FINAL

Preliminary Assessment Report

Army Aviation Support Facility #1

Salem, Oregon

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

August 2019

Prepared for:

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

U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
Baltimore, MD 21201

Prepared by:

AECOM
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876
aecom.com

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Acronyms and Abbreviations

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
CSM	conceptual site model
DRMO	Defense Reutilization and Marketing Office
FTA	fire training area
m	meters
ORARNG	Oregon Army National Guard
OWS	oil water separator
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PIL	Pollutant Initiation Levels
SI	Site Inspection
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VSI	visual site inspection
WWTP	waste water treatment plant

Executive Summary

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division, 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 (AFFF) released as part of firefighting activities, although other PFAS sources are possible.

AECOM completed a PA for PFAS at the Army Aviation Support Facility #1 (AASF) in Salem, Oregon, to assess potential PFAS release areas and exposure pathways to receptors. The performance of this PA included the following tasks:

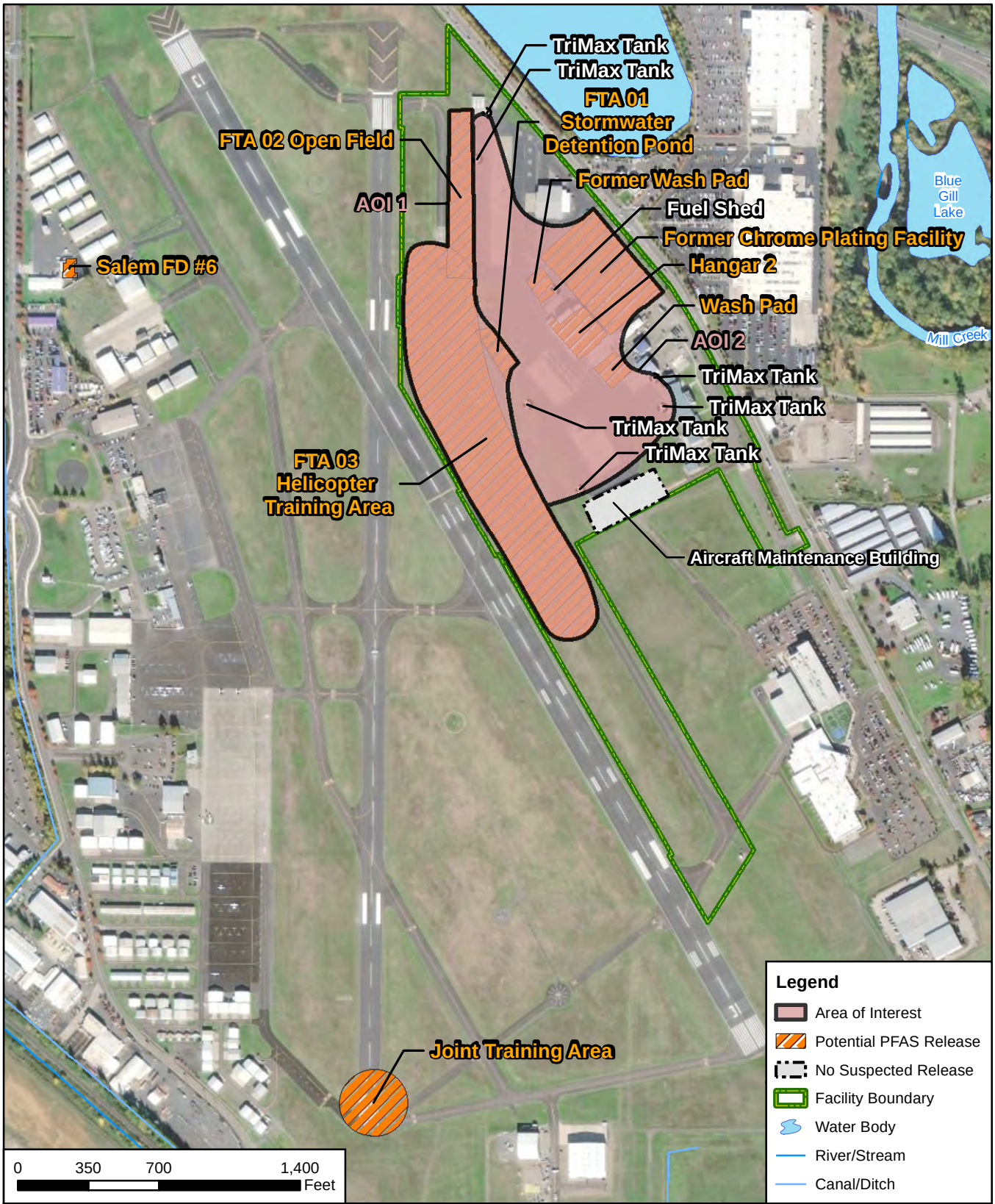
- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a site visit on 10 September 2018
- Interviewed current Oregon Army National Guard (ORARNG) AASF personnel during the site visit and ORARNG environmental managers and operations staff
- Completed visual site inspections at known or suspected PFAS release locations and documented with photographs
- Developed a conceptual site model to outline the potential release and pathway of PFAS for the Area(s) of Interest (AOIs) and the facility (**Figure ES-1**)

Two AOIs related to a PFAS release were identified at the Salem AASF during the PA. The AOIs are shown on **Figure ES-1** and are described below:

Table ES-1-1: AOIs at Salem AASF #1

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Former FTAs	ORARNG & Salem Fire Department	~1989-2017
AOI 2	Non-FTAs	ORARNG & Eyerly Aircraft Company	~1940s-2017

Based on actual and potential AFFF release at these AOIs, there is a potential for exposure to PFAS contamination in surface soil, 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 surface water, sediments, and groundwater to off-Post residents and recreational users via ingestion. Based on groundwater and surface water flow patterns, identified adjacent sources are not anticipated to have an impact on the Salem AASF. The conceptual site model for the Salem AASF is shown on **Figures ES-2**.



