is the primary first responder. Firsthand knowledge of interviewees extends prior to the construction of AASF #1 to when the unit was stationed at their previous location.

5. Adjacent Sources

Four potential off-facility sources of PFAS located adjacent to AASF #1, not under the control of ARNG, were identified during the PA through interviews and news reports. A description of each adjacent source is presented below, and the adjacent sources are shown on **Figure 5-1**.

5.1 Airport Crash Simulation Training

Starting in the early 2000s, the Mid-Ohio Valley Airport has conducted an annual downed aircraft simulation with the help of the West Virginia University Fire School. For the simulation, the frame of an aircraft is placed on a landing pad at the end of airport property (**Figure 5-1**). During this simulation, drills are conducted on how to properly rescue trapped passengers as well as how to extinguish fires using water hoses. There is no known or suspected AFFF release at this training location; therefore, the crash simulation area is not considered a potential adjacent PFAS release area.

5.2 Nozzle Testing Area

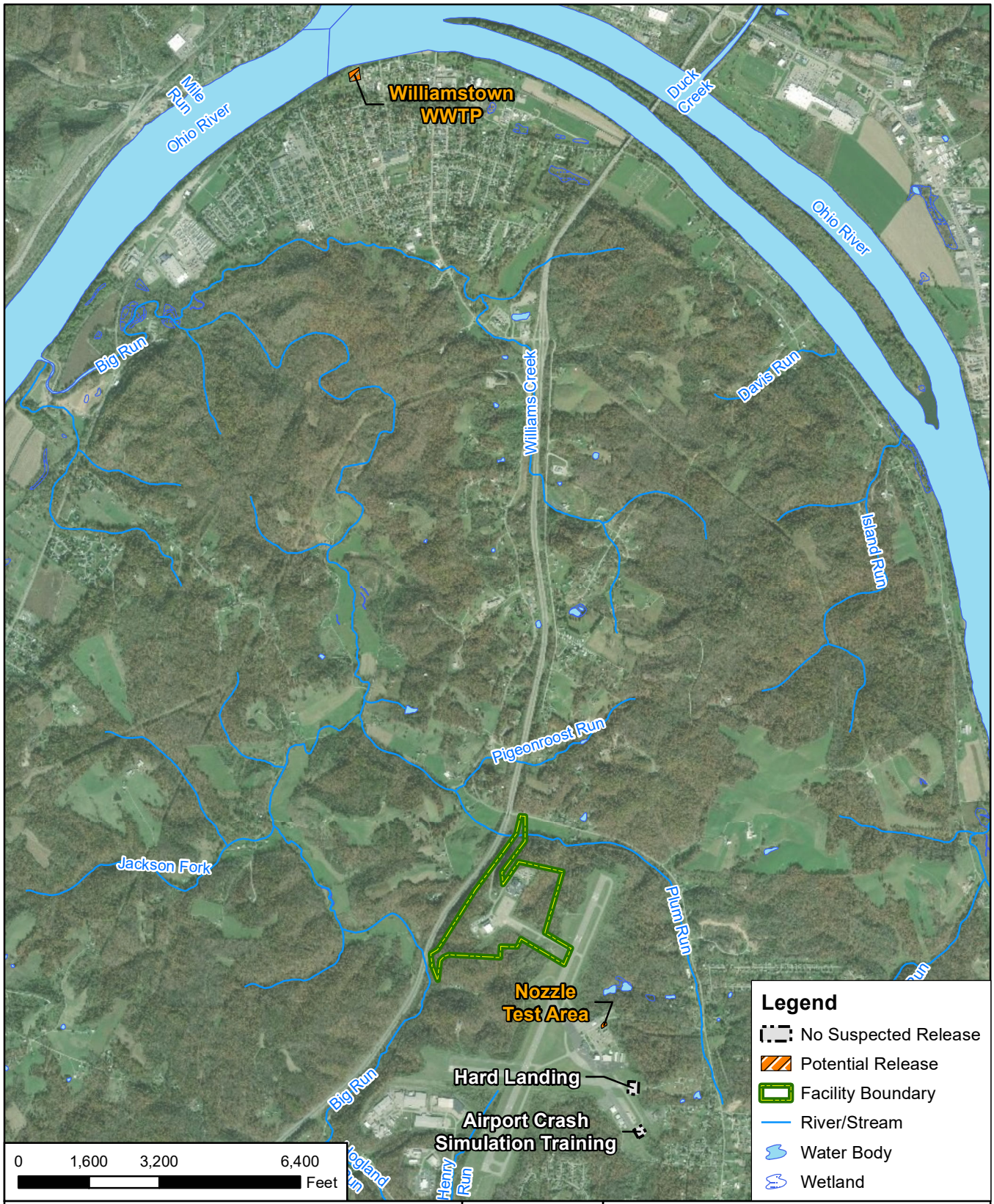
The Mid-Ohio Valley Airport currently has two firetrucks equipped with AFFF. Per Federal Aviation Administration requirements, nozzle tests must be conducted annually on firetrucks in service at the airport. Until 2017, the airport performed nozzle tests twice a year and in a manner that 5 to 10 gal of AFFF were released. AFFF was sprayed into a bucket, saving most of the AFFF from being released to the ground, but it is approximated that 0.5 gal were not contained from each firetruck. Starting in 2017, nozzle tests have been conducted once a year using a process that only expels an estimated 0.25 gal of AFFF from the hose. The majority of this AFFF is contained in a bucket, but some small spills have occurred. Nozzle testing is conducted in a flat, grassy area adjacent to the rescue and firefighting building on the airport's main ramp. There is no drainage infrastructure at this location, so AFFF released likely infiltrated soil at the location. The nozzle test area is a suspected adjacent PFAS release area.

5.3 Hard Landing

Between 1972 and 1973, a hard landing occurred at the adjacent Mid-Ohio Valley Airport. The Airport Fire Department observed the landing at the eastern end of the runway running east to west, but no fire suppression response was necessary (**Figure 5-1**). Due to no recollection of AFFF being used, this location has no suspected PFAS release.

