

# FINAL Preliminary Assessment Report Army Aviation Support Facility, Helena, Montana

Perfluorooctane-Sulfonic Acid (PFOS) and Perfluorooctanoic  
Acid (PFOA) Impacted Sites  
ARNG Installations, Nationwide

October 2018

Prepared for:



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## Table of Contents

Executive Summary.....	1
1. Introduction.....	2
1.1 Authority and Purpose.....	2
1.2 Preliminary Assessment Methods.....	2
1.3 Report Organization.....	3
1.4 Facility Location and Description.....	3
1.5 Facility Environmental Setting.....	4
1.5.1 Geology.....	4
1.5.2 Hydrogeology.....	4
1.5.3 Hydrology.....	5
1.5.4 Climate.....	5
1.5.5 Current and Future Land Use.....	5
2. Fire Training Areas.....	6
3. Non-Fire Training Areas.....	7
3.1 60 Hangar.....	7
3.2 47 Hangar.....	7
3.3 TriMax Spill Area.....	7
4. Emergency Response Areas.....	8
5. Adjacent Sources.....	9
5.1 Former AASF Location.....	9
5.2 MTARNG and Helena Regional Airport FTA.....	9
5.3 Helena Regional Airport.....	9
5.4 Rocky Mountain Emergency Services Training Center.....	9
6. Conceptual Site Model.....	10
6.1 AOI 1 TriMax Spill Area.....	10
7. Conclusions.....	11
7.1 Findings.....	11
7.2 Uncertainties.....	11
8. References.....	13

## Figures

Figure ES-1	Summary of Findings
Figure ES-2	Conceptual Site Model for the Current Helena AASF
Figure 1-1	Facility Location
Figure 1-2	Groundwater Features
Figure 1-3	Surface Water Features
Figure 3-1	Non-Fire Training Areas
Figure 5-1	Adjacent Sources
Figure 6-1	Areas of Interest
Figure 6-2	Conceptual Site Model for AOI 1 TriMax Spill Area
Figure 7-1	Summary of Findings

## Appendices

Appendix A	Data Resources
Appendix B	Preliminary Assessment Documentation
	B.1 Interview Records
	B.2 Visual Site Inspection Checklists
	B.3 Conceptual Site Model Information
Appendix C	Photographic Log

## 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
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
FTA	fire training area
HRAA	Helena Regional Airport Authority
IED	Installations & Environment Division
MBMG	Montana Bureau of Mines and Geology
MT	Montana
MTARNG	Montana Army National Guard
NGWA	National Ground Water Association
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
RMESTC	Rocky Mountain Emergency Services Training Center
SI	Site Inspection
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VSI	visual survey inspection

## Executive Summary

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division (IED), Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam released as part of firefighting activities, although other PFAS sources are possible.

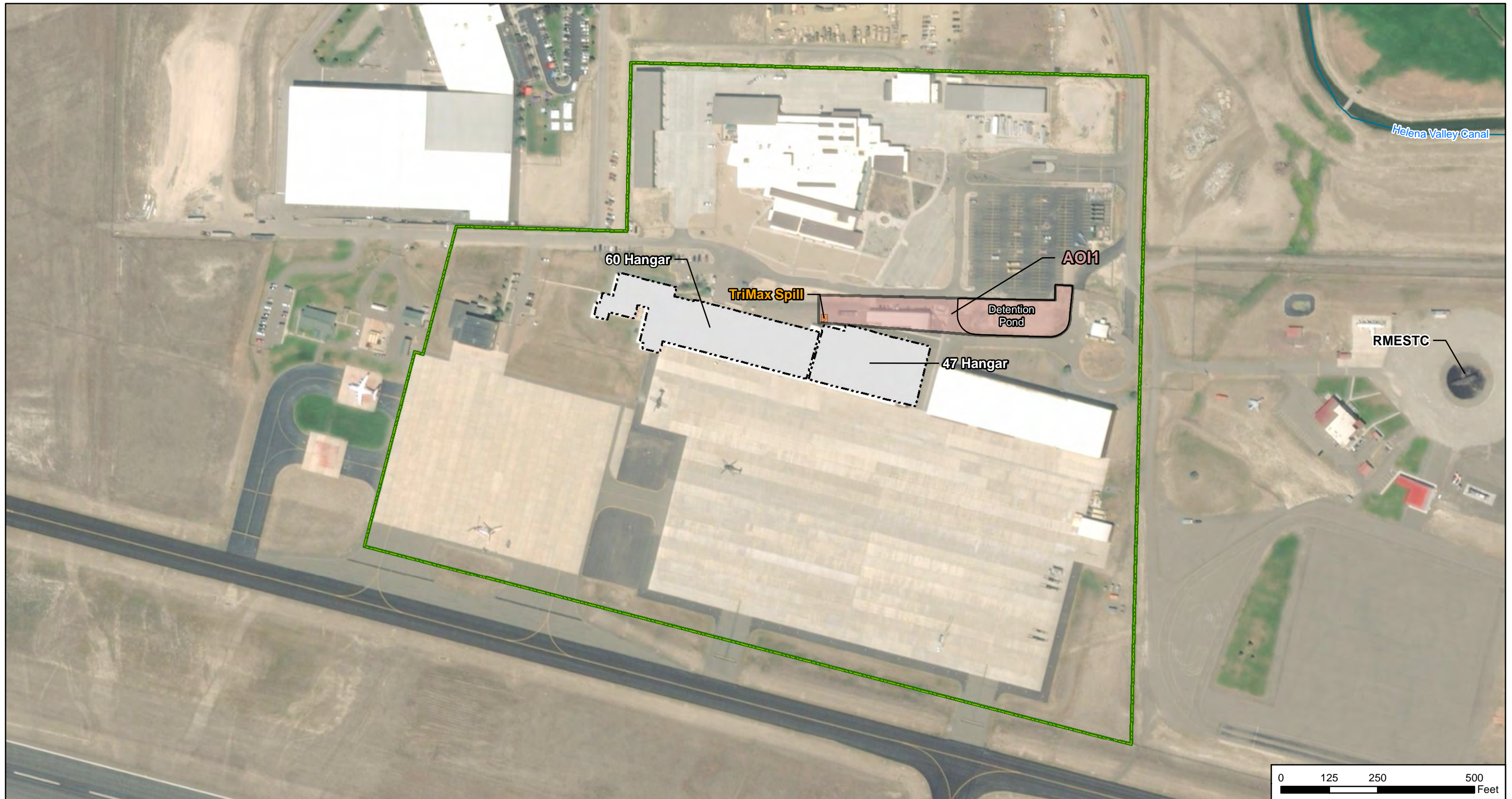
AECOM completed a PA for PFAS at the current Army Aviation Support Facility (AASF) in Helena, Montana (MT), to assess potential PFAS release areas and exposure pathways to receptors. The current AASF is constructed on a parcel of land owned by the USACE and leased to the MTARNG. The current agreement expires in 2040. The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on January 9, 2018
- Interviewed current and former MTARNG AASF personnel during the site visit and MTARNG environmental managers and operations staff
- Completed visual survey inspections at known or suspected PFAS release locations and documented with photographs
- Developed a conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Area(s) of Interest (AOIs) and the facility (**Figure ES-1**)

One AOI related to a potential PFAS release was identified at the current Helena AASF during the PA. The AOI is shown on **Figure ES-1** and described below:

Area of Interest	Name	Used by	Potential Release Date
AOI 1	TriMax Spill Area	MTARNG	Early 2000s

Based on a potential PFAS release at this AOI, there is potential for exposure to PFAS contamination in surface soil and intermittent surface water and sediments to site and construction workers via ingestion and inhalation of dust, subsurface soil to site and construction workers via ingestion, and groundwater to off-facility residents via ingestion. Potential off-facility PFAS release areas exist adjacent to the current Helena AASF. Because these areas include property upgradient of the facility, it is unknown whether or not the off-facility sources effect the current Helena AASF. The CSM for the current Helena AASF is shown on **Figure ES-2**.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Helena AASF, MT			
REVISED	10/10/2018	GIS BY	MS	10/10/2018
SCALE	1:3,000	CHK BY	JZ	10/10/2018
Base Map:	Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community	PM	RG	10/10/2018

**Legend**

- Area of Interest
- Potential PFAS Release
- No Suspected Release
- Facility Boundary
- Canal/Ditch