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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/30/2019

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Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure ES-1

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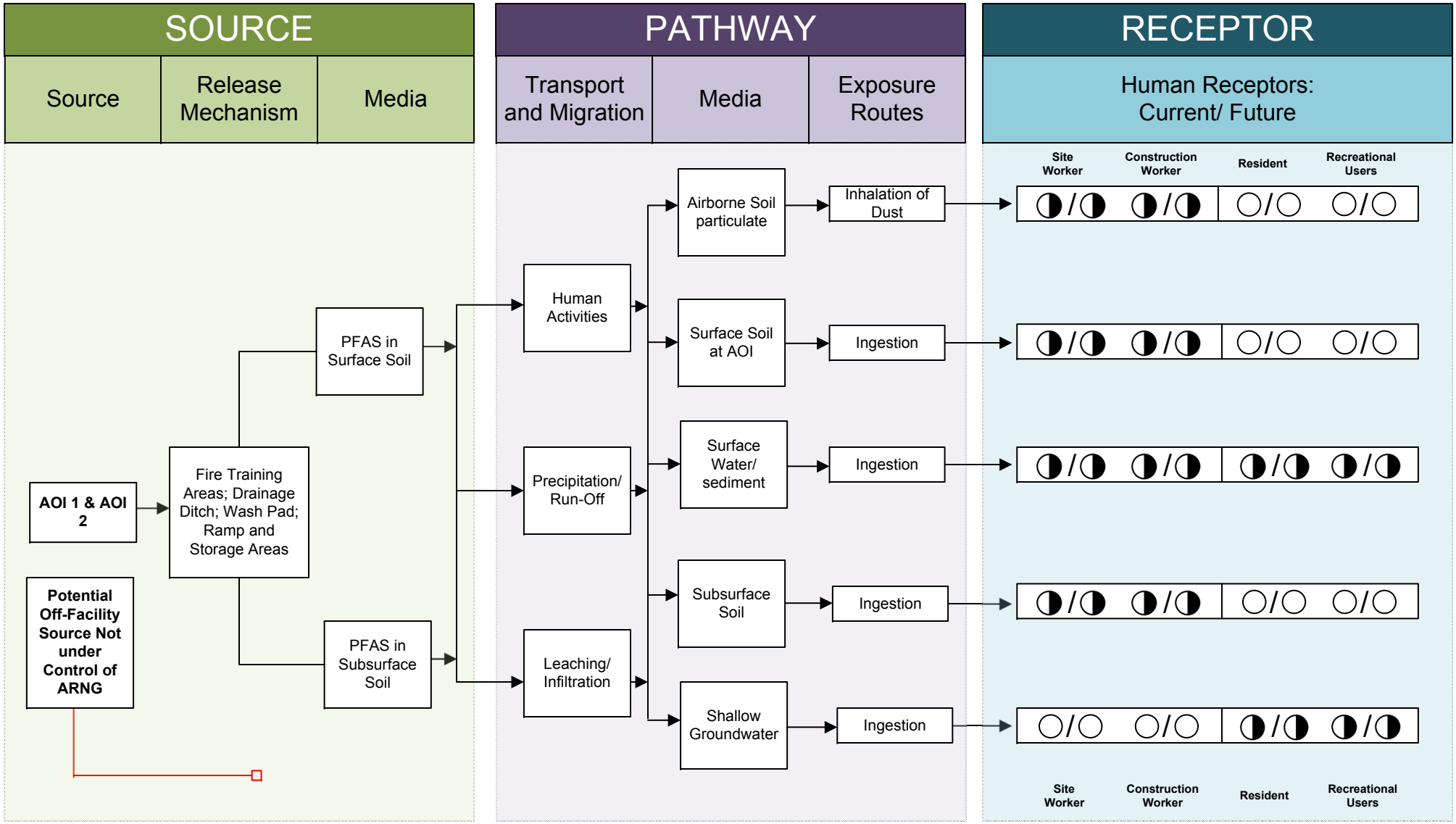


LEGEND

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

Figure ES-2
Conceptual Site Model
AOI 1 and AOI 2
Salem AASF #1

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 , 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 (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 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 Oregon Department of Environmental Quality has set Pollutant Initiation Levels (PILs) for PFAS/PFOA, which are not water quality standards (DEQ, 2017). According to OAR 340-045-0100, only facilities that operate under National Pollution Discharge Elimination System and Water Pollution Control Facility permits in Oregon are required to analyze effluent for PFAS/PFOA and report concentrations that exceed the PILs.

This report presents findings of a PA for PFAS at the Army Aviation Support Facility #1 (AASF) in Salem, Oregon, 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 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 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 10 and 13 September, 2018
- Interviewed current Oregon Army National Guard (ORARNG) AASF personnel during the site visit including ORARNG environmental managers and operations staff

- Completed visual site 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 PFAS releases at the facility identified during the site visit
- **Section 4** – **Emergency Response Areas:** describes areas of AFFF release at the facility, specifically in response to emergency situations
- **Section 5** – **Adjacent Sources:** describes sources of 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 AASF is an approximately 81.5 acre facility located in Salem, Oregon (**Figure 1-1**) along the northeast end of Runway 16/34 of the McNary Field Salem Municipal Airport in Marion County. The AASF lies approximately 3.1 miles southwest of downtown Salem, 48 miles southeast of Portland, and 60 miles northeast of Eugene. Interstate 5 (I-5), traveling in a north-south direction, is 0.5 miles east and state Highway 22, traveling east-west, is 0.5 miles to the north. The geographic coordinates are 44°54’42.6”N and 122°59’51.6”W.

Originally occupied by the Salem Airport from 1930 to 1940, the property was purchased and owned by the US Navy until 1971, when the Oregon Military Department purchased the property (OMD, 2008). Construction of the three hangars lasted from 1971 – 1973. In 2010, ORARNG acquired a former carnival equipment production facility, previously owned and operated by Eyerly Aircraft Company, directly east of Hangar 2 and south of Hangar 1. This acquisition consisted of 4.56 acres where the previous Eyerly property was located and expanded the property boundary of the AASF.