5.4 Williamstown Wastewater Treatment Plant

The Williamstown WWTP is approximately 3.5 miles north of the facility and is operated by the city of Williamstown. Wastewater treatment facilities are not usually considered primary potential release areas of PFAS, but sludges and liquids treated at WWTPs may create a secondary source of contamination if they receive PFAS-impacted waste from other release areas, personal care products, and other household waste. PFAS releases that may have occurred within Williamstown could have resulted in the migration of PFAS in water to the Williamstown WWTP. Sludge generated at WWTPs is typically removed and disposed of at an off-site location; the location of sludge disposal for the Williamstown WWTP is unknown. Due to the potential for PFAS releases to have occurred elsewhere in the city of Williamstown sanitary sewer system, the WWTP is considered a potential adjacent, off-facility PFAS release area.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Williamstown AASF #1, WV			
REVISED	5/19/2020	GIS BY	GC	5/19/2020
SCALE	1:38,400	CHK BY	MM	5/19/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/19/2020

N

Adjacent Sources

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Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, three AOIs were identified at the AASF #1: AOI 1 is the Burn Pit FTA, AOI 2 is the Wash Pad FTA, and AOI 3 is the AFFF Storage. The AOI locations are shown on **Figure 6-1**. The following sections describe the CSM components and the specific preliminary CSMs developed for the AOIs. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological study. Receptors at AASF #1 include site workers, construction workers, trespassers, and off-site residents. Although Williamstown AASF #1 is a secure facility and trespassers are generally not anticipated, the trespasser exposure pathway is considered in the preliminary CSMs as a conservative measure. The preliminary CSMs for Williamstown AASF #1 indicate which specific receptors could potentially be exposed to PFAS (**Figure 6-2** through **Figure 6-4**).

6.1 AOI 1: Burn Pit FTA

AOI 1 consists of the general location of the burn pit FTA. First-hand knowledge from interviewees notes that the adjacent Airport Fire Department was permitted to conduct a fire training exercise using AFFF on AASF #1 property. The fire department used their firetruck equipped with AFFF to extinguish the flame.

The burn pit FTA was on an unpaved stretch of land near a large concrete pad at AASF #1. AFFF was released directly to the surface soil around the pit and the subsurface soil in the pit floor and walls. Therefore, ground-disturbing activities could result in site worker, construction worker, and trespasser exposure to PFAS via the inhalation of dust or ingestion of surface soil. Ground-disturbing activities to subsurface soil could also result in construction worker exposure via ingestion. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete.

PFAS are water soluble and can migrate readily from soil to groundwater; therefore, PFAS released to soil at AOI 1 may migrate to the groundwater via leaching. There are no recorded public water supply wells, private domestic wells, or monitoring wells located within 1 mile of the facility (EDR™, 2019). Though no wells exist in the immediate area, there may be public or private wells located greater than 1 mile from the facility. More comprehensive well data from the state or county were not available. The majority of many Northern West Virginia towns' public water supply is from groundwater originating in the Middle Ohio South Watershed area of Wood County where the facility is located. Therefore, the groundwater ingestion pathway for off-facility residents located outside of Williamstown is considered potentially complete. Because groundwater in the area is generally between 30 and 40 feet bgs, the ingestion exposure pathway for construction workers completing trenching activities is considered incomplete.

AOI 1 is located adjacent to a steep incline, with the immediate area sloping toward the edge of the hill and property line. Thus, expended AFFF on the surface may have run off-property and into the Ohio River tributary, Big Run, which flows into the Ohio River, about 3 miles west of the facility. Therefore, off-facility residents and recreational users may be exposed to PFAS in surface water via ingestion from the Ohio River and Big Run, and the exposure pathways for these receptors are considered potentially complete. However, because Big Run is not located on the

facility, the surface water ingestion pathway for site workers and construction workers is considered incomplete. The preliminary CSM for AOI 1 is shown on **Figure 6-2**.

6.2 AOI 2: Wash Pad FTA

AOI 2 is the wash pad FTA at AASF #1, which was used annually for fire training activities with AFFF and disposal of off-spec AFFF every five years.

According to interviewees, AFFF was released to the concrete wash pad during fire training activities before being rinsed down the wash pad drain with water. However, there is potential for AFFF to have been inadvertently released to the surrounding surface soil. Therefore, ground-disturbing activities could result in site worker, construction worker, and trespasser exposure to PFAS via the inhalation of dust or ingestion of surface soil. Ground-disturbing activities to subsurface soil could also result in construction worker exposure via ingestion. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete.

PFAS released to the surface may migrate to the groundwater via leaching. As described above, though no wells within 1 mile of the facility, there may be public or private wells located further downgradient. Therefore, the groundwater ingestion pathway for off-facility residents located outside of Williamstown is considered potentially complete. Due to the depth to groundwater (30 and 40 feet bgs), the ingestion exposure pathway for construction workers is considered incomplete.

The drainage system from the wash pad includes a manual valve to direct water either to surface water leading to Plum Run or the municipal water treatment plant. Before the valve installation in 2006, AFFF from training exercises at this location flowed through the wash pad pipes, into the OWS, and then through an outfall with flowing water on AASF #1 property that leads to Plum Run, a minor tributary of the Ohio River. Plum Run flows into Big Run, feeding into the Ohio River 3 miles downstream. After 2006, during fire training and disposal activities, the wash pad valve was switched to direct water to the municipal water treatment plant. Due to potential past releases from the drainage system or overland flow from surface releases, the surface water and sediment ingestion pathway is considered potentially complete for site workers, construction workers, and trespassers that enter Plum Run on the facility. Additionally, the surface water and sediment ingestion pathway is considered potentially complete for off-facility for residents and recreational users of the Ohio River, Plum Run, and Big Run. The preliminary CSM for AOI 2 is shown on **Figure 6-3**.