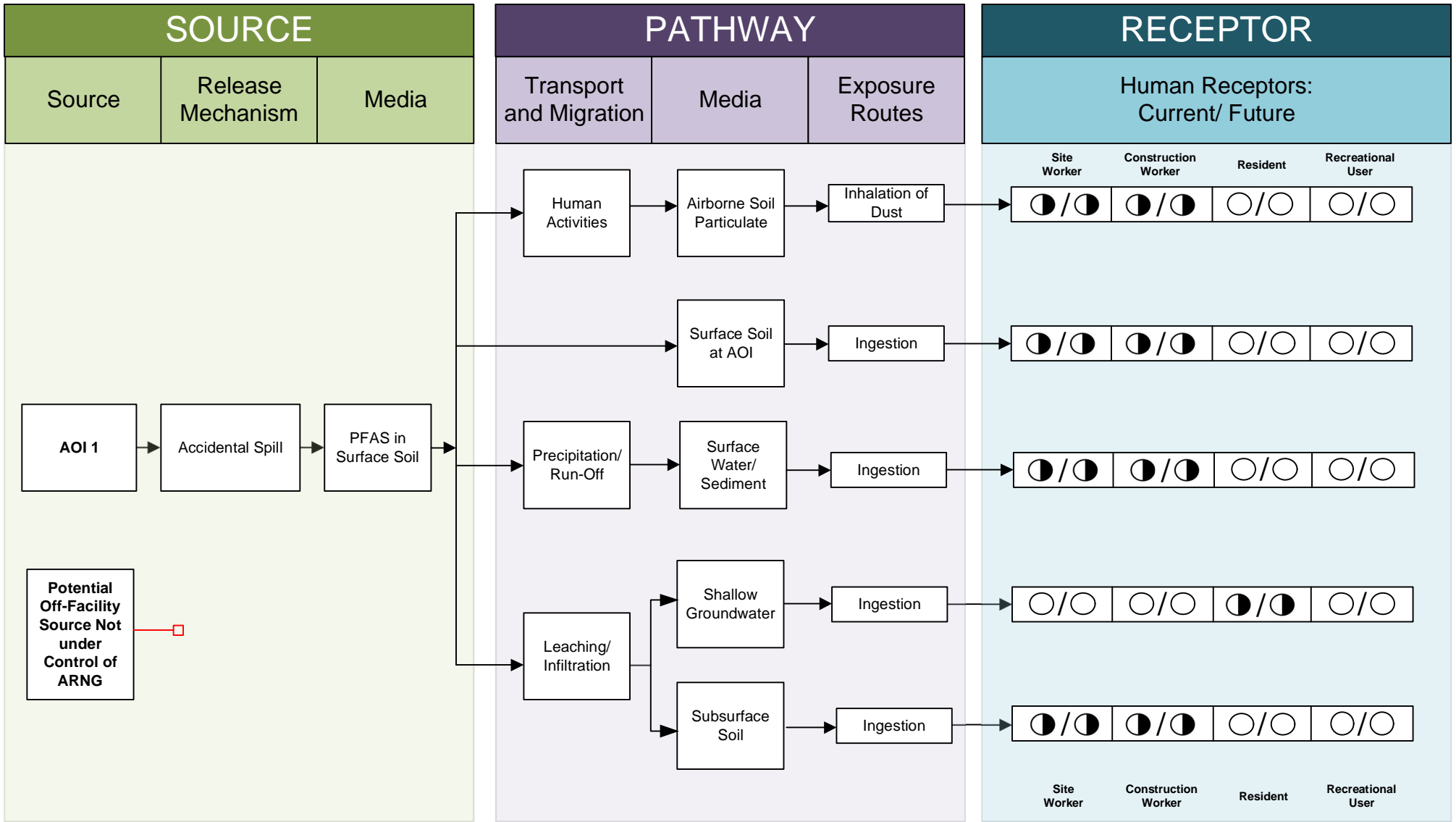


**Summary of Findings**

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**Figure ES-1**

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**LEGEND**

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

Figure ES-2  
 Conceptual Site Model  
 Current Helena AASF

# 1. Introduction

## 1.1 Authority and Purpose

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division (IED), Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide* under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017, and Modification 01 issued 30 September 2017. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam 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 Health Advisories for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. In the absence of federal maximum contaminant levels, some states have adopted their own drinking water standards for PFAS. The State of Montana does not currently have drinking water standards for PFAS.

This report presents the findings of a PA for PFAS at the current Army Aviation Support Facility (AASF) in Helena, Montana (MT), in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations [CFR] Part 300), and USACE requirements and guidance.

This PA documents the known fire training areas (FTAs) as well as other locations where PFAS may have been released into the environment at the current AASF. 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 data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on January 9, 2018
- Interviewed current and former MTARNG AASF personnel during the site visit and MTARNG environmental managers and operations staff
- Completed visual survey inspections (VSIs) at known or suspected PFAS release locations and documented with photographs
- Developed a conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Area(s) of Interest (AOIs) and the facility



## 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:

- **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 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 – 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 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

The current AASF is located adjacent to the Helena Regional Airport (**Figure 1-1**) in Lewis and Clark County in Helena, MT. The current AASF is on the eastern city limits of Helena, east of Interstate Highway 15, south of Canyon Ferry Road, and north of the Burlington Northern Railroad Tracks. The communities of East Helena, Clancy, and Jefferson City lie within 15 miles of the current AASF (MTARNG 1994).

The former AASF was constructed at the Helena Regional Airport in 1958, with additions completed in 1972 and 1978. In 1998, due to insufficient space, the AASF relocated to its present location on the north-central portion of the Helena Regional Airport property, approximately 750 feet north of Runway 9/27. The current AASF is home to the 1-189th Aviation Battalion, which operates rotary-winged aircraft. The current AASF facilities include operation, maintenance and repair for ARNG rotary-winged aircraft, administrative offices, and classrooms (Helena Regional Airport Authority [HRAA] 2018). The AASF complex also includes an armory and a fixed-wing aircraft hangar. The armory and the fixed-wing aircraft hangar have never had a fire suppression system or portable AFFF extinguishers.

The current AASF is constructed on a 75-acre parcel of land owned by the USACE and leased to the MTARNG. The current agreement expires in 2040. See **Appendix A** for real estate documents. The MTARNG maintains a relationship with the HRAA, US Department of Agriculture (Forest Service), and the MT Department of State Lands that allows access to equipment and services such as tower control and crash/fire response (HRAA 2018).

## 1.5 Facility Environmental Setting

The current AASF is located on the edge of the Helena Valley. The valley is bounded on the west by the Scratchgravel Hills, on the south by the Elkhorn Mountains, on the north by the Big Belt Mountains, and on the east by the Spokane Bench (MTARNG 1994). The elevation of the facility is approximately 3,825 feet above mean sea level. The western part of the valley is gently sloping, while the eastern portion of the valley consists of low rolling hills. The terrain around the current AASF can be characterized as the transition between the rolling foothills of Mount Ascension and the flats of the Helena Valley (Pioneer Technical Services, Inc. [Pioneer] 2009).

### 1.5.1 Geology

Helena lies within the Northern Rocky Mountains physiographic province. Quaternary-age sediments fill the valley and form a northeast-sloping alluvial plain. The sedimentary plain is bounded by broad pediments and alluvial fans of the Elkhorn Mountains, the Scratchgravel Hills, and the Big Belt Mountains (Pioneer 2009). The Continental Divide is located 15 miles west of the valley.

The current AASF is situated on Quaternary-age alluvium, derived from carbonate rocks and shale (Pioneer 2009). A slope wash deposit, approximately 20 feet thick, underlies the soil at the current AASF. This deposit consists of beds of coarse gravel interlayered with thin irregular beds and lenses of silt and clay. The gravel, in a matrix of sandy and silty clay, is composed of fragments of quartzite, shale, and limestone (US Geological Survey [USGS] 1986). Sedimentary bedrock from the Late Cretaceous to Middle Proterozoic Age underlies the slope wash and stream deposits. The bedrock layer is several thousand meters thick and is made up of sandstone, shale, limestone, and dolomite (MTARNG 1994).

### 1.5.2 Hydrogeology

The current AASF is located along the southern boundary of the Helena Valley-Fill Aquifer System. This aquifer system is a major source of domestic water for local residents with the majority of domestic water wells at a depth of less than 70 feet (MTARNG 1994). Groundwater flow is generally from the southern, western, and northern margins of the valley toward Lake Helena. Based on the current Helena AASF groundwater study (Pioneer 2009), groundwater flow directions at the current AASF vary from due north to due east (**Figure 1-2**).

The upper few hundred feet of valley fill is composed of stratified lenses of cobbles, gravel, sand, silt, and clay. Lateral discontinuity of fine-grained layers allows hydraulic interconnection of water-yielding zones, which function as one complex aquifer (USGS 1992). Aquifer recharge is through infiltration of streamflow, leakage from irrigation canals, infiltration of excess irrigation water, and inflow from fractures in bedrock. Discharge is through leakage to streams and drains, upward leakage to Lake Helena, and withdrawals from wells (MTARNG 1994).

No potable water wells are located within the current AASF; however, domestic wells and monitoring wells exist within four miles of the facility (**Figure 1-2**). A query of the Montana Bureau of Mines and Geology (MBMG) database (MBMG 2018) showed a public supply well on the eastern boundary of the current AASF; however, the MTARNG has no knowledge of a well on the property boundary, and the well could not be located during the PA. Drinking water for the current AASF is supplied by the City of Helena. The City of Helena uses groundwater and surface water (the Missouri River and Tenmile Creek) as water sources for its residents (Helena Water Utilities Public Water System 2004, Department of Public Works [DPW] 2012).