1.5 Facility Environmental Setting

Marion County is a predominantly urban area in the Willamette Valley physiographic province, an area that holds nearly 70 percent of Oregon's population. The region extends northward to Washington State and is bound by the Coast Range to the west, the Western Cascade Range to the east, and the Calapooya Mountains to the south. The county has an approximate total area of 1,193 square miles, of which only 10 square miles are water. The closest residence is one mile away and a shopping center exists a few hundred feet to the east on the other side of the AASF. Anleny National Wildlife Refuge lies three miles to the southeast of the AASF. Portions of the Willamette and Mount Hood National Forests are contained within Marion County, approximately 30 miles east of the AASF. Wildlife in this area and in vicinity to the AASF includes white tail deer, squirrels, raccoons, and numerous species of birds. The terrain within the valley and flood plain is of low to moderate relief, ranging from 150 to 1000 feet of elevation.

1.5.1 Geology

Salem and the AASF lie in the Willamette Valley physiographic province, a drainage basin that is roughly 170 miles long from north to south and encompasses nearly 12,000 square miles. The Willamette River basin has considerable diversity in its land forms, and may be subdivided further into three coextensive physiographic sections with respect to major surface features: (1) The Oregon Coast Range section, (2), Puget Trough Section, and (3), the Middle Cascade Mountains lowlands section, which includes about 60% of the basin (Piper, 1942) and is where the AASF is located.

This lowland area belongs to the main valley plain, and is characterized by gently rolling topography traversed by steep-walled, flat-floored stream valleys. The Willamette valley has been a topographic low for at least 15 million years and was prone to frequent flooding (the Missoula Flood), due to the extensive braided channel systems of this area, which deposited Miocene and Pliocene sediments in the basin bottoms to Quaternary and late Tertiary-age sediments in the upper 0-100 meters (m) that are primarily coarse-grained sediment and gravel (Woodward, Gannett & Vaccaro, 1998).

Due to this flooding, change of river flow direction, erosion, and deposition from surrounding tributaries of the mountain ranges, the thicknesses and age of these deposits can vary widely along the valley floor. The AASF is an area of coalesced alluvial fans underlain by 14 m of 12.7 - 15 thousand year old unconsolidated Holocene flood deposits, 200 - 300 m of Pleistocene age sand and gravel, the 40 m thick Willamette Silt layer (fine-grained Missoula Flood Deposits and clay) which thins towards the south, and another 100 - 200 m of Pleistocene age coarse sand and gravel of roughly 28 thousand years of age (O'Connor et al., 2001). Below this, basalt flows from the Columbia River Group ranging from 3 to 300 m thick slope westward and overlie marine rocks and the Little Butte Volcanic Series (Hampton, 1972).

1.5.2 Hydrogeology

Regional and local groundwater flow follows a relatively simple drainage pattern which is facilitated by the topographic and structural trough of the Willamette Valley, which lies between the Coast Range and Cascade Range. Groundwater flows from these divides of high elevation to the lowland valley and discharges into the larger streams and rivers. The direction of groundwater flow is generally west/northwest towards Mill Creek, a tributary of the Willamette River, and several surrounding lakes (**Figure 1-2**). The unconsolidated, highly permeable soils create a shallow groundwater subsystem with a good hydraulic connection between the aquifers and streams (Woodward, Gannett, and Vaccaro, 1998). Depth to groundwater in the vicinity surrounding the facility typically ranges from 12 to 25 bgs (ORWRD, 2018). This provides a

system of high infiltration for recharge of groundwater. Groundwater discharges to the smaller streams, which usually flow on the less permeable Willamette Silt unit and most discharge is derived from runoff and snow melt (Hampton, 1972). The majority of recharge to the aquifers occurs in the winter months, where precipitation and snowmelt are high and evapotranspiration is low. The summer months are characterized by low precipitation, high runoff due to urbanization, and high evapotranspiration (USGS, 1998).

This recharge supplies the major aquifers of the Willamette Basin. The Willamette Valley comprises two major aquifers, and 3 confining units, created by the unique topographic and stratigraphic lowland plain resting between two mountain ranges. The town of Salem is underlain by parts of all five hydrogeological units (Hampton, 1972; Woodward, Gannett, and Vaccaro, 1998). The majority of the AASF lies on the Willamette aquifer, which is the principal aquifer for the Willamette Valley and lowland area (Conlon et. al., 2005). Large diameter wells in the area, one 0.25 miles to the east-southeast and one 1.8 miles northeast of the AASF, can get upwards of 10,000 gallons per minute.

Approximately two miles southwest of the AASF are several aquifer storage and recovery wells located 350 feet bgs at Woodmansee Park (City of Salem, 2018). Treated drinking water from the North Santiam River, approximately 20 miles east of AASF, is injected into a fractured basalt aquifer. During the winter months, treated drinking water is pumped into this aquifer and withdrawn during summer months as needed (USCHPPM, 2002).

1.5.3 Hydrology

The AASF is located within the Middle Willamette Watershed. In general, surface water in the area surrounding the facility flows in the same west/northwest direction as groundwater, towards Mills Creek, a tributary of the Willamette River (**Figure 1-3**). Surface water with the AASF flows towards a grated storm drain system, which is located on the paved western edge of the facility. Stormwater and surface water runoff are directed into two stormwater detention ponds which discharge to Mission Ditch, just outside the southeast boundary of the facility. Mission Ditch then flows west/northwest and discharges into Pringle Creek, a tributary of the Willamette River (USCHPPM, 2002).

Wastewater in and around the AASF is collected through a series of sanitary sewers, which then transfer wastewater to the Willow Lake Waste Water Treatment Plant (WWTP). This WWTP, 11 miles north of the AASF, treats approximately 30 million gallons of waste water per day. Approximately one million gallons of treated water are used daily for irrigation and internal plant operations, while the remaining treated wastewater is routed to a stormwater outfall, which discharges to the Willamette River.

Drinking water at the AASF is supplied by the City of Salem. The North Santiam River provides drinking water to the City of Salem as well as the nearby City of Turner. Due to the lack of development and high regulation of land within the North Santiam Watershed, water quality within this watershed is extremely high, with little treatment necessary to provide clean drinking water. Slow Sand Filtration processes are utilized at the Geren Island Water Treatment Facility, approximately 18 miles southeast of the AASF (USCHPPM, 2002). Water is then transferred to the City of Salem and stored within 17 reservoirs around the City. No surface water intakes are located within 15 miles of the AASF; however, several nearby private residential wells are located within a mile downgradient of the AASF.