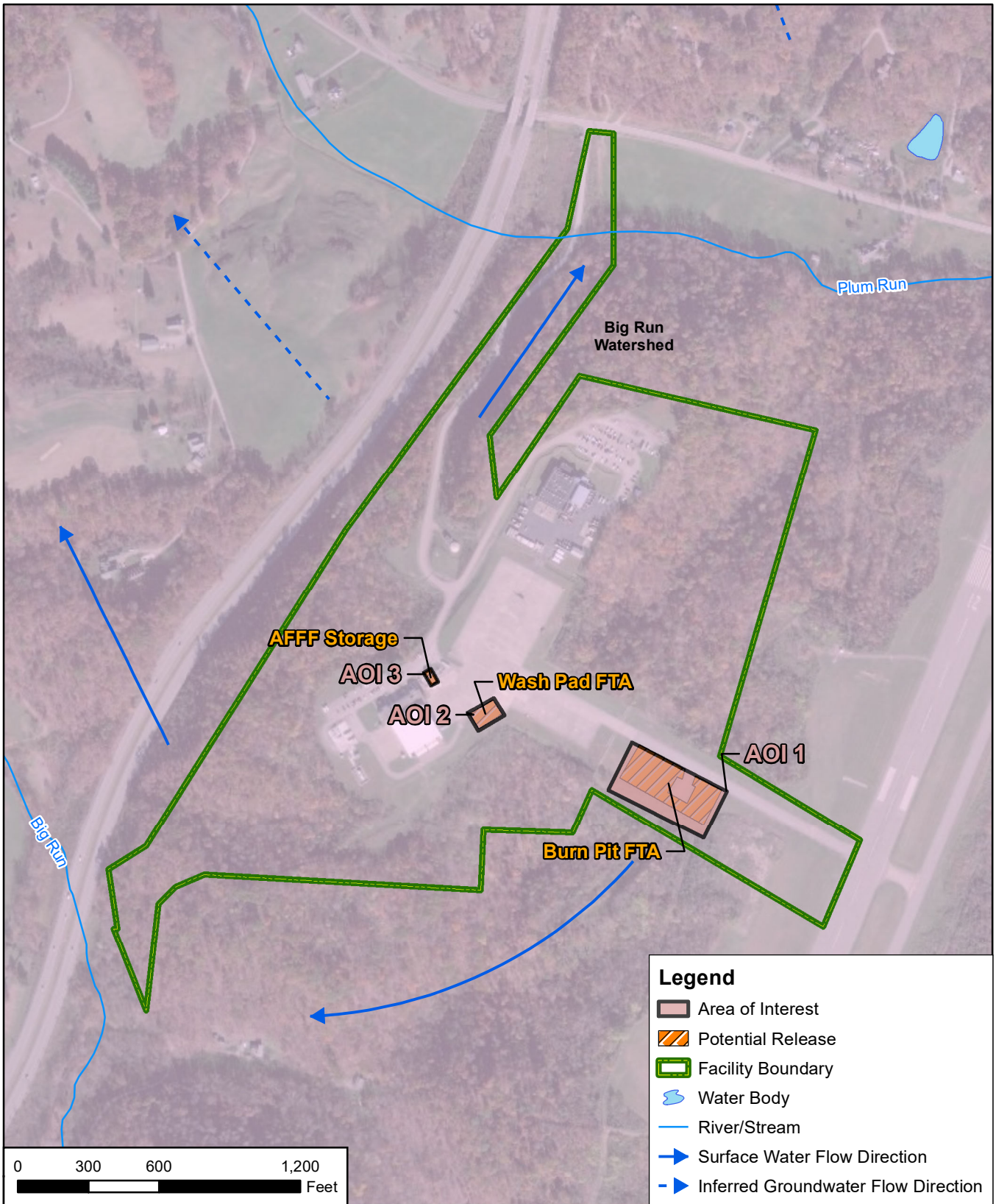
6.3 AOI 3: AFFF Storage

AOI 3 is a materials storage room previously used to store 5-gal buckets of AFFF. It is located north of the hangar on AASF #1 property (**Figure 3-1**). There is no record or recollection of a spill or leak at this location. However, due to the potential for undocumented leaks or spills of AFFF, the materials storage room considered an area of potential PFAS release.

Potential leaks or spills outside of the storage room may have traveled along the paved surface outside of the room to nearby grassy areas. Additionally, AFFF may have entered the subsurface soil via cracks in the pavement. Therefore, ground-disturbing activities could result in site worker, construction worker, and trespasser exposure to PFAS via the inhalation of dust or ingestion of surface soil. Ground-disturbing activities to subsurface soil could also result in construction worker exposure via ingestion. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete.

AFFF in surface water runoff would have followed on-site surface water pathways to open drainage pathways. From there, the PFAS would follow the same path as drainage from the wash pad prior to renovations in 2006. It would join the surface water drainage path that travels northeast along the roadside leading to Plum Run. From Plum Run, the PFAS would then travel to Big Run, and then the Ohio River. As a result, the surface water and sediment ingestion pathway is considered potentially complete for site workers, construction workers, and trespassers that enter Plum Run on the facility. Additionally, the surface water and sediment ingestion pathway is considered potentially complete for off-facility for residents and recreational users of the Ohio River, Plum Run, and Big Run.

PFAS released to the surface may migrate to the groundwater via leaching. As described above, though no wells within 1 mile of the facility, there may be public or private wells located further downgradient. Therefore, the groundwater ingestion pathway for off-facility residents located outside of Williamstown is considered potentially complete. Due to the depth to groundwater (30 and 40 feet bgs), the ingestion exposure pathway for construction workers is considered incomplete. The preliminary CSM for AOI 3 is shown on **Figure 6-4**.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Williamstown AASF #1, WV			
REVISED	5/20/2020	GIS BY	GC	5/20/2020
SCALE	1:7,200	CHK BY	AM	5/20/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/20/2020