### 1.5.3 Hydrology

Surface water was diverted around the current AASF during construction; therefore, no surface water currently enters the facility. The largest stream and the closest to the current AASF is Prickly Pear Creek, which flows toward the north about two miles to the east. A detention pond near the northeast corner of the current AASF collects runoff from most of the AASF. The detention pond was originally approximately 3 feet deep and seeded with vegetation (MTARNG 1994). The detention pond was reconfigured once in 2005 or 2006 and recontoured during construction in 2017. It is not apparent that soil was removed during the 2005 or 2006 reconfiguration. Per the project manager for the 2017 construction, if soil was removed during the recontouring it was likely re-used elsewhere at the current Helena AASF during the construction project or removed by the contractor (Bullock Construction) and used at a construction yard in Boulder, Montana, or another construction site in Lakeside, Montana. Surface drainage from the Helena Regional Airport and current AASF empties into Prickly Pear Creek (**Figure 1-3**). Unprocessed surface water is not used in the area, except for irrigation.

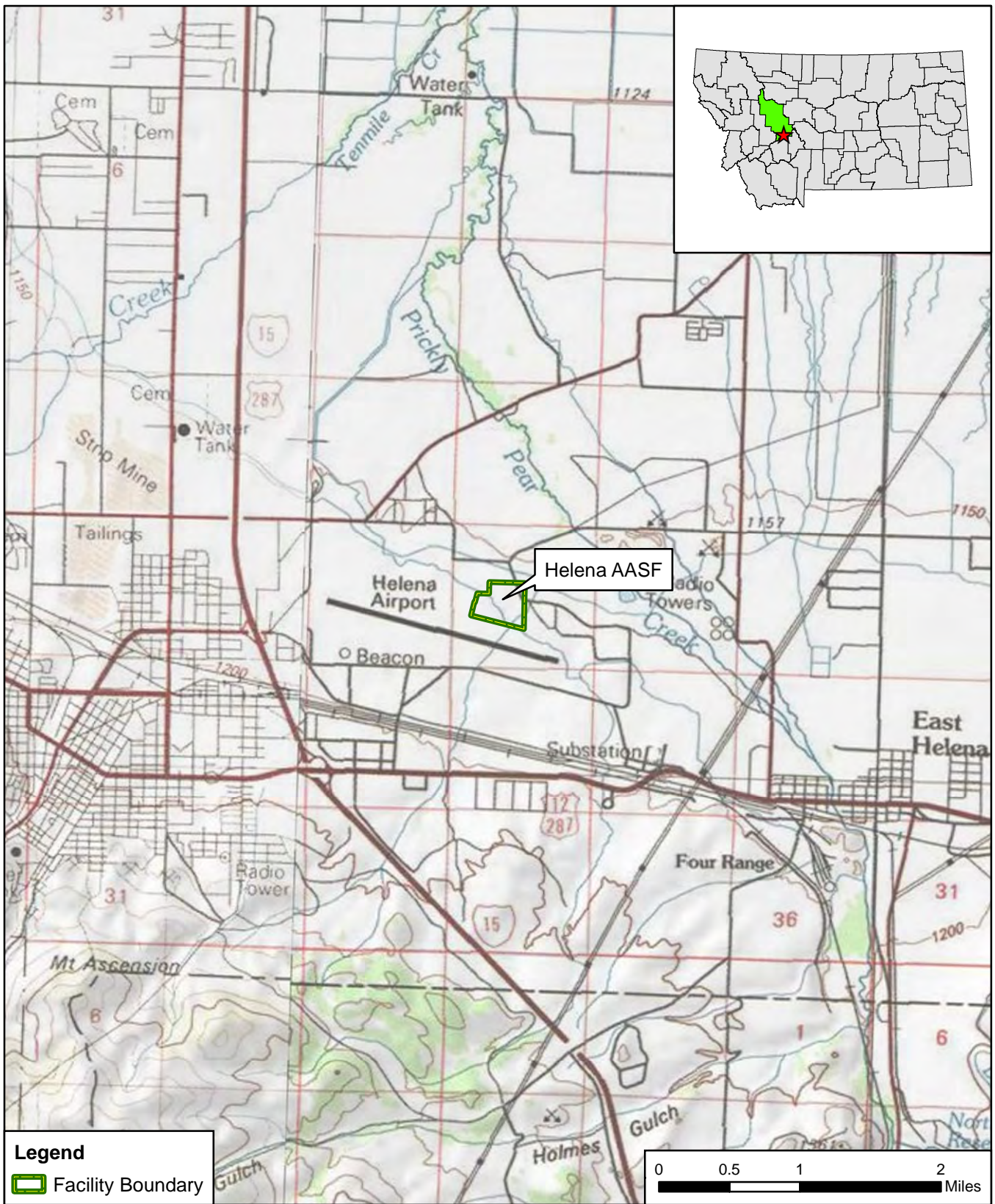
Regional surface water features include Lake Helena and the Missouri River. Water diverted from the Missouri River is used for irrigation and processed by the Missouri River Treatment Plant for domestic use in the area (USGS 1992).

### 1.5.4 Climate

The climate at the current AASF is northern desert with large daily temperature fluctuations and an average temperature of 58.3 degrees Fahrenheit (°F). Seasonally, temperatures vary from summer highs of 86 °F to winter lows of 14 °F (World Climate 2018). Average precipitation is 11.2 inches of rain and 38 inches of snow (World Climate 2018). Factors affecting the climate include invasions of maritime air masses from the Pacific Ocean and drainage of cool air into the valley from the surrounding mountains. The prevailing wind is westerly, averaging 7 to 8 miles per hour, with gust speeds of 55 to 65 miles per hour (MTARNG 1994).

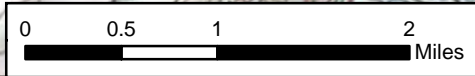
### 1.5.5 Current and Future Land Use

The current AASF is a controlled access facility with public roads and is adjacent to the Helena Regional Airport. The Helena Regional Airport is owned and operated by the HRAA and provides commercial and general air service to the Helena area and west-central MT. The HRAA owns a number of land parcels that have been subdivided and zoned to allow for commercial development with restriction (HRAA 2018). Future land use is not anticipated to change.

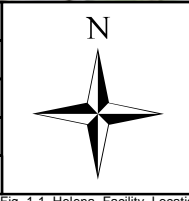


**Legend**

Facility Boundary



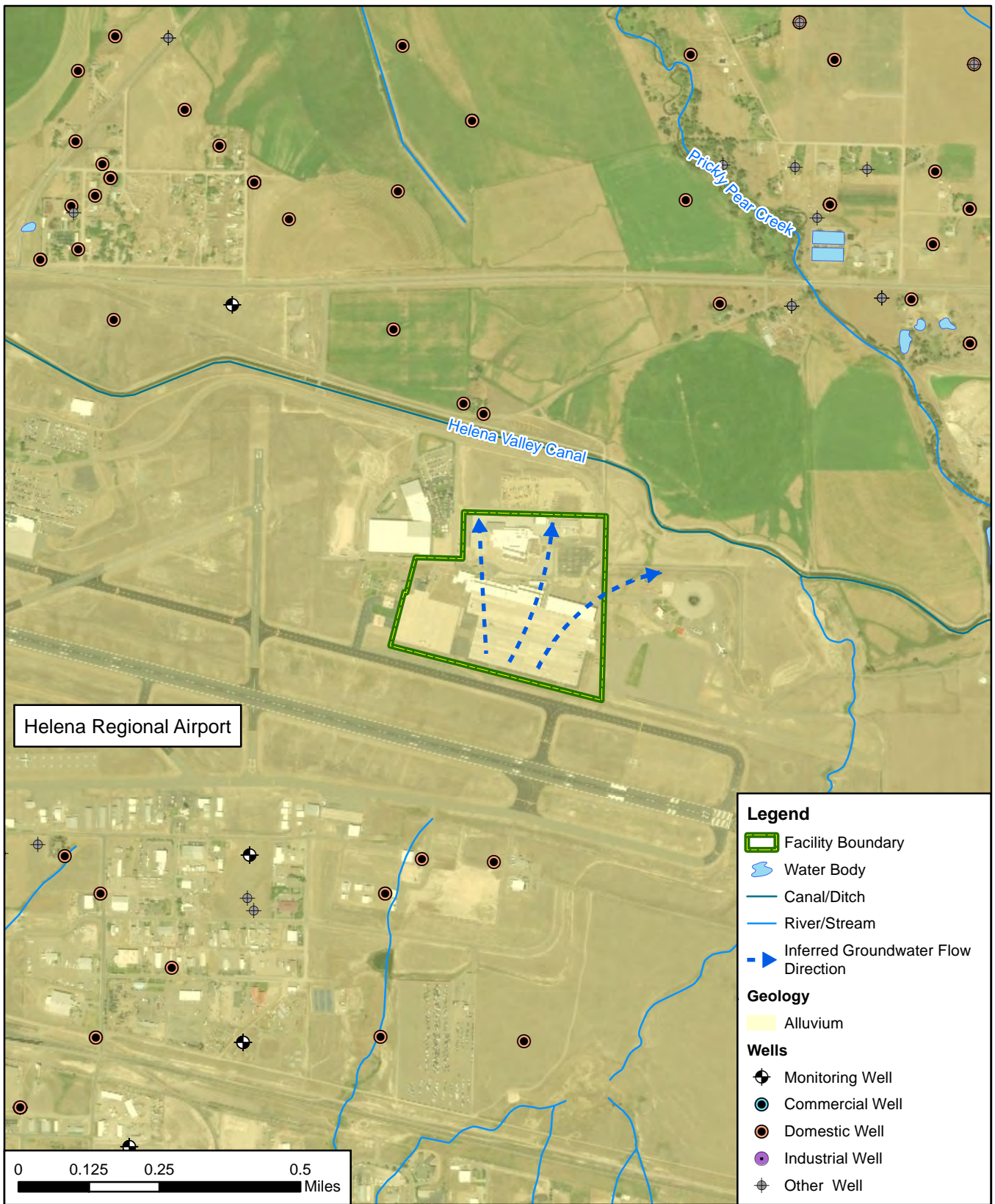
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SCALE	1:63,360	CHK BY	JZ	10/2/2018
Base Map: Copyright © 2013 National Geographic Society, Inc.		PM	RG	10/2/2018