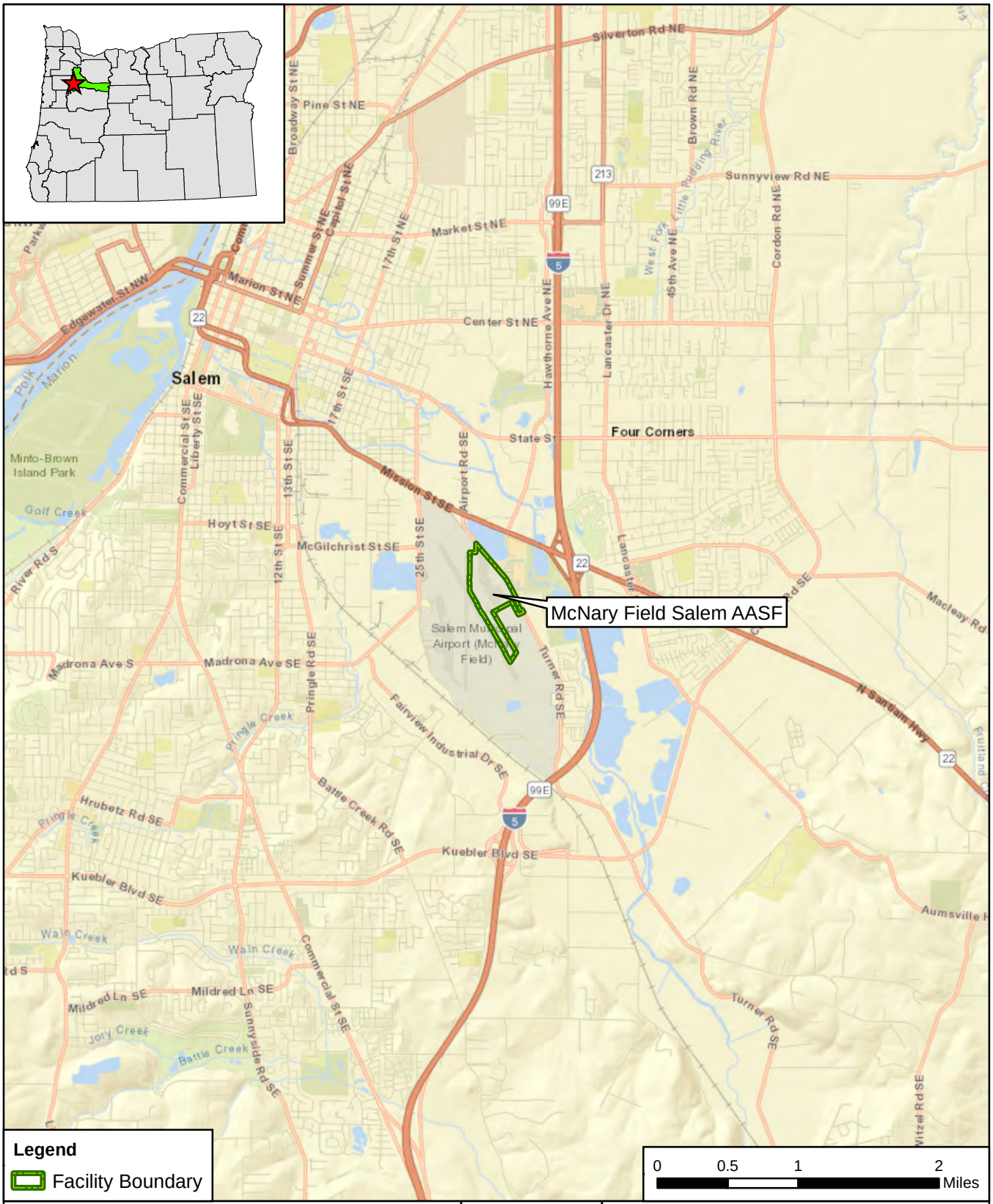
1.5.4 Climate

The AASF is situated in the Willamette Valley physiographic province. Temperatures are moderated year round by winds and rains that come up and over the Coast Ranges to the east

from the Pacific Ocean. Annual rainfall is high, with 80% falling from October through March and less than 5% falling in June and August, the peak growing season (Conlon et. al., 2005). The average rainfall is around 40 inches near the AASF, with some localized areas slightly north getting upwards of 70 inches.

1.5.5 Current and Future Land Use

Presently, the AASF includes 58 acres of dedicated-use military taxiway with the remaining 23.5 acres comprising the three active hangars, aviation fueling facilities, a hazardous material storage facility, vehicle and aircraft parking aprons, and grass-covered areas (AMEC, 2006; OMD, 2008). The AASF supports the Medical Evacuation Battalion and the Theatre Aviation Battalion with associated companies, whose purpose is to provide aircraft movement to support medical evacuation, provide command, control and communications, provide organic airlift, and partake in counter drug operations and organizational support aircraft operations (OMD, 2008). Future land use is not anticipated to change.



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Base Map: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI,		PM	RG	1/2/2019