N

Areas of Interest

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Figure 6-1

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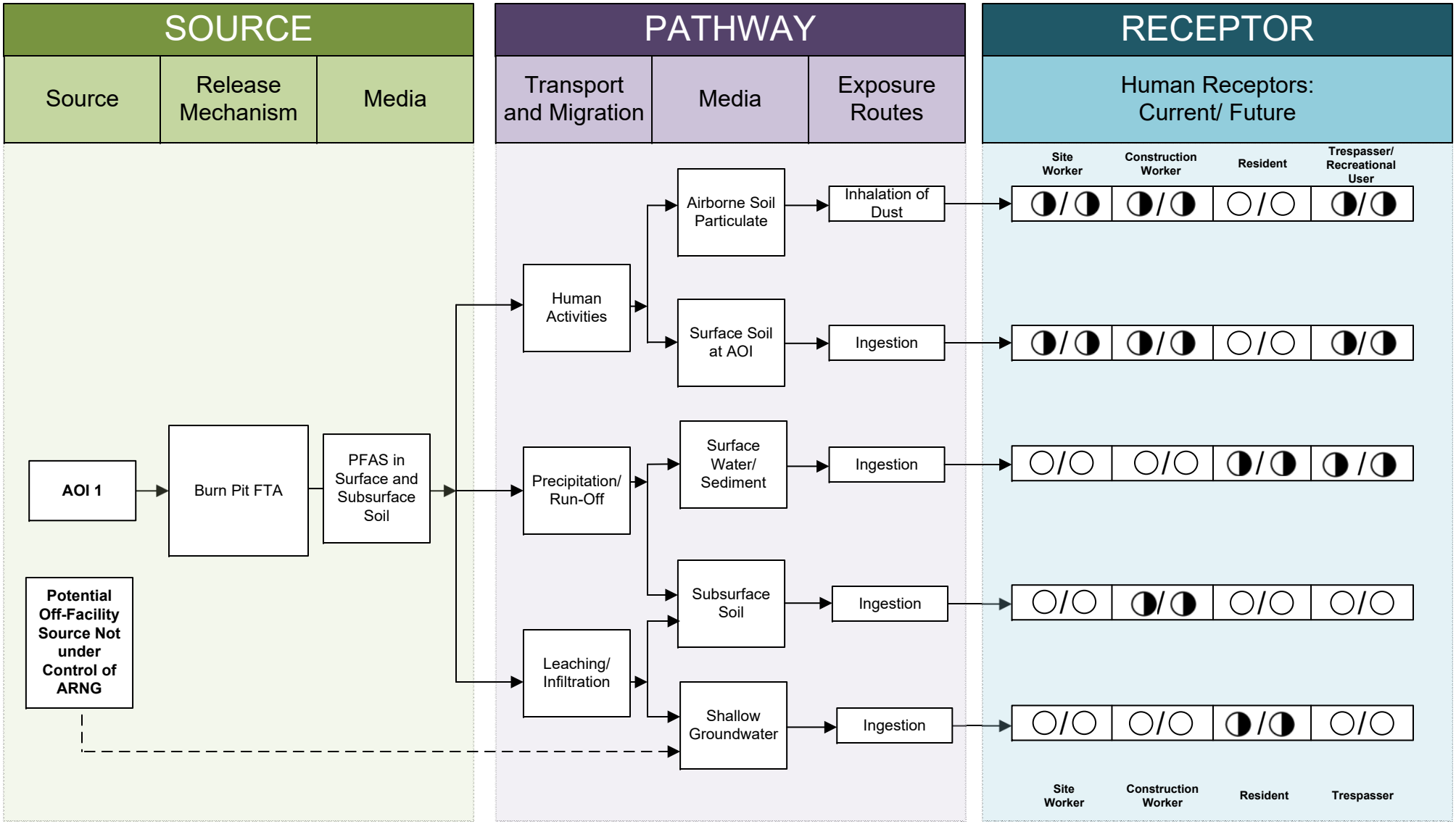
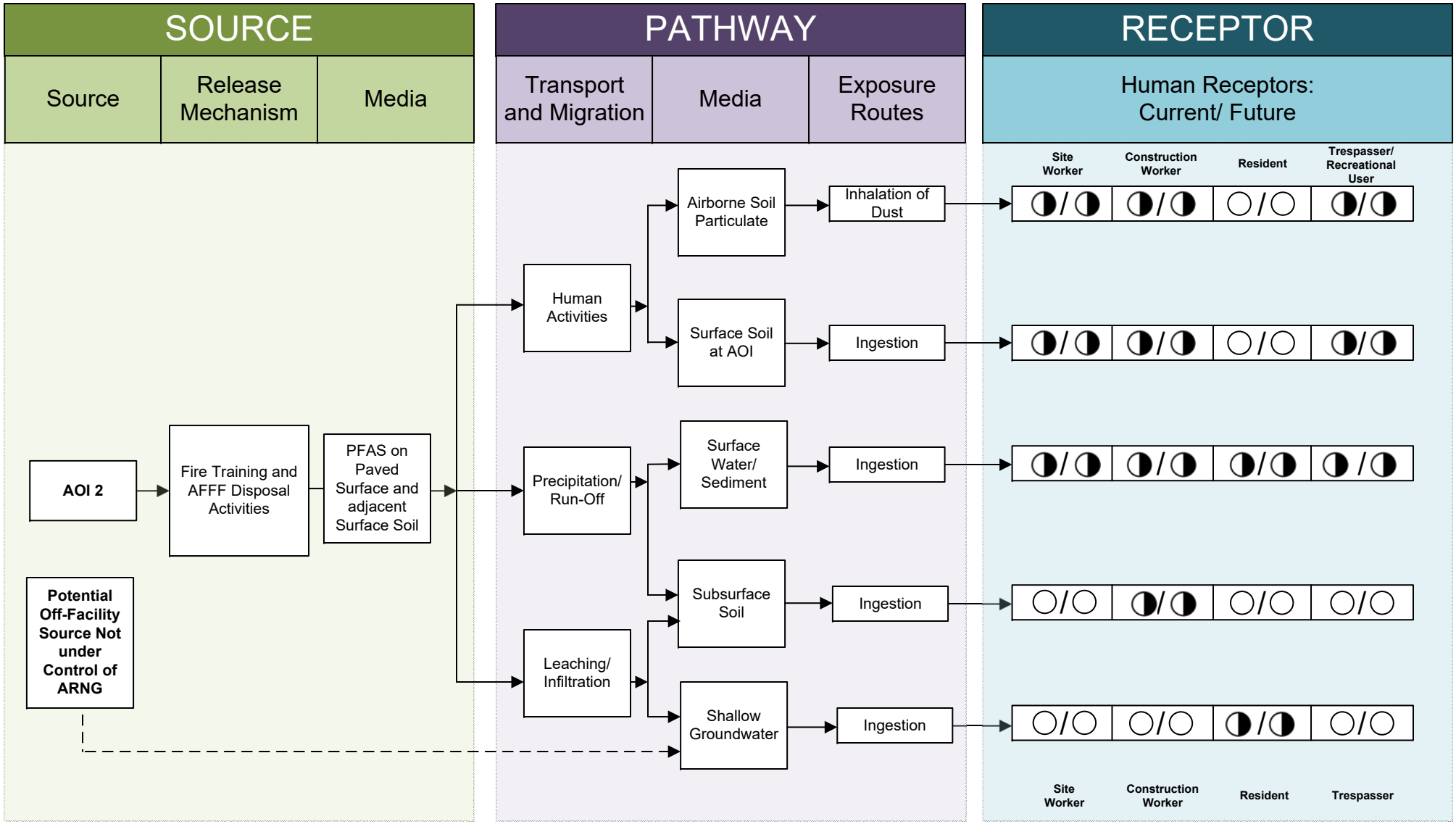


LEGEND

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

Notes:
1. The residential and recreational user receptors refer to off-facility receptors.
2. Human consumption of agricultural products and fish potentially affected by PFAS is possible.