**Facility Location**

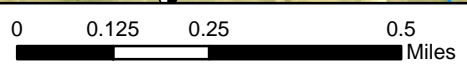
**AECOM**  
 12420 Milestone Center Drive  
 Germantown, MD 20876

**Figure 1-1**

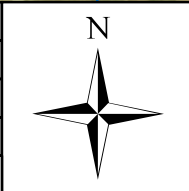


Helena Regional Airport

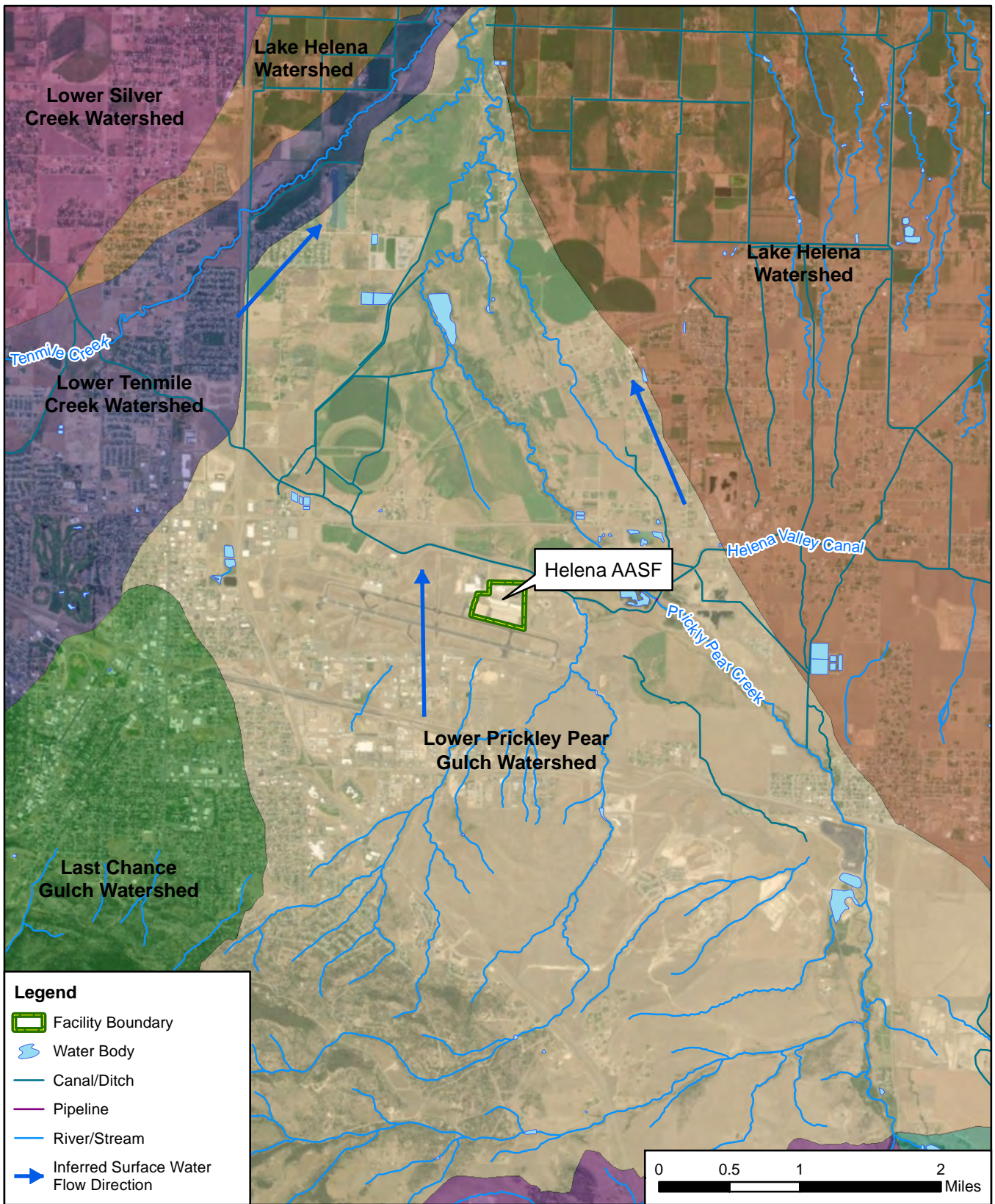
- Legend**
- Facility Boundary
  - Water Body
  - Canal/Ditch
  - River/Stream
  - Inferred Groundwater Flow Direction
- Geology**
- Alluvium
- Wells**
- Monitoring Well
  - Commercial Well
  - Domestic Well
  - Industrial Well
  - Other Well



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Helena AASF, MT			
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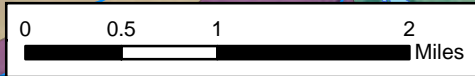


<b>Groundwater Features</b>	
<b>AECOM</b>	<b>Figure 1-2</b>
12420 Milestone Center Drive Germantown, MD 20876	

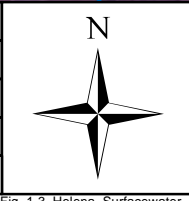


**Legend**

- Facility Boundary
- ~ Water Body
- Canal/Ditch
- Pipeline
- River/Stream
- ➔ Inferred Surface Water Flow Direction



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Helena AASF, MT			
REVISED	10/5/2018	GIS BY	MS	10/5/2018
SCALE	1:63,360	CHK BY	JZ	10/5/2018
		PM	RG	10/5/2018



<b>Surface Water Features</b>	
<p style="font-size: 0.8em; margin-top: 5px;">12420 Milestone Center Drive Germantown, MD 20876</p>	Figure 1-3

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## 2. Fire Training Areas

No FTAs were identified within the current AASF facility during the PA through interviews or Environmental Data Resource Reports. AASF personnel currently train annually with the Helena Regional Airport at the Rocky Mountain Emergency Services Training Facility Center (RMESTC) adjacent to the current AASF. This FTA is addressed in **Section 5**.

### 3. Non-Fire Training Areas

Three non-FTAs where AFFF was stored and/or potentially released were identified during the PA. A description of each non-FTA is presented below, and the non-FTAs are shown on **Figure 3-1**.

#### 3.1 60 Hangar

The 60 Hangar is located on the western side of the current AASF (**Figure 3-1**). The geographic coordinates are 46°36'31.50"N and 111°58'18.55"W. The 60 Hangar was built in 1999 and houses rotary-winged aircraft. Originally, AFFF was stored at the 60 Hangar in a 400-gallon aboveground storage tank and supplied the fire suppression system. According to interviewees, the AFFF was never released, and in 2011, the fire suppression system was retrofitted. During the renovation, the AFFF was removed by Tyco SimplexGrinnell and replaced with Jet-X High Expansion Foam. The Jet-X High Expansion Foam system was tested in 2012 during which all material from the new suppression system flowed into a floor drain that runs the length of the 60 Hangar and discharged to the Helena Publicly Owned Treatment Works. Interview documents appear in **Appendix B**. Because the AFFF was discharged to the Helena Publicly Owned Treatment Works, a potential PFAS release to the environment at the 60 Hangar is not suspected.

#### 3.2 47 Hangar

The 47 Hangar is located adjacent to the 60 Hangar on the eastern side of the current AASF (**Figure 3-1**). The geographic coordinates are 46°36'30.97"N and 111°58'13.86"W. The 47 Hangar was constructed in 2006 and houses rotary-winged aircraft. According to interviewees, the 47 Hangar contains a fire suppression system supplied with Jet-X High Expansion Foam and was tested once in 2006. For the test, 60 gallons of Jet-X concentrate was mixed with 1940 gallons of water. All Jet-X High Expansion Foam flowed into a floor drain that runs the length of the 47 Hangar and discharged to the Helena Publicly Owned Treatment Works. Interview documents appear in **Appendix B**. Because the AFFF was discharged to the Helena Publicly Owned Treatment Works, a potential PFAS release to the environment at the 47 Hangar is not suspected.