Facility Location

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Figure 1-1

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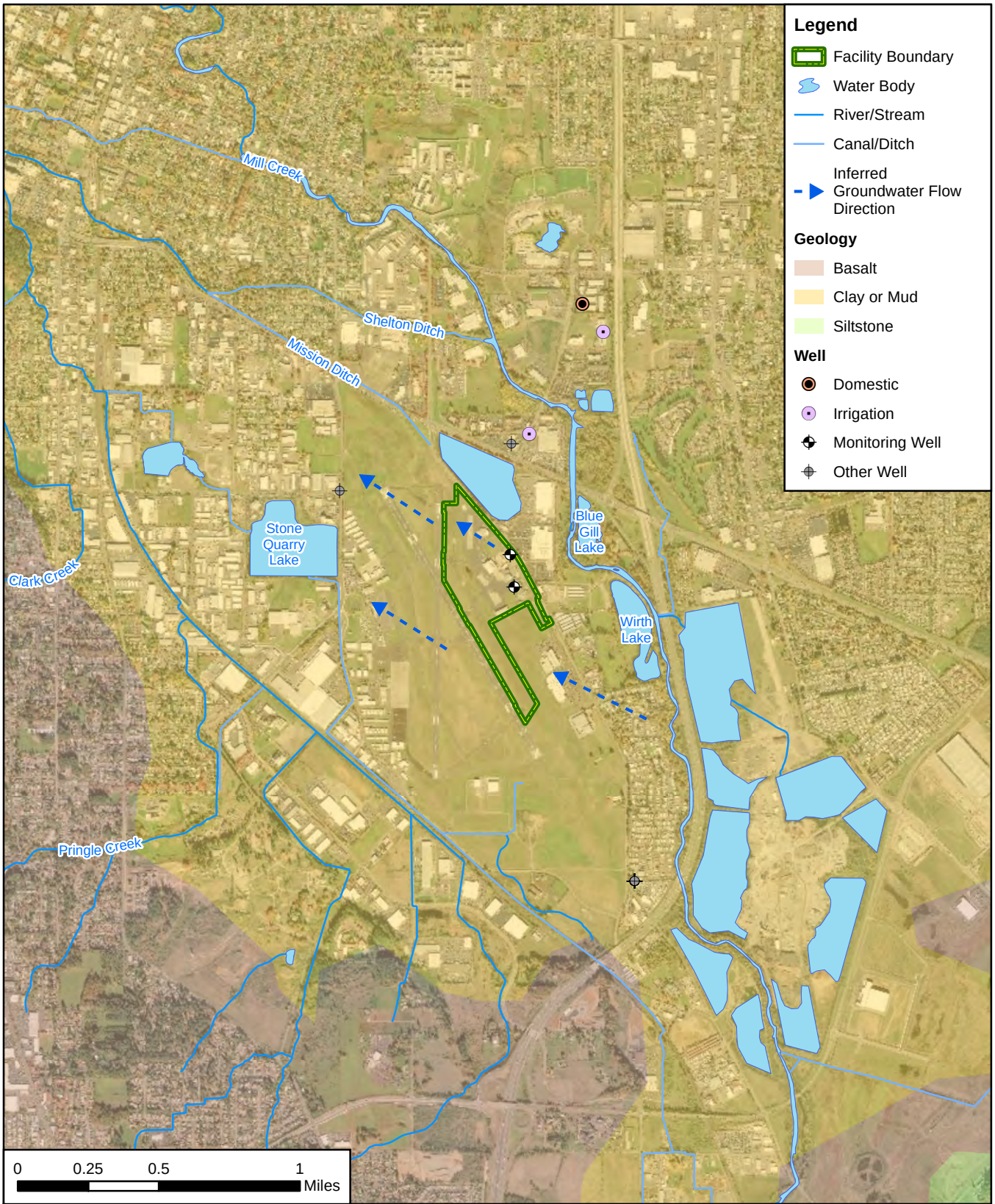

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Base Map: Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	1/2/2019

Groundwater Features

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Figure 1-2

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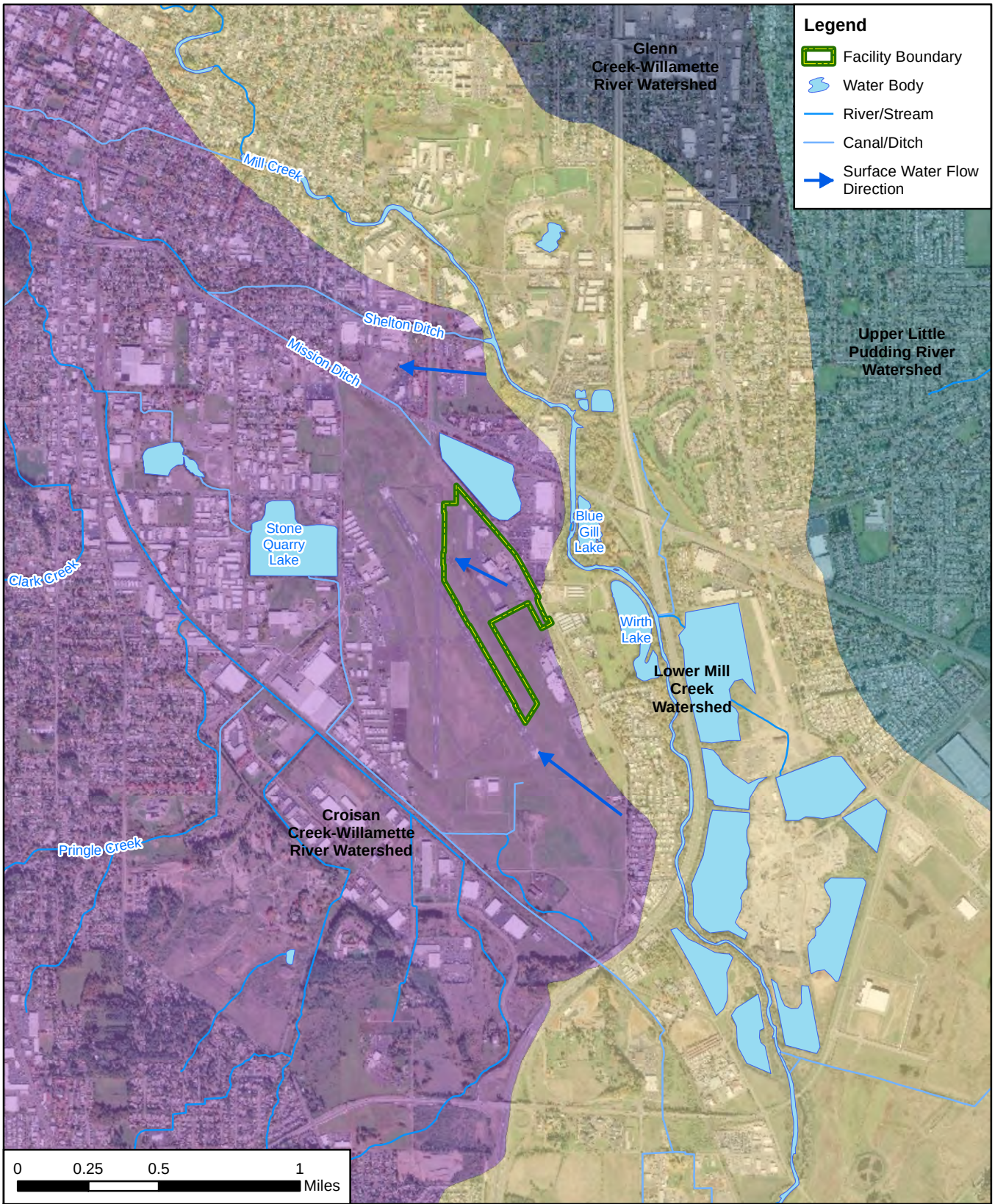

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

Four FTAs were identified within the current AASF facility during the PA through interviews. These FTAs are described below and shown in **Figure 2-1**.