Figure 6-2
Preliminary Conceptual Site Model
AOI 1: Burn Pit FTA

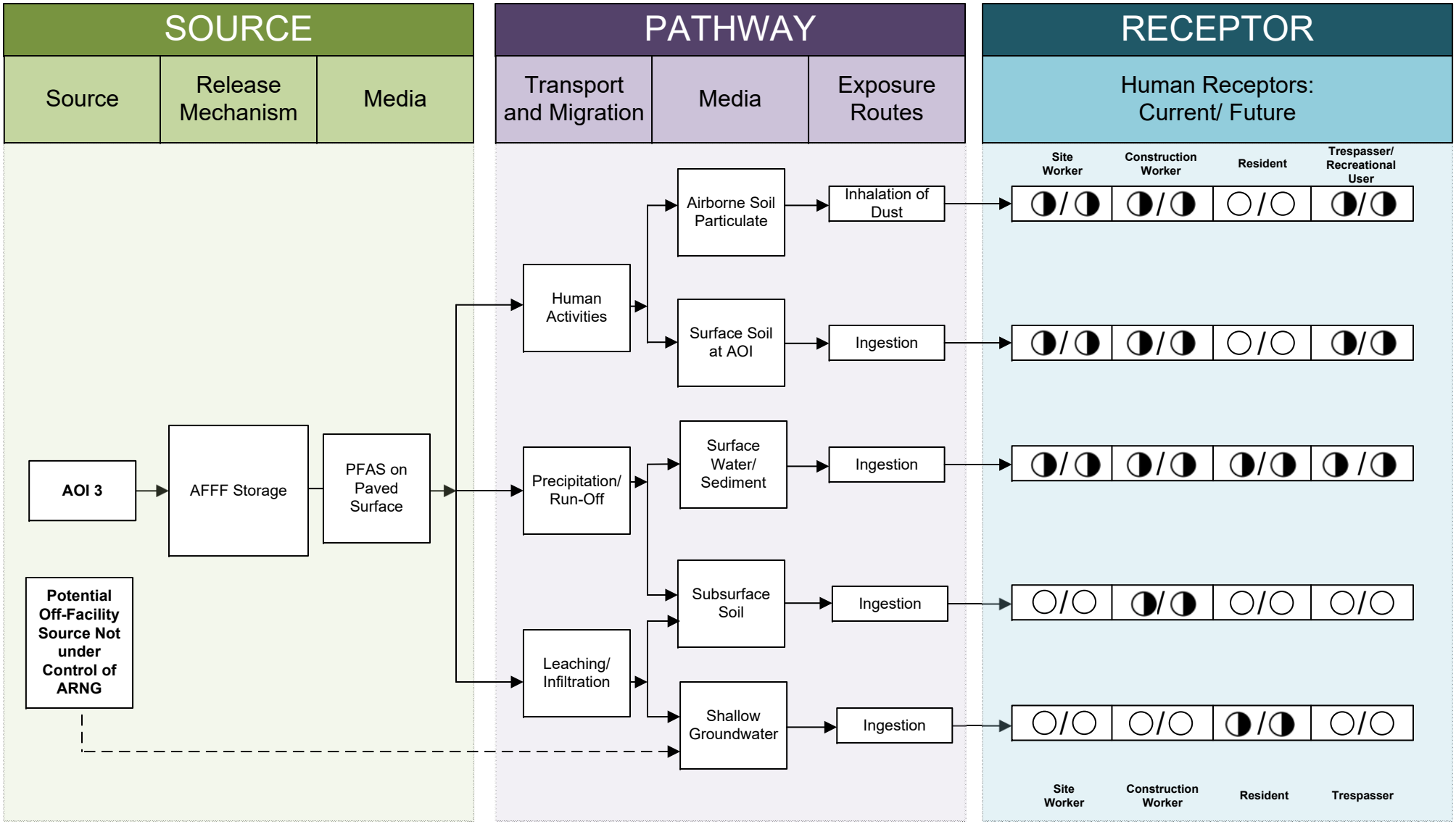


LEGEND

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

Notes:
1. The residential and recreational user receptors refer to off-facility receptors.
2. Human consumption of agricultural products and fish potentially affected by PFAS is possible.

Figure 6-3
Preliminary Conceptual Site Model
AOI 2: Wash Pad FTA



LEGEND

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

Notes:
1. The residential and recreational user receptors refer to off-facility receptors.
2. Human consumption of agricultural products and fish potentially affected by PFAS is possible.

Figure 6-4
Preliminary Conceptual Site Model
AOI 3: AFFF Storage

7. Conclusions

This report presents a summary of available information gathered during the PA on the use of AFFF at AASF #1. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Three AOIs related to potential PFAS release (**Table 7-1**) were identified at AASF #1 during the PA through interviews with facility personnel. The AOIs are shown on **Figure 7-1**.

Table 7-1 AOIs at Williamstown AASF #1

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Burn Pit FTA	Airport Fire Department	Early 2000s
AOI 2	Wash Pad FTA	AASF #1 Personnel	2000-2010
AOI 3	AFFF Storage	AASF #1 Personnel	2000-2010

Based on potential PFAS release at the AOIs, there is a potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSMs for AASF #1, which present the potential receptors and media impacted, are shown on **Figure 6-2** through **Figure 6-4**.

Four potential adjacent sources of PFAS, the nozzle testing area, hard landing area, the Williamstown WWTP, and the airport crash simulation area, were identified near AASF #1. The nozzle testing area and WWTP are considered potential off-facility sources of PFAS. The hard landing area and the crash simulation area are not considered potential PFAS releases because interviewees indicated that AFFF was not used at those locations.

7.2 Uncertainties

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

The conclusions of this PA are based on all available information, including: previous environmental reports, EDR™ Reports, observations made during the VSI, and interviews. Interviews of personnel with direct knowledge of a facility generally provided the most useful insights regarding a facility's historical and current PFAS-containing materials. Sometimes, the provided information was vague. Gathered information has a degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS were first used (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS release locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, retired and current personnel were interviewed, multiple persons were

interviewed for the same potential source area, and potential source areas were visually inspected. **Table 7-2** summarizes the uncertainties associated with the PA.

Table 7-2 Uncertainties

Area of Interest	Source of Uncertainty
AOI 1: Burn Pit FTA	Airport Fire department personnel present for this event were not able to be interviewed, so the information about this event is incomplete. The exact location is unknown.
AOI 2: Wash Pad FTA	It is unclear if the first AFFF disposal event occurred prior to drainage pathway renovations. For AFFF disposal after wash pad renovations, there is no way to be certain the valve was turned to the correct position to divert water to the water treatment plant. There is a possibility the valve was turned to direct wash pad water to Plum Run.
AOI 3: AFFF Storage	It is uncertain whether AFFF spilled or leaked at this location.
General	Limited documentation of PFAS use at the facility

It is also unknown whether or to what degree the identified potential off-facility PFAS release areas may affect AASF #1.

7.3 Potential Future Actions

Interviews and records indicate that former activities at Williamstown AASF #1 may have resulted in potential PFAS release at three AOIs identified during the PA. Based on the preliminary CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater surface water, and sediment at or near the facility. **Table 7-3** summarizes the rationale used to determine if the AOIs should be considered for further investigation under the CERCLA process and undergo an SI.

ARNG will evaluate the need for an SI at Williamstown AASF #1 based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources.