#### 3.3 TriMax Spill Area

The current AASF is equipped with 16 TriMax 30 foam fire extinguishers. Prior to construction of the 47 Hangar in 2006, these fire extinguishers were filled behind the most eastern end of the 60 Hangar. Interviewees indicated that one time in the early 2000s, during filling of the fire extinguishers, a 5-gallon jug of TriMax 30 concentrate (3 percent AFFF) spilled onto the concrete (**Figure 3-1**). The spilled TriMax 30 possibly ran into a drain that empties into a detention pond to the northeast of the 47 Hangar (**Figure 3-1**). The geographic coordinates of the TriMax Spill Area are 46°36'32.14"N and 111°58'15.60"W. The geographic coordinates of the detention pond are 46°36'32.92"N and 111°58'8.53"W. Photographs appear in **Appendix C**.





Interviewees also indicated that the fire extinguishers were initially stored outside, and during the winter of 1998 or 1999, one of the fire extinguishers froze and split the casing. A spill was not noted, and fire extinguishers are now stored in the Hangars. Fire extinguisher training is conducted annually with dish soap on the ramp to the south of the 60 Hangar. According to interviewees, the fire extinguishers have never been used for putting out fires at the current AASF. The Helena Regional Airport is now responsible for servicing the fire extinguishers. Interview documents appear in **Appendix B**.





CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Helena AASF, MT			
REVISED	10/10/2018	GIS BY	MS	10/10/2018
SCALE	1:3,000	CHK BY	JZ	10/10/2018
Base Map:	Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community	PM	RG	10/10/2018

**Legend**

-  Potential PFAS Release
-  No Suspected Release
-  Facility Boundary
-  Canal/Ditch



**Non-Fire Training Areas**



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**Figure 3-1**

## 4. Emergency Response Areas

No emergency response areas were identified within the current AASF facility during the PA through interviews or Environmental Data Resource Reports. All emergency services for the current AASF are provided by the HRAA.

## 5. Adjacent Sources

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

### 5.1 Former AASF Location

The Former AASF is located due south of the Helena Regional Airport, just north of Airport Road (**Figure 5-1**). The geographic coordinates are 46°36'07.6"N and 111°59'24.3"W. The Former AASF was constructed in 1958, with additions completed in 1972 and 1978. One interviewee indicated the MTARNG periodically sprayed AFFF behind the red brick building at this location. No information was available on the amount or concentration of AFFF used at the Former AASF. Interview documents appear in **Appendix B**. The AASF moved to the current location in 1998.

### 5.2 MTARNG and Helena Regional Airport FTA

The MTARNG 1049th Engineer Detachment conducted coordinated fire training with the Helena Regional Airport at the east end of Runway 9/27 (**Figure 5-1**) at least once per year from 1982 until the early 2000s. The geographic coordinates are 46°36'04.1"N and 111°57'21.3"W. According to the MTARNG 1049th Team Chief, fuels and solvents contained on an old school bus were ignited during the training and extinguished with AFFF. No information was available on the amount or concentration of AFFF used during the training. Interview documents appear in **Appendix B**. The FTA is on land owned and operated by the HRAA.

### 5.3 Helena Regional Airport

The Helena Regional Airport terminal is located approximately 3/4 mile west of the current AASF (**Figure 5-1**). The geographic coordinates are 46°36'36.8"N and 111°59'24.7"W. The runways for the Helena Regional Airport are located within 100 feet south of the AASF ramp. The Helena Regional Airport was dedicated in 1928 and is owned and operated by the HRAA. No information was available on the use of AFFF by the Helena Regional Airport; however, the Helena Regional Airport is a primary commercial service airport and provides all emergency services for the current AASF. Therefore, the potential for PFAS use by the Helena Regional Airport exists.

### 5.4 Rocky Mountain Emergency Services Training Center

The RMESTC is located approximately 1/4 mile east of the current AASF (**Figure 5-1**). The geographic coordinates are 46°36'31.4"N and 111°57'52.2"W. The RMESTC was dedicated in 1996 and is owned and operated by the HRAA. The RMESTC contains a variety of fire training scenarios within an 8,800 square foot fire pit and is used for training by various entities, including the current MTARNG AASF and the Helena Regional Airport. No information was available on the use of PFAS at the RMESTC.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Helena AASF, MT			
REVISED	10/10/2018	GIS BY	MS	10/10/2018
SCALE	1:7,800	CHK BY	JZ	10/10/2018
Base Map:	Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community	PM	RG	10/10/2018

- Legend**
- Potential PFAS Release
  - Facility Boundary
  - Water Body
  - Canal/Ditch
  - River/Stream



<b>Potential Off-Facility Sources</b>	
<b>AECOM</b>	12420 Milestone Center Drive Germantown, MD 20876
<b>Figure 5-1</b>	

## 6. Conceptual Site Model

Based on the PA findings, one area of interest (AOI) was identified at the current AASF: AOI 1 TriMax Spill Area. The AOI location is shown on **Figure 6-1**. The following sections describe the CSM components and the specific CSMs developed for AOI 1. 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. Dermal contact is not considered to be a potential exposure pathway as studies have shown very limited absorption of PFAS through the skin (NGWA 2018). Receptors at the current AASF include site workers and construction workers. The CSM for the current AASF indicates which specific receptors could potentially be exposed to PFAS.

### 6.1 AOI 1 TriMax Spill Area

AOI 1 is the TriMax Spill Area. PFAS was potentially released once to the concrete surface at AOI 1 by the MTARNG in the early 2000s. During filling of fire extinguishers, a 5-gallon jug of TriMax 30 spilled onto the concrete behind the most eastern end of the 60 Hangar. The spilled TriMax 30 possibly ran into a drain that empties into a detention pond to the northeast of the 47 Hangar.

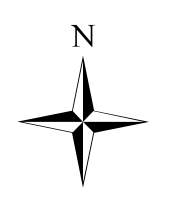
The detention pond is approximately 3 feet deep and collects runoff from most of the facility, including industrial stormwater runoff. Drainages have been diverted around the current AASF and unprocessed surface water is not used in the area, except for irrigation. Drinking water is supplied by the City of Helena; however, domestic wells are located downgradient of AOI 1 within four miles of the current AASF.

Ground-disturbing activities to surface soil and intermittent surface water and sediment at AOI 1 could result in site and construction worker exposure to potential PFAS contamination. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil, surface water, and sediment are potentially complete for these receptors. Ground-disturbing activities to subsurface soil could result in site and construction worker exposure via ingestion of subsurface soil. Therefore, the inhalation and ingestion pathways for these receptors are considered potentially complete. The current Helena AASF drinking water is supplied by the City of Helena; however, domestic water supply wells are present to the north and northeast. Groundwater flow at the current Helena AASF is predominantly to the north-northeast; therefore, these wells are downgradient of AOI 1, and the exposure pathway for groundwater to residents through domestic drinking water ingestion is potentially complete. The CSM for the current AASF is shown on **Figure 6-2**.