2.1 FTA 01 – Stormwater Detention Pond

FTA 01 is one of two stormwater retention ponds located west of Hangar 2, across the paved aircraft parking area. Annual fire training would occur at this designated location in which approximately one gallon of 3% concentrated AFFF from each of the six TriMax 30 tanks would be dispensed in this detention pond. This training was intended to teach personnel how to operate the nozzles on the TriMax 30 tanks. Additionally, it was noted during interviews that personnel at the AASF along with personnel from the City of Salem fire department would conduct annual controlled barrel burns within this stormwater detention pond. Wood and other organic debris would be burned in 55-gallon drums and extinguished using non-PFAS containing portable fire extinguishers (either Class A or Class ABC fire extinguishers).

Interviewees stated both the TriMax dispensing training and the controlled barrel burns occurred annually for at least fifteen to twenty years, with the last training event occurring in December 2017; however, it is unsure the exact year these barrel burns began. These trainings were intended to show personnel how to properly use the nozzles on the TriMax tanks and the non-PFAS containing portable fire extinguishers.

Both stormwater detention ponds collect surface water and stormwater from within the facility in underground drainage basins. These basins then discharge through a stormwater outfall located at Mission Ditch, adjacent to Turner Road just outside the northeast boundary of the facility. Mission Ditch flows north towards Pringle Creek, eventually discharging into the Willamette River. Surface water and stormwater runoff collected in these ponds does not flow through an oil water separator, so any residual from these ponds is discharged directly to the stormwater outfall.

2.2 FTA 02 – Open Field

During interviews, it was noted that from approximately 1989 through 1991, annual fire training activities involving AFFF would occur in a large grassy field to the west of Hangar 1. During fire training activities, controlled burns using wood and other organic debris would occur in this area over the course of a weekend. Multiple ORARNG facilities would participate in this training by bringing their own firetrucks pre-filled with AFFF and using the open field for fire training activities. A firetruck at Salem with an AFFF tank capacity of approximately 50 gallons would also be used during these annual trainings; however, exact AFFF quantities used during each event and concentration of AFFF are unknown.

Following these trainings, the trucks were transported to the nearby Salem Fire Department #6 where purging of the AFFF from the trucks would occur. Based on interviewee knowledge, one firetruck was at the Salem AASF from approximately 1989 through 1994. It is unknown if there was a designated storage location for the firetruck between annual trainings.

Several stormwater catch basins are located along the east perimeter of the grassy FTA. These catch basins collect stormwater that is then discharged into Mission Ditch, just outside the northeast boundary of the facility.