Table 7-3 PA Findings Summary

Areas of Interest	AOI Location	Rationale	Potential Future Action
AOI 1 Burn Pit FTA	39°21'5.361"N 81°26'25.983"W	AFFF release during fire training likely introduced PFAS surface and subsurface soil on-site.	Proceed to an SI, focus on soil, surface water, sediment, and groundwater
AOI 2 Wash Pad FTA	39°21'8.045"N 81°26'32.799"W	AFFF release in this area for fire training and disposal likely introduced PFAS to surface water on and off of the facility.	Proceed to an SI, focus on surface water
AOI 3 AFFF Storage	39°21’9.528”N 81°26’35.817”W	5-gal buckets of AFFF were stored in this room and there is a potential for a release to have taken place.	Proceed to an SI, focus on soil, surface water, sediment, and groundwater

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Williamstown AASF #1, WV			
REVISED	5/19/2020	GIS BY	GC	5/19/2020
SCALE	1:7,200	CHK BY	AM	5/19/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/19/2020

N

Summary of Findings

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Figure 7-1

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8. References

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Appendix A
Data Resources

Data Resources will be provided separately on CD. Data Resources for Williamstown AASF #1 include:

Williamstown AASF #1 Site Background Documents

- 2017, Unregulated Contaminant Monitoring Rule 3 (UCMR3) Summary Table, United States Environmental Protection Agency (USEPA), 2017

Williamstown AASF #1 Site Property Documents

- 1986, Williamstown AASF #1 Initial Lease Document, 18 August 1986
- 2006, Army Aviation Support Facility #1 Washwater Discharge Rerouting Project, Detail Sheet C1-1, Wood County, West Virginia, 31 July 2006
- 2006, Army Aviation Support Facility #1 Washwater Discharge Rerouting Project, Detail Sheet C1-2, Wood County, West Virginia, 31 July 2006
- 2006, Army Aviation Support Facility #1 Washwater Discharge Rerouting Project, Detail Sheet C1-3, Wood County, West Virginia, 31 July 2006
- 2014, Multi-Sector General Water Pollution Control Permit, 3 March 2014
- 2017, Stormwater Pollution Prevention Plan, November 2017
- 2017, Williamstown AASF #1 Lease Addendum, 30 June 2017
- 2020, Williamstown AASF #1 National Pollutant Discharge Elimination System Permit No. WV0111457, 21 February 2020

Environmental Data Resources, Inc. (EDR)™ Reports

- 2019, Aerial Photo Decade Package, EDR™, 8 October 2019
- 2019, Certified Sanborn Map Report, EDR™, 8 October 2019
- 2019, Radius Map Report with Geocheck, EDR™, 8 October 2019

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Other

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 10/2/19

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

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

Facility Commander - 2002 - present

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

- No emergency response (at least 2004-present)
- Has paperwork for fire extinguisher inspections (will be placed in appendices)
- Tri-max kept on flightline and in hangar
- Stored in materials shed - 5-gal buckets
- Facility moved to current location around 1992/1993
- Has current and old lease for property (Appendix A)
- Wash rack FTA: not sure if AFFF was used
  - foam washed down drains w/ water hose
- No kitchen, large paint shop, ~~water~~ laundry facility, or plating facility on-site
- Buildings + hangars have water deluge systems
- No AFFF at fueling station
- Adjacent Airport has a truck equipped w/ foam.
  - unsure if AFFF
  - airport conducts training exercises with truck

Known Uses
Use
Procurement
Disposition
Storage (Mixed)
Storage (Solution)
Inventory, Off-Spec
Containment
SOP on Filling
Leaking Vehicles
Nozzle and Suppression System Testing
Dining Facilities
Vehicle Washing
Ramp Washing
Fuel Spill Washing and Fueling Stations
Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility: _____
Interviewer: _____
Date/Time: _____

- No local ~~ff~~ crashes where AFFF was used
- Airport training exercises are annual
- 1st responder for ARNG is the local fire department
  - Williamstown & Waverly FDs
  - If there's a crash on the runway - airport FD responds
- 1 hard landing near airport runway - 1971/2. No emergency response needed
- Previously an apple farm

PA Interview Questionnaire - Other

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 10/2/19

Interviewee: [redacted] **Title:** Retired MSgt. **Phone Number:** **Email:**	Can your name/role be used in the PA Report? Y or N Can you recommend anyone we can interview? Y or N

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

Was with unit when they moved from old facility. Retired a few months before the site visit.

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

	Known Uses
-Had Tri-Max extinguishers 10-12 years (trained with them every year	Use
-Moved to facility in 1991, got trimax AFFF in early 2000s	Procurement
	Disposition
-No foam at the previous aviation facility	Storage (Mixed)
-Changed AFFF out every 5/6 years for testing	Storage (Solution)
-dumped foam down wash rack before refilling	Inventory, Off-Spec
-drains tied in to sewer system	Containment
- FTA: wash-rack	SOP on Filling
-used a torch to light wood on wash rack	Leaking Vehicles
-hosed AFFF down drain	Nozzle and Suppression System Testing
- Personnel from the unit went to Jacksonville Florida for fire training when they got Tri-Maxes	Dining Facilities
	Vehicle Washing
-Only had to dispose of AFFF before hydrostatic testing 1 or 2 times	Ramp Washing
	Fuel Spill Washing and Fueling Stations
-FTA: Airport FD burn pit on AASF property	Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility:_____
Interviewer:_____
Date/Time:_____

- excavated a pit, poured in water + fuel, lit fuel, extinguished fire w/ AFFF equipped on their truck
  - Early - Mid 2000s
  - ~1-2 minutes of spraying
- Airport trains w/ AFFF annually: marked on map
  - downed aircraft exercise
  - mid-2000s - present
  - 1 tri-max used each time
- Early 2000s: wash rack drain went to oil/water separator then an outfall leading to Plum Creek.
- Changed out probably 20 tri-max's in the wash rack area over time
- No spraying of foam during fuel leaks, airport FD called over for standby
- After disposal, tri-max filled on wash pad
- Used to be a transpiration mound for domestic sewage. Currently tied in to public sewage
- After pit burn FTA, the truck returned to the airport. Was not washed at AASF
- Probably got tri-max extinguishers around 2000-2001
- Used old tri-max for training before they were replaced
  - Doesn't think there was a mass disposal of AFFF before 2006

PA Interview Questionnaire - Other

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 10/2/19

Interviewee: [redacted] **Title:** Floor mechanic + Fire prevention Manager **Phone Number:** **Email:**	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Y or N

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

Started in 2005: Floor mechanic
Fire prevention manager: 2006-present

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

- AFFF predated interviewee
- They (AFFF extinguishers) were sent to USPFO in 2010. Dumped in wash rack, then handed over
  - Interviewee oversaw this
- Hangar drains go to municipal system
- Wash rack goes to equalization tank, then municipal sewage system (post-2006). Pre-2006, wash rack went to o/w separator then an outfall leading to plum creek
- Initially obtained AFFF directly from Tri-Max corporation. Fire Extinguisher Specialists do annual inspection
- Burn Pit FTA was before 2005