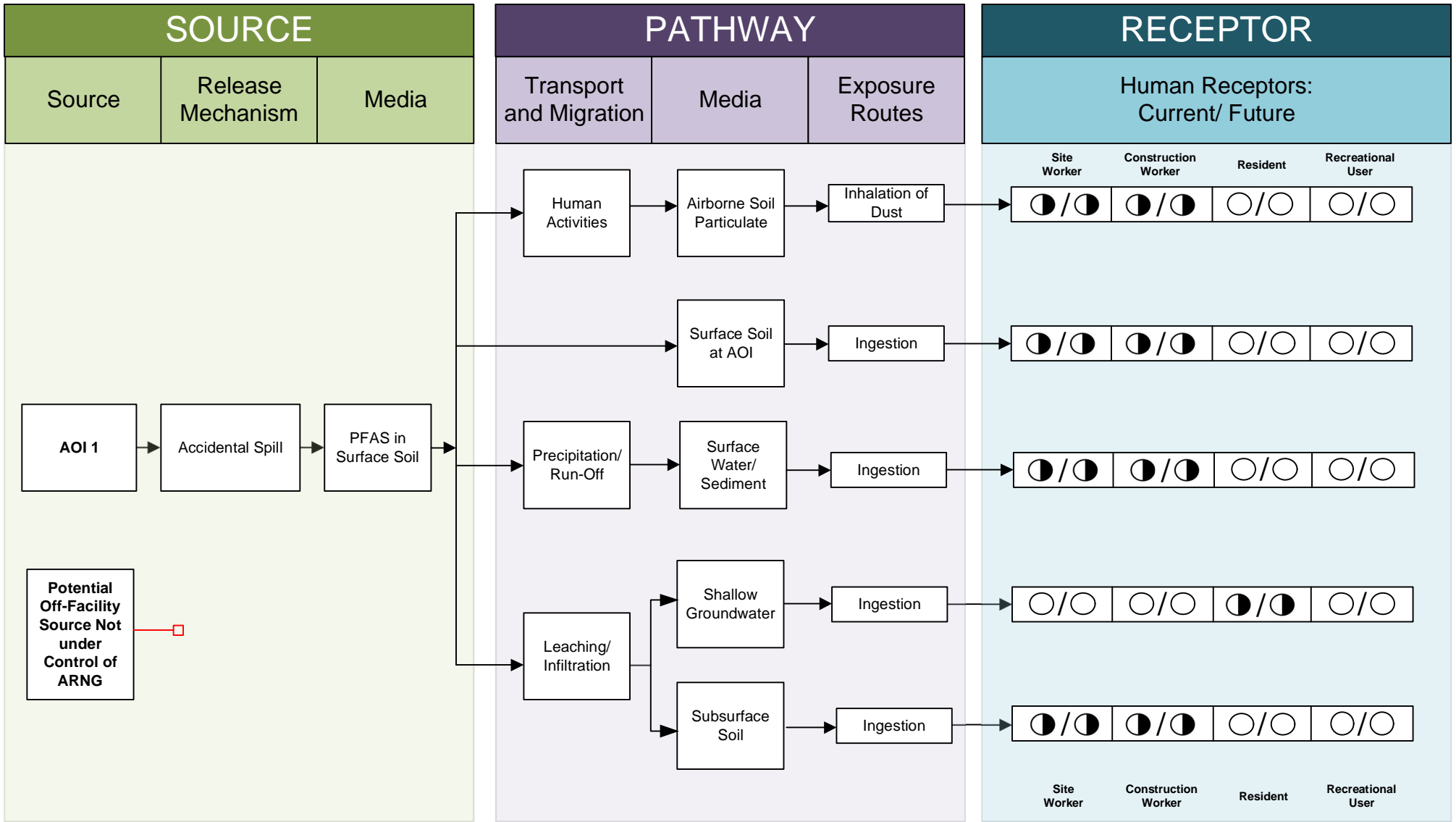


CLIENT	ARNG				
PROJECT	Preliminary Assessment for PFAS at Helena AASF, MT				
REVISED	10/10/2018	GIS BY	MS	10/10/2018	
SCALE	1:8,400	CHK BY	JZ	10/10/2018	
Base Map:	Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	10/10/2018

- Area of Interest
- Potential PFAS Release
- No Suspected Release
- Facility Boundary
- Water body
- Canal/Ditch
- River/Stream
- Surface Water Flow Direction
- Inferred Groundwater Flow Direction
- Monitoring Well
- Domestic Well
- Other Well



<b>Areas of Interest</b>	
	12420 Milestone Center Drive Germantown, MD 20876
<b>Figure 6-1</b>	



**LEGEND**

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

Figure 6-2  
 Conceptual Site Model  
 AOI 1 TriMax Spill Area

## 7. Conclusions

This report presents a summary of available information gathered during the PA on the use and storage of AFFF and other PFAS-related activities at the current Helena AASF. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

### 7.1 Findings

One AOI related to potential PFAS release was identified at the current Helena AASF during the PA (**Figure 7-1**):

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	TriMax Spill Area	MTARNG	Early 2000s

Based on potential PFAS releases at this AOI, there is potential for exposure to PFAS contamination in surface soil and intermittent surface water and sediments to all receptors via ingestion and inhalation of dust, subsurface soil to site and construction workers via inhalation, and groundwater to residents via ingestion.

The following areas discussed in **Section 2** through **Section 5** were determined to have no suspected release:

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
60 Hangar	MTARNG	Because AFFF was discharged to the Helena Publicly Owned Treatment Works, a potential PFAS release to the environment at the 60 Hangar is not suspected.
47 Hangar	MTARNG	Because all AFFF was discharged to the Helena Publicly Owned Treatment Works, a potential PFAS release to the environment at the 47 Hangar is not suspected.

### 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, or other non-traditional activities, or on its disposition.

The conclusions of this PA are predominantly based on the information provided during interviews with personnel who had direct knowledge of PFAS use at the facility. Sometimes the provided information was vague or conflicted with other sources. 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 was 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



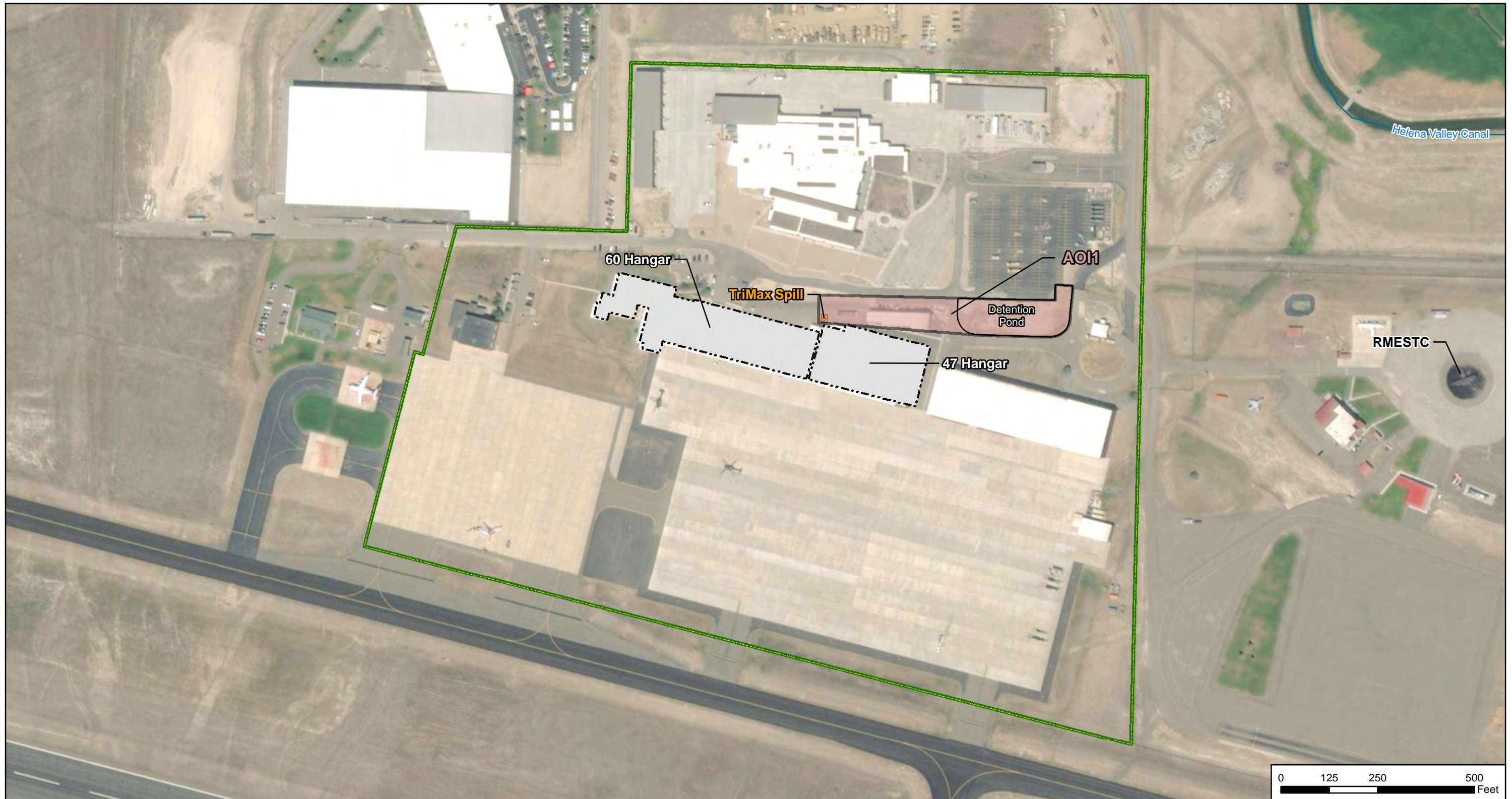
AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

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.

The following table summarizes the uncertainties associated with the PA:

Area of Interest	Source of Uncertainty
AOI 1 TriMax Spill Area	No or limited information was available on the type of AFFF used at AOI 1.
AOI 1 TriMax Spill Area	It is unknown whether or not the TriMax flowed into the drain and to the detention pond.
AOI 1 TriMax Spill Area	The detention pond was reconfigured in 2005 or 2006 and recontoured during construction in 2017. The final disposition of soil removed from the detention pond (if any) during these activities is unknown.

Potential off-facility PFAS release areas exist adjacent to the current Helena AASF. Because these areas include property upgradient of the facility, it is unknown whether or not the off-facility sources effect the current Helena AASF.



CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Helena AASF, MT			
REVISED	10/10/2018	GIS BY	MS	10/10/2018
SCALE	1:3,000	CHK BY	JZ	10/10/2018
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community	PM	RG		10/10/2018

**Legend**

- Area of Interest
- Potential PFAS Release
- No Suspected Release
- Facility Boundary
- Canal/Ditch



**Summary of Findings**



12420 Milestone Center Drive  
 Germantown, MD 20876

**Figure 7-1**

## 8. References

Helena Regional Airport Authority (HRAA). 2018. *Helena Regional Airport Authority*. Available at <http://helenaairport.com> (Accessed April 22, 2018).