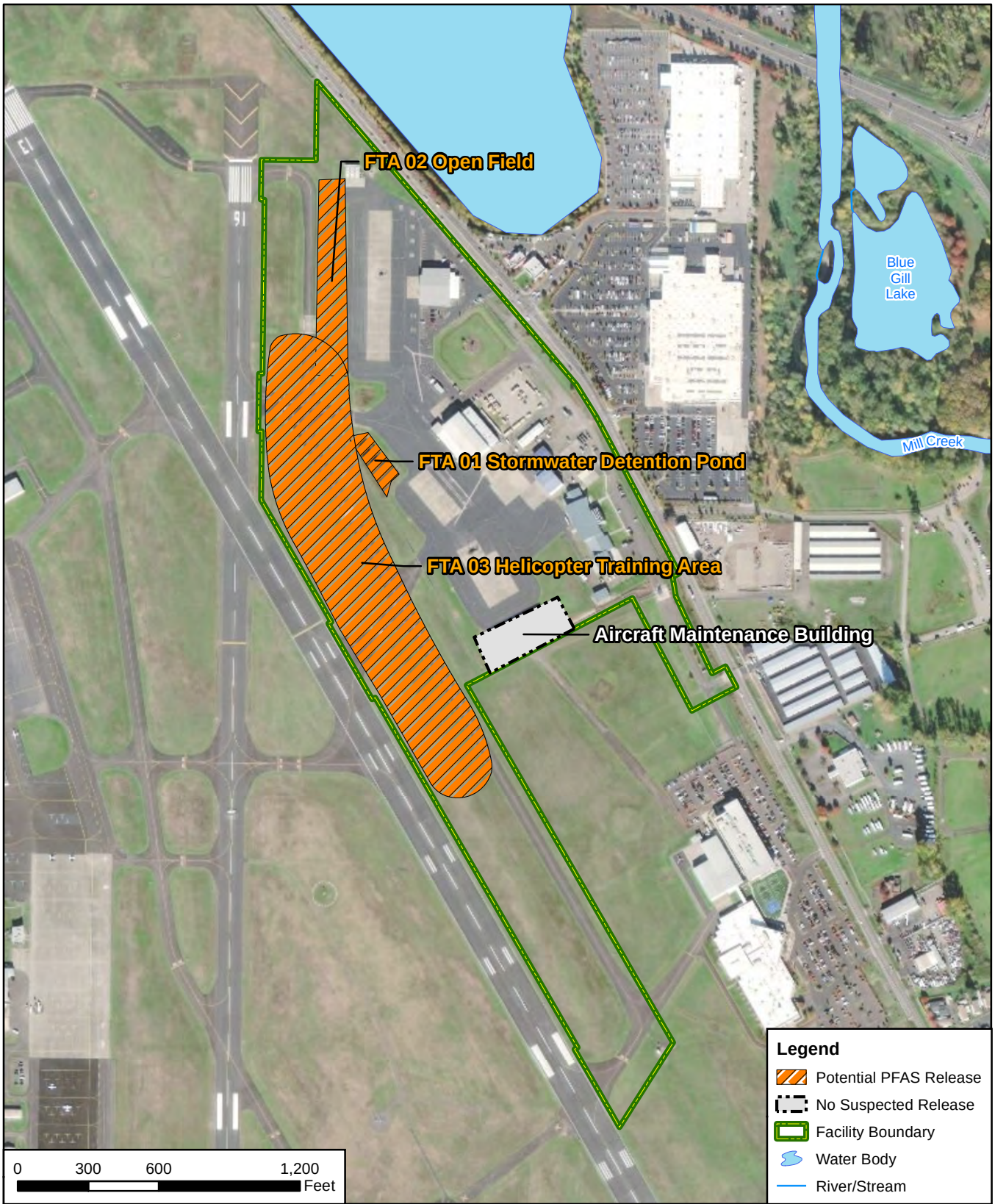
2.3 FTA 03 – Helicopter Training Area

During interviews, the training site manager at the AASF indicated that the ORARNG conducted annual firefighting training utilizing a helicopter equipped with AFFF. This training occurred every spring from 1998 until 2014 at several ARNG facilities throughout the state of Oregon. The helicopter would take five to twenty flights around the AASF and the nearby Creek Falls training area, just west of Salem, and release a combination of water and AFFF for fire training purposes.

The helicopter was equipped with a 1,000 gallon water tank and a 35 gallon AFFF tank; however, it was estimated that only 5 gallons of concentrated AFFF were used during each training event. The foam was added to the helicopter at the AASF and stored in 5-gallon buckets; however it is unknown where the filling of the tank on the helicopter occurred or where 5-gallon buckets of AFFF were stored at the facility. While a designated area to drop the AFFF and water mixture was not established during training activities, it was estimated that during training the AFFF and water mixture were commonly released to the west of the flightline, surrounding FTA 01 and FTA 02.

2.4 Aircraft Maintenance Building

During interviews, personnel noted that annual firefighting training activities occurred just outside the aircraft maintenance building, located on the south end of the facility. Following construction of the aircraft maintenance building in approximately 2013, joint annual trainings with personnel from the AASF and the local Salem Fire Department would occur outside this building. Firetrucks were used by both ORARNG and Salem Fire Department to conduct fire training activities. Interviewees stated that this training only involved water, and did not involve the use of AFFF. There are no suspected releases of AFFF at or within the vicinity of the aircraft maintenance building.



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Base Map: Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	1/7/2019

Fire Training Areas

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 2-1

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3. Non-Fire Training Areas

Five non-FTAs where AFFF was stored and/or 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 Hangar 2

Hangar 2, directly across from FTA 01, currently has six empty TriMax 30 tanks stored inside the bay doors. These tanks were removed from the flightline and emptied in the stormwater detention pond across from Hangar 2 during the last fire training event in December 2017. These tanks were previously filled with concentrated 3% AFFF. Following the training, the empty tanks were placed within the hangar for temporary storage. Defense Reutilization and Marketing Office (DRMO) services and inspects these tanks monthly; however, it is unknown when these tanks will be picked up for disposal. New TriMax 30 tanks were brought in to replace the empty TriMax 30 tanks and placed throughout the facility, as described below in **Section 3.4**.

Additionally, interviewees stated that one firetruck was located within Hangar 2 from approximately 1974 until 1988. The firetruck was deployed for fire training activities and contained concentrated AFFF; however the quantity and concentration of AFFF on the truck during the time of storage is unknown. Exact timeframes and locations of fire training activities within the AASF between 1974 and 1988 are unknown. Following fire training activities, it is common for firetrucks to be washed down of any potential residual AFFF. Interviewees could not provide information on where this potential firetruck washing occurred; however, it is likely this occurred in or around the firetruck storage bay of Hangar 2. Due to the lack of floor drains in the storage bay of Hangar 2, potential washing of firetrucks at this location would result in residual AFFF being washed onto the nearby ramp area.

In 1988, the firetruck was relocated to Pendleton AASF. No spills or releases were reported from this firetruck during its duration of storage and the exact storage location of the previous firetruck within the hangar does not contain any floor drains.

With the exception of the area mentioned above within Hangar 2, all drains within hangars at the AASF are routed to the local sanitary sewer and then treated at Willow Lake WWTP, approximately 11 miles north of the AASF. This WWTP treats wastewater and then discharges through a 72-inch stormwater outfall into the Willamette River (ORDEQ, 2004).

3.2 Former Chrome Plating Facility

From approximately the 1940s until 2008, a former carnival equipment ride production plant, previously owned and operated by Eyerly Aircraft Company, was located in the area directly behind Hangar 2. This production plant previously conducted chrome plating operations. In 2010, the ORARNG acquired this land following extensive remedial investigations and feasibility studies for various heavy meals and hexavalent chromium. The facility and associated debris were removed following demolition of the plant under ORARNG.

Chrome plating operations commonly involve PFAS-containing mist suppressants to reduce the risk of metal fires. There is no knowledge of any AFFF-related activities at this previous plant; however, given the timeframe of use, previous chrome plating activities, and historic presence of hexavalent chromium at this location, it is possible that PFAS-containing materials were used or stored at some point during the operational history of the plant.

3.3 Wash Pads

As discussed in **Section 2.3**, annual helicopter fire training would occur at the AASF. Interviewee's estimated that training occurred from 1998 to 2014. Following each training event, any residual from the helicopter foam tank was washed out at the AASF. The washing of the helicopter tanks occurred at the designated wash pad; however, this wash pad was not installed until 2002. The previous wash pad area was located approximately 100 yards north of hangar 2 and was used for aircraft washing prior to the installation of the current wash pad; however, the date of installation of this former wash pad is unknown. Additionally, the historic connection of this former wash pad to either the sanitary sewer or stormwater could not be confirmed.

Residual from the wash pad has various flow routes controlled by a demand valve. If the demand valve is not actuated, residual is routed directly to the stormwater system. When the demand valve is actuated, drains within the wash pad collect the residual and follow a specific flow pattern: oil water separator (OWS), by-pass vault with overflow to the sanitary sewer, effluent storage tank, 500-gallon surge tank, and then an evaporator. According to interviewee's, when actuated, the system continues to send effluent to the treatment system for multiple 'dumps' from the effluent storage tank. Any non-liquid residual is collected and disposed of as hazardous waste, while liquid residual is discharged to Mission Ditch, just outside the northeast boundary of the facility.