Known Uses	
Use	
Procurement	
Disposition	
Storage (Mixed)	
Storage (Solution)	
Inventory, Off-Spec	
Containment	
SOP on Filling	
Leaking Vehicles	
Nozzle and Suppression System Testing	
Dining Facilities	
Vehicle Washing	
Ramp Washing	
Fuel Spill Washing and Fueling Stations	
Chrome Plating or Waterproofing	

PA Interview Questionnaire - Other

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 6/2/19

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

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

Aircraft Maintenance Supervisor - 2003 - present

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

	Known Uses
- Burn Pit was pre 2003	Use
- No emergency response requiring AFFF that interviewee can recall.	Procurement
- ~16 extinguishers (AFFF) sent to USPFO when turned in	Disposition
	Storage (Mixed)
- Training: 1 150lb (30 gal) tank used annually	Storage (Solution)
- Airport FD & Fire Extinguisher specialists came to observe training	Inventory, Off-Spec
	Containment
- Fire Ext. Sp. provided propane tanks/ torches to help light wood	SOP on Filling
	Leaking Vehicles
	Nozzle and Suppression System Testing
	Dining Facilities
	Vehicle Washing
	Ramp Washing
	Fuel Spill Washing and Fueling Stations
	Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility: AASF #1
Interviewer: [redacted]
Date/Time: 10/2/19

Interviewee: [redacted] **Title:** Retired Fire Prevention Manager **Phone Number:** **Email:**	Can your name/role be used in the PA Report? Y or N Can you recommend anyone we can interview? Y or N

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

Part-time: started at old facility in 1984.
Full-time: July, 1999 - 2003 > at current facility
Part-time from 2003 - 2016

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

- Annual training requirement (on wash rack w/ AFFF) • burned fuel completely	**Known Uses**
- Facility on municipal water system, never on a well	Use
- Flight crews + firefighting team trained w/ AFFF	Procurement
- No outside training equipment brought in - participants used the AASF's equipment	Disposition
- Monthly Tri-max inspections were visual	Storage (Mixed)
- DuPont is 13.5 mi SW of location	Storage (Solution)
	Inventory, Off-Spec
	Containment
	SOP on Filling
	Leaking Vehicles
	Nozzle and Suppression System Testing
	Dining Facilities
	Vehicle Washing
	Ramp Washing
	Fuel Spill Washing and Fueling Stations
	Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility: _____
Interviewer: _____
Date/Time: _____

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

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

Manager at Mid-Ohio Valley Regional Airport - 2 years

* Secondhand knowledge from his employees dates back 24 years

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

- No tri-maxes at airport
- 2 AFFF equipped trucks
  - Old ~~truck~~ truck given by AASF I has been gone for 10 years - broken.
- Last 2 years - nozzle testing only expelled ~1/2 gallon annually. Most is captured in bucket and reused. Grassy area near fire ~~shed~~ house
- Previously 5-10 gallons sprayed 2x a year & caught in a bucket for nozzle testing. Small amounts missed in grassy area near airport rescue & firefighting building.
- No discharge other than nozzle testing on-site.
- Annual downed aircraft simulation:
  - Conducted last 24 years
  - WVU fire school contracted by the State

Known Uses
Use
Procurement
Disposition
Storage (Mixed)
Storage (Solution)
Inventory, Off-Spec
Containment
SOP on Filling
Leaking Vehicles
Nozzle and Suppression System Testing
Dining Facilities
Vehicle Washing
Ramp Washing
Fuel Spill Washing and Fueling Stations
Chrome Plating or Waterproofing

PA Interview Questionnaire - Other

Facility:_____
Interviewer:_____
Date/Time:_____

aeronautics commission. Water has always been used for it. No foam sprayed
- Not sure when AFFF was brought in
- Truck training event: employee only remembers using foam once. Interviewee said that if it happened w/ foam, it had to be after 2001. To his knowledge, training was always w/ water when it came to ditch fires.
- Part 139 inspections: timed test → water is sprayed. No foam
- Nozzle testing: no drains in that area, would soak into the ground or go over the hill.
- Industrial fire ~8mi from AASF#.
  - Not sure what was used, but a lot of other fire departments responded as well. Foam could have been used.
  - Fire was at former Ames Plant, IEI Plastics in Parkersburg, WV

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

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

Recorded by:

ARNG Contact:

Date and Time: 10/2/19

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

Source/Release Information

Site Name / Area Name / Unique ID: Williamstown AASF #1

Site / Area Acreage: 102.8 acres

Historic Site Use (Brief Description): Apple farm → Airport property → ARNG AASF

Current Site Use (Brief Description): ARNG AASF

Physical barriers or access restrictions: Gate with code entry

1. Was PFAS used (or spilled) at the site/area? (Y) / N

1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):

Fire training 2000-2010

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

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

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

3a. Indicate what businesses are located near the site

Industrial park to SW, residential + farms immediate surrounding

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

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

Mid-Ohio Valley Regional Airport is adjacent and manages runways

Visual Survey Inspection Log

Other Significant Site Features:

1. Does the facility have a fire suppression system? Y / (N) Only Water deluge Systems

1a. If yes, indicate which type of AFFF has been used:

N/A

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

N/A

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

N/A

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

N/A

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

wash rack drains to outflow (after o/w separator) that then goes to Plum Creek

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

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

Along the side of the road leading from entrance gate. Leads to Plum Creek.

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

3a. If so, please note the location:

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

4a. If so, please note the location:

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

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

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

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

Airport FTAs, potential of more locations at airport

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

Attempting to contact Airport personnel - no visit of Airport grounds.

Visual Survey Inspection Log

Significant Topographical Features:

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

1a. If so, please describe change (ex. Structures no longer exist): Drainage path from wash rack updated in 2006

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

2a. If not vegetated, briefly describe the site/area composition: Concrete landing pad, taxiway, hangar, office building

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

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

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

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

Receptor Information

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

1a. If so, please note to what extent: Code entry at gate

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

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

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

3a. If so, please note the location/distance: .5mi north, 1 mi to the west, 1 mi to Southeast

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

4a. If so, please note the location/distance/type: Closest school is elementary school 3.75mi East of facility

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

5a. If so, please note the location/distance/type: wetlands next to Ohio River 2.25 mi - 3.25 mi away depending on which part of the river

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Williamstown AASF #1

Why has this location been identified as a site?

A potential for AFFF release was noted.

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

Adjacent Airport & fire training activities

Training Events

Have any training events with AFFF occurred at this site? Yes

If so, how often? Annually

How much material was used? Is it documented? 1 30-gal tri-max. No documentation

Identify Potential Pathways: Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

Surface Water:

Surface water flow direction? ~~From~~ On facility, North, Around facility, WNW

Average rainfall?