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USGS. 1992. *Hydrogeology of the Helena Valley-Fill Aquifer System, West-Central Montana*. U.S. Geological Survey Water-Resources Investigations Report. April.

World Climate. 2018. *Climate, Global Warming, and Daylight Charts and Data: Helena, MT, Montana, USA*. Available at <http://www.climate-charts.com/Locations/u/US72772002440551.php> (Accessed April 14, 2018)

## **Appendix A**

### **Data Resources**

Data Resources will be provided separately on CD. Data Resources for the Helena Army Aviation Support Facility include:

#### **Helena AASF Leases, Licenses, and Permits**

- 1972 Montana National Guard Lease
- 2011 Department of the Army License for National Guard Purposes DACA67-3-10-332
- 2014 Department of the Army License for National Guard Purposes DACA67-3-10-332, Supplemental Agreement No. 1

#### **Helena AASF PFAS Release Information**

- 2004 Tri-Max Material Safety Data Sheet
- 2007 Jet-X Material Safety Data Sheet
- 2007 Email from MTARNG to Helena POTW
- 2018 Known or Suspected PFC Contamination Sites

#### **Previous Investigations Completed at the Helena AASF**

- 1992 United States Geological Survey, Hydrogeology of the Helena Valley-Fill Aquifer System, West-Central Montana
- 1994 Draft Environmental Assessment Montana Army National Guard Helicopter Conversion, Helena Regional
- 2009 Geotechnical, Materials, and Groundwater Report for the Army Aviation Support Facility, Helena, Montana

#### **Helena AASF Installation Maps**

- 2018 Facility Maps
- 2018 SPCCP Aviation Map

#### **Helena AASF Correspondence**

- 2017 Montana Well Log Report
- 2018 Public Supply Well Correspondence

#### **Helena AASF EDR Report**

- 2018 Helena AASF Environmental Data Resource Report

## **Appendix B**

# **Preliminary Assessment Documentation**

## **Appendix B.1**

### **Interview Records**

**PA Interview Questionnaire - Other**

**Facility: Helena AASF**  
**Interviewer: Dr. Rosa Gwinn, Jennifer Zorinsky**  
**Date/Time: 1/9/2018, 13:00**

<p><b>Interviewee: Mr. Thad Waples, Mr. Ken Brug (retired), and Mr. Jeff Boman</b></p> <p><b>Title: Varies</b></p> <p><b>Phone Number: N/A</b></p> <p><b>Email: N/A</b></p>	<p>Can your name/role be used in the PA Report? <u>Y</u> or N</p> <p>Can you recommend anyone we can interview?</p> <p><u>Y</u> or N Jeff Wadercamp (Helena Airport), Jim Crawford (maintenance and operations supervisor), Travis Gronly (contracting office)</p>															
<p><b>Roles or activities with the Facility/Years working at the Facility:</b></p>																
<p>Chief Warrant Officer Thad Waples (WO3), Sergeant Ken Brug (retired), and Sergeant Jeff Boman</p>																
<p><b>PFAS Use:</b> Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as built), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?</p>																
<p>Mr. Thad Waples indicated AFFF was stored in the UH-60 Hangar fire suppression system, but the system was never used. AFFF was supplied to the AASF in 55-gallon drums. The AFFF in the UH-60 Hangar was removed, the system was retrofitted possibly due to leaking, and the AFFF was replaced with “new foam” (Jet-X) and tested in 2012 or 2013. A contractor (Tyco SimplexGrinnell) removed the old foam; more information may be available with the contracting office (Travis Gronly). Mr. Waples indicated the new suppression system leaked into the drain in the suppression room which is hooked to POTW.</p> <p>A fire suppression system also exists in the CH-47 Hangar. This hangar was tested in 2006. The AASF has historically avoided deploying AFFF because it is corrosive.</p> <p>Mr. Ken Brug indicated that in addition to the hangar fire suppression system, the AASF also has 16 fire extinguishers with Tri-Max foam. The fire extinguishers have never been used for putting out fires at the AASF. Filling of the fire extinguishers was previously done on the backside of ground power prior to construction of the 47 Hangar. One time during filling of the fire extinguishers, a 5-gallon jug of Tri-Max 30 spilled onto the asphalt and possibly into the drain that goes out to detention pond. Fire extinguisher training is conducted annually in front of flight ops. Training was completed with Dawn dish soap only.</p> <p>Tri-Max 30 fire extinguishers are portable and carry 30-50 gallons of water and contain a center tank that is filled with foam. The fire department at the airport is responsible for servicing the fire extinguishers. The first winter the fire extinguishers were at the AASF, one of them froze and split. Fire extinguishers have been stored in the hangar ever since.</p> <p>Mr. Jeff Boman indicated that AFFF was sprayed behind the old red brick building east of the Governor’s Hangar at the old AASF facility; the old ramp/fuel pit area is still visible. This was done by MT ARNG only (no airport involvement). Mr. Waples indicated the AASF does currently train annually with the airport at the Rocky Mountain Emergency Services Training Facility adjacent to the AASF.</p> <p>Emergency services for the AASF are provided by the Helena Airport.</p>	<p><b>Known Uses</b></p> <table border="1"> <tr><td>Use</td></tr> <tr><td>Procurement</td></tr> <tr><td>Disposition</td></tr> <tr><td>Storage (Mixed)</td></tr> <tr><td>Storage (Solution)</td></tr> <tr><td>Inventory, Off-Spec</td></tr> <tr><td>Containment</td></tr> <tr><td>SOP on Filling</td></tr> <tr><td>Leaking Vehicles</td></tr> <tr><td>Nozzle and Suppression System Testing</td></tr> <tr><td>Dining Facilities</td></tr> <tr><td>Vehicle Washing</td></tr> <tr><td>Ramp Washing</td></tr> <tr><td>Fuel Spill Washing and Fueling Stations</td></tr> <tr><td>Chrome Plating or Waterproofing</td></tr> </table>	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
Use																
Procurement																
Disposition																
Storage (Mixed)																
Storage (Solution)																
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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: Fort William Henry Harrison**  
**Interviewer: Dr. Rosa Gwinn, Jennifer Zorinsky**  
**Date/Time: 1/9/2018, 09:30**

<p><b>Interviewee:</b> [REDACTED]  <b>Title:</b> Team Chief  <b>Phone Number:</b> N/A  <b>Email:</b> N/A</p>	<p>Can your name/role be used in the PA Report? Y or <b>N</b>          Can you recommend anyone we can interview?  <u>Y</u> or N Pat McCann (procurement), Ted Simpson and Pat Clench (regarding train fire)</p>															
<p><b>Roles or activities with the Facility/Years working at the Facility:</b></p>																
<p>The interviewee was a member of the 1049<sup>th</sup> from 1982-2003 and part of the ARNG until 2016. He also worked at the Helena Airport from 1987-1991.</p>																
<p><b>PFAS Use:</b> Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as built), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?</p>																
<p>The interviewee had direct knowledge of AFFF use during fire fighting training. He indicated most AFFF training was conducted at the Helena Airport. At least once per year, the 1049<sup>th</sup> conducted coordinated AFFF training with the Helena Airport at the east end of runway 27. During the training, fuels and solvents contained on an old school bus were ignited and extinguished with AFFF. The approximate pin coordinates from Google are -46.6010284, -111.9589897. The area may be identifiable through a previous investigation/removal completed during which arsenic was identified as a COC. The interviewee also indicated a lot of AFFF use occurred during annual training at Great Falls.</p> <p>At FTWHH, the interviewee indicated AFFF was used by the 1049<sup>th</sup> during the weasel barn fire (potential AOI “D”) and possibly during another weasel barn fire (potential AOI “J”) due to the burning of barrels of petroleum based product.</p> <p>The interviewee indicated AFFF was ordered through supply (Pat McCann) and was only put on the trucks when it was intended to be used. The small trucks were capable of holding ~40 gallons and the large trucks were capable of holding ~100 gallons. All AFFF added to the trucks for training would be expended then the trucks were washed and any emptied into the Mt. Defensa drainage ditch on FTWHH (potential AOI “B”). The last known occurrence of washing and emptying the trucks into the drainage ditch was in the early 2000s. The 1049<sup>th</sup> also previously operated near FMS#3 in the late 1980s (potential AOI “K”) and the current Range OPS (not a potential AOI) and Troop Medical Clinic buildings (not a potential AOI). The interviewee indicated the areas of greatest concern for AFFF release are potential AOIs “B” and “K”. The current 1049<sup>th</sup> location (P1010) was constructed in 1995. The interviewee indicated AFFF was never released for any “washing” purposes.</p> <p>The only other use of AFFF noted by the interviewee was during an emergency response to a train wreck in 1989 near the Benton Avenue crossing, Carroll College, and the Bill Roberts Golf Course. Due to below freezing temperatures and the nature of the materials on board (isopropyl alcohol), water could not be used to extinguish the fire; therefore, AFFF was used.</p> <p>The interviewee previously served as the unit historian and may have pictures available. He will compile pictures and provide to the project team.</p>	<p><b>Known Uses</b></p> <table border="1"> <tr><td>Use</td></tr> <tr><td>Procurement</td></tr> <tr><td>Disposition</td></tr> <tr><td>Storage (Mixed)</td></tr> <tr><td>Storage (Solution)</td></tr> <tr><td>Inventory, Off-Spec</td></tr> <tr><td>Containment</td></tr> <tr><td>SOP on Filling</td></tr> <tr><td>Leaking Vehicles</td></tr> <tr><td>Nozzle and Suppression System Testing</td></tr> <tr><td>Dining Facilities</td></tr> <tr><td>Vehicle Washing</td></tr> <tr><td>Ramp Washing</td></tr> <tr><td>Fuel Spill Washing and Fueling Stations</td></tr> <tr><td>Chrome Plating or Waterproofing</td></tr> </table>	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
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Fuel Spill Washing and Fueling Stations																
Chrome Plating or Waterproofing																