Any flooding during rainy season? No

Direct or indirect pathway to ditches? Indirect, through drains

Direct or indirect pathway to larger bodies of water? Indirect. Drainage to creek, then river

Does surface water pond any place on site? No

Any impoundment areas or retention ponds? No

Any NPDES location points near the site? No

How does surface water drain on and around the flight line? To surrounding grass. There are only drains in hanger and on wash rack.

Preliminary Assessment – Conceptual Site Model Information

Site Name: Williamstown AASF #1

Why has this location been identified as a site?

A potential for AFFF release was noted.

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

Adjacent Airport & fire training activities

Training Events

Have any training events with AFFF occurred at this site? Yes

If so, how often? Annually

How much material was used? Is it documented? 1 30-gal tri-max. No documentation

Identify Potential Pathways: Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

Surface Water:

Surface water flow direction? ~~From~~ On facility, North, Around facility, WNW

Average rainfall?

Any flooding during rainy season? No

Direct or indirect pathway to ditches? Indirect, through drains

Direct or indirect pathway to larger bodies of water? Indirect. Drainage to creek, then river

Does surface water pond any place on site? No

Any impoundment areas or retention ponds? No

Any NPDES location points near the site? ~~No~~ Yes - permit in Appendices

How does surface water drain on and around the flight line? To surrounding grass. There are only drains in hangar and on wash rack.

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker yes

Construction Worker Yes

Recreational User – No

Residential - off-site: yes

Child No

Ecological Yes: PFAS released to environment Pre-2006

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

Agricultural land, airport, and residential areas located near the site

Documentation

Ask for Engineering drawings (if applicable). Have drawings for drainage re-route.

Has there been a reconstruction or changes to the drainage system? When did that occur?

Yes. 2006. Wash rack used to go only to o/w separator then outfall to plum creek. After 2006, valve installed that was set to take drainage liquid to equalization tank then municipal water ~~supply~~ treatment plant whenever training or disposal of AFFF happened in wash rack.

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Williamstown AASF #1	Williamstown, West Virginia

Photograph No. 1

Description:

Williamstown AASF #1 water deluge fire suppression system in the hangar.

Photo Date: 10/2/2019

Photograph No. 2

Description:

Ansul Purple K fire extinguishers that replaced AFFF in 2010. Located in hangar and along flight lines

Photo Date: 10/2/2019

APPENDIX C – Photographic Log

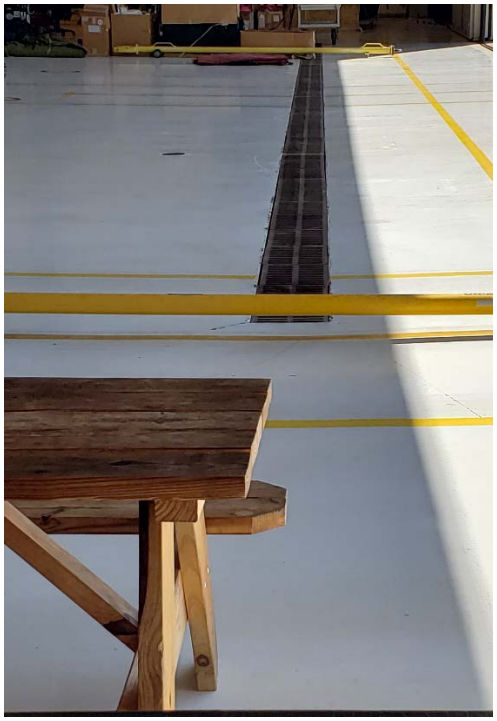
Army National Guard, Preliminary Assessment for PFAS	Williamstown AASF #1	Williamstown, West Virginia

Photograph No. 3

Description:

Drain inside hangar doors.

Photo Date: 10/2/2019

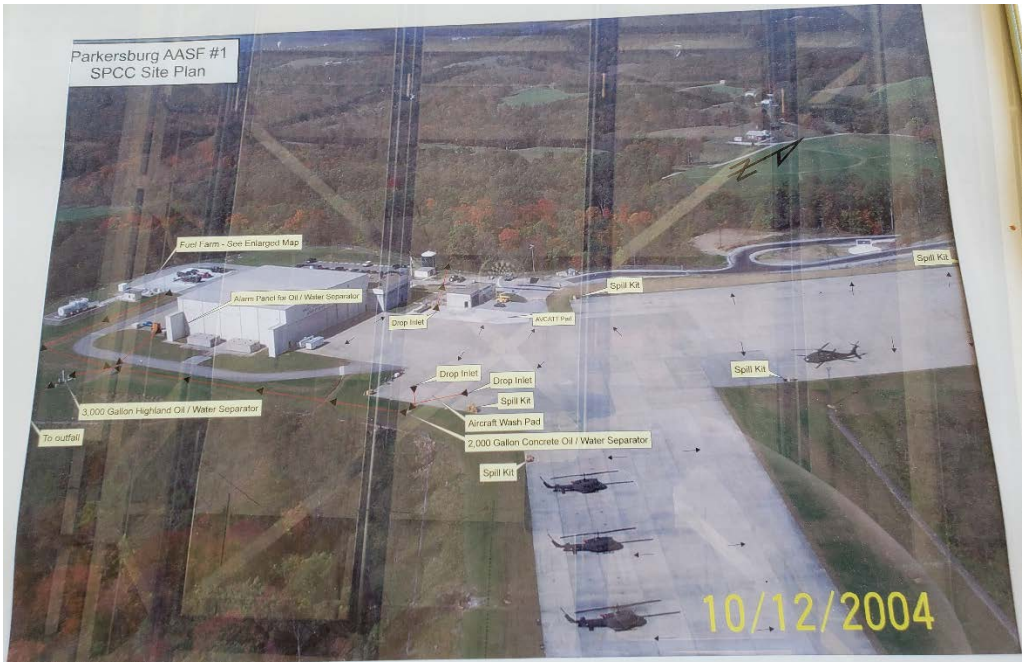


Photograph No. 4

Description:

Williamstown AASF #1
SPCC Site Plan

Photo Date: 10/2/2019



APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Williamstown AASF #1	Williamstown, West Virginia

Photograph No. 5

Description:

Wash Pad where disposal of and fire training with AFFF took place.

Photo Date: 10/2/2019

Photograph No. 6

Description:

Area to the left of the concrete pad at the approximate location of the Burn Pit FTA

Photo Date: 10/2/2019

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Williamstown AASF #1	Williamstown, West Virginia

Photograph No. 7

Description:

Area to the right of the concrete pad at the approximate location of the Burn Pit FTA

Photo Date: 10/2/2019

Photograph No. 8

Description:

Inside materials room where 5-gallon buckets of Tri-Max had been stored.

Photo Date: 10/2/2019