# Preliminary Assessment – Pre-Interview Form

**1. Installation Name:** Army Aviation Support Facility (AASF)

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**2. Primary Points of Contact:(Name/Title/Telephone Number/Email Address):**

ARNG:

USACE:

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Wade Juntunen/Remediation  
and UXO Project [Manager](#)  
[/406-324-3088](#)

Installation: [/wade.m.juntunen.ctr@mail.mil](#)

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**3. Suggested Personnel to Interview (Name/Title/Number of Years at Installation/Retired):**

See attached spreadsheet with previous interviews and scheduled interviews

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**4. Is the ARNG property an enclave of a larger facility? What command or authority controls that facility? DoD or non-DoD?**

DoD property

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**5. Installation History (dates of operation, types of activity, active airfield, firefighting training):**

ARNG military aviation facility

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**6. Potential Sites to Investigate:**

Various sites throughout installation

---

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---

---

(Attach to the front of the Interview Form)

## Preliminary Assessment – Pre-Interview Form

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**7. Have we requested the following information from ARNG?**

Lease Information: YES / **NO** Comment:

Material Purchase Information: YES / **NO** Comment:

YES / NO Comment:

YES / NO Comment:

---

**8. Does the Installation have an Administrative Record or a Document Repository? If so, does the installation have the following types of documents? Circle all that apply.**

Historical Records Review

Preliminary Assessment

Site Inspections

Remedial Investigation

Remedial Action Documentation

Cultural Resources Management Plan

Natural Resources Management Plan

Firefighting Training Records (if documented)

Responded to an Aircraft Crash

Responded to Forest Fires

Federal Facility Agreement

State Permit

RCRA Permit

**NPDES Permit**

**Environmental Baseline Study**

Groundwater Flow Information

Groundwater Studies

Groundwater Treatment Units

Groundwater Monitoring Well Location Map

Surface Water Flow Information

Historical Aerials

**9. What GIS data do we have? Do we need? Will aerial photographs be needed? (Ask about these during interview if we do not have)**

(Attach to the front of the Interview Form)

## Preliminary Assessment – Pre-Interview Form

Various GIS datalayers can be provided if needed.

---

---

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(Attach to the front of the Interview Form)

## **Appendix B.2**

# **Visual Site Inspection Checklists**

## Visual Site Inspection Checklist

Names(s) of people performing VSI: Dr. Rosa Gwinn, Jennifer Zorinsky

Recorded by: Jennifer Zorinsky

ARNG Contact: Rebekah Myers

Date and Time: 1/9/2018; 14:00

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

### *Source/Release Information*

**Site Name / Area Name / Unique ID:** Helena AASF

**Site / Area Acreage:** Detention Pond

**Historic Site Use (Brief Description):** Historically the area was undeveloped and owned by the USDA, Forest Services

**Current Site Use (Brief Description):** The current AASF was constructed in 1998 and services and maintains military helicopters

**Physical barriers or access restrictions:** Access to the area is restricted to AASF personnel. The detention pond area is also fenced.

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):

Filling of TriMax fire extinguishers has occurred historically on the backside of the ground power area prior to construction of the CH-47 Hangar in 2006.

2. Has usage been documented?

Y/N

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

The fire extinguishers have never been used. UH-60 Hangar and CH-47 Hangar tested once.

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

3a. Indicate what businesses are located near the site

Helena Regional Airport, RMESTC, Boeing manufacturing plant

4. Is this site located at an airport/flightline?

Y/N

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

Helena Regional Airport

# Visual Survey Inspection Log

## Other Significant Site Features:

1. Does the facility have a fire suppression system?

Y / N

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

Currently Jet-X; previous type of AFFF used in the UH-60 Hangar is unknown

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

No maintenance schedule known; The system in the UH-60 may have leaked previously and was retrofitted in 1999.

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

Unknown

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

Yes, the UH-60 Hangar discharges to the Helena publicly owned treatment works

## *Transport / Pathway Information*

### Migration Potential:

1. Does site/area drainage flow off installation?

Y / N

1a. If so, note observation and location:

2. Is there channelized flow within the site/area?

Y / N

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

3. Are monitoring or drinking water wells located near the site?

Y / N

3a. If so, please note the location:

One monitoring well is located approximately 1000 feet northeast of the AASF.

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.

Helena Regional Airport Authority

6. Does an adjacent non-ARNG PFAS source exist?

Y / N

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

Potentially the Helena Regional Airport, RMETSC, and a MT ARNG FTA

6b. Will off-site reconnaissance be conducted?

Y / N

## 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):

2. Is the site/area vegetated?

Y /  N

2a. If not vegetated, briefly describe the site/area composition:

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:

The site is behind the CH-47 Hangar. The detention pond is also fenced.

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:

4. Are any schools/day care centers located near the site?

Y /  N

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site?

Y /  N

5a. If so, please note the location/distance/type:



## Visual Survey Inspection Log

*Additional Notes*

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*Photographic Log*

<b>Photo ID/Name</b>	<b>Date &amp; Location</b>	<b>Photograph Description</b>
Photograph No. 1	1/9/2018; Helena AASF	Detention Pond

## **Appendix B.3**

# **Conceptual Site Model Information**

# Preliminary Assessment – Conceptual Site Model Information

**Site Name: Helena AASF**

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**Why has this location been identified as a site?**

The UH-60 Hangar historically contained an AFFF fire suppression system. This Hangar contains a drain that discharges to the Helena POTW.

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

Yes, Helena Regional Airport, RMESTC, MT ARNG and Airport FTA

---

**Training Events**

Have any training events with AFFF occurred at this site? No

---

If so, how often? N/A

---

How much material was used? Is it documented? N/A

---

**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? Northeast

---

Average rainfall? 11.2 inches

---

Any flooding during rainy season? No, but stormwater discharges towards the Helena Canal during a large snowmelt

---

Direct or indirect pathway to ditches? No

---

Direct or indirect pathway to larger bodies of water? No

---

Does surface water pond any place on site? Detention pond at the northeast end

---

Any impoundment areas or retention ponds? Yes

---

Any NPDES location points near the site? Yes, all culverts discharging stormwater are covered under a stormwater permit

---

How does surface water drain on and around the flight line?

---

Drainages have been diverted around the AASF and the Helena Regional Airport.

---

## Preliminary Assessment – Conceptual Site Model Information

### Groundwater:

Groundwater flow direction? northeast

---

Depth to groundwater? 12 feet to 70 feet

---

Uses (agricultural, drinking water, irrigation)? Irrigation; domestic wells are located within 4 miles downgradient of the facility

---

Any groundwater treatment systems? No

---

Any groundwater monitoring well locations near the site? Yes, one well approximately 1000 feet northeast of the AASF

---

Is groundwater used for drinking water? No

---

Are there drinking water supply wells on installation? No

---

Do they serve off-post populations? No

---

Are there off-post drinking water wells downgradient? No

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### Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? No

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If so, do we understand the process and which water is/was treated at the plant? N/A

---

Do we understand the fate of sludge waste? N/A

---

Is surface water from potential contaminated sites treated? N/A

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### Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go? N/A – fire fighting services are provided by the Helena Regional Airport.

---

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles? N/A

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3. Other? N/A

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---

## Preliminary Assessment – Conceptual Site Model Information

### Identify Potential Receptors:

Site Worker: Y

---

Construction Worker : Y

---

Recreational User: N

---

Residential: N

---

Child: N

---

Ecological: N

---

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

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---

### Documentation

Ask for Engineering drawings (if applicable).

---

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

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Drainages were diverted around the AASF and the Airport during construction of the current AASF in 1998. The detention basin has been excavated twice – once in the mid-2000s and once during renovation of the armory.

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## **Appendix C**

### **Photographic Log**

## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Helena AASF	Helena, Montana
<p><b>Photograph No. 1</b></p> <p><b>Description:</b></p> <p>Looking northeast. Detention pond. The white material in the photograph is snow.</p>		