3.4 Fuel Shed

During interviews, it was noted that in approximately 2010 or 2011, the Wildlands Fire Manager at the Camp Umatilla ORARNG facility was contacted by the AASF personnel to inquire about the transfer of approximately three 5-gallon buckets of concentrated AFFF from the AASF to Camp Umatilla. The AFFF was stored in the fuel shed at the AASF and personnel attempted to transfer this AFFF to the Camp Umatilla. The Wildlands Fire Manager stated he did not have a purpose for the AFFF and refused acceptance of the 5-gallon buckets.

The manufacturer and specific concentrations of this AFFF product are unknown; however, it is believed that these buckets were unopened and unused during their storage. It is unsure how long the AFFF was stored in the fuel shed prior to contacting the Wildlands Fire Manager, or when exactly the AFFF was disposed of; however, the AFFF was not present in the fuel shed during the time of this PA site visit. The floor of the fuel shed is concrete, and no floor drains are present within the shed. Whether unintended spills or releases occurred from these buckets during or prior to their storage in the fuel shed is unknown.

3.5 Ramp Area

There are currently six full TriMax 30 tanks containing 3% concentrated AFFF located throughout the AASF, with most of the tanks being stored near the aircraft ramp areas. The following locations of the TriMax 30 tanks are described below:

- One tank outside of Building 05313
- One tank on a paved area outside the southern-most concrete helicopter parking pad
- One tank along a paved area, approximately 50 yards southeast of FTA 01
- One tank outside between Hangar 3 and the oil water separator evaporator
- One tank west of Hangar 1, approximately 20 yards west of the northern-most helicopter parking pad, along the boundary of FTA 02

- One tank outside the fueling point

These tanks, inspected monthly, have been stored outside since approximately December 2017, following the last training activity. While DRMO handles the inspection of tanks and disposal of empty tanks, purchasing of these tanks happens through United States Federal Procurement Office. No spills or releases have been reported from any of the tanks.

3.6 Landfills

Approximately five miles southeast of the AASF, is a household hazardous waste facility located at the Salem-Keizer Recycling and Transfer Station. The geographic coordinates for this facility are 44°53’59.58’’N by 122°56’23.57’’W. Various household hazardous wastes can be sent to this facility including pesticides, fuels, solvents, mercury, and paint thinners.

Brown’s Island Demolition Landfill is permitted by the Oregon Department of Environmental Quality and is located approximately eight miles west of the AASF. The geographic coordinates are 44°55’22.87’’N by 123°05’16.72’’W. This landfill only accepts certain construction demolition wastes such as concrete, asphalt, tile, and glass.

Landfills are not usually a primary potential release area of PFAS, but materials disposed of in landfills may create a secondary source of contamination. Such materials, to name a few, may include sludge from a WWTP that processes PFAS-laden water, used AFFF storage containers, or products associated with waterproofing uniforms or boots.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at McNary Field Salem AASF, OR			
REVISED	1/2/2019	GIS BY	MS	1/2/2019
SCALE	1:7,200	CHK BY	TK	1/2/2019
Base Map: Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	1/2/2019

N

Non-Fire Training Areas

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 3-1

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4. Emergency Response Areas

No emergency response areas were identified within or directly surrounding the AASF facility during the PA through interviews or previous investigations.

5. Adjacent Sources

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

5.1 Salem Fire Department #6

Salem Fire Department #6 is located directly west of Salem AASF. The geographic coordinates of this fire department are 44°54'49.46"N and 123°00'33.74"W. As mentioned in **Section 2.2**, multiple training activities occurred from 1989 through 1991 at the Salem AASF involving the use of AFFF. Following these trainings, firetrucks were transported to the nearby Salem Fire Department #6 where purging of the AFFF from the trucks would occur. According to interviews, at least two fire trucks are currently located at the Salem Fire Department #6, with AFFF holding tanks on each of these trucks. Interviewees recall a number of AFFF releases occurring from these tanks within the last several years as well as regular nozzle testing occurring within the fire department boundary. Exact dates or timeframe of these releases and nozzle tests are unknown. Additionally, quantity and concentration of AFFF used during each release are also unknown.

5.2 Salem Airport Joint Training Area

During interviews, it was noted that ORARNG personnel would conduct joint annual off-site fire training activities with the Salem Fire Department at the nearby Salem Municipal Airport. The Salem Fire Department is believed to be the only entity other than ORARNG that would participate in these trainings.

Trainings would occur with firetrucks equipped with AFFF dispensing systems in which personnel would practice operating the nozzles. These fire training activities would occur just southwest of the facility, near the south end approach of Runway 34. While it is unsure what year these trainings began, interviewees stated the last time this training occurred was in approximately 2017. The type, quantity, and concentration of AFFF used during these training events are unknown.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at McNary Field Salem AASF, OR			
REVISED	5/30/2019	GIS BY	MS	5/30/2019
SCALE	1:7,560	CHK BY	TK	5/30/2019
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	5/30/2019

N

Adjacent Sources

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Germantown, MD 20876

Figure 5-1

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6. Conceptual Site Model

Based on the PA findings, two AOIs were identified at the AASF: AOI 1 Former FTAs and AOI 2 Non-FTAs. The AOI locations are shown on **Figure 6-1**. The following sections describe the CSM components and the specific CSMs developed for these 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. Receptors at the AASF include site workers, construction workers, and trespassers. Potential off-post receptors include residents and recreational users.

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).

6.1 AOI 1 Former FTAs

AOI 1 is the Former FTAs. Three of the former FTAs previously identified in Section 2, FTA 01 Stormwater Detention Pond, FTA 02 Open Field, and FTA 03 Helicopter Training Area, are located within AOI 1. Based on groundwater and surface water flow direction, similar historic fire training activities, and close proximity to one another, these FTAs were grouped into one AOI. A description of each of these FTAs and their relation to potential PFAS exposure are described below.

FTA 01 is the Stormwater Detention Pond. For at least fifteen to twenty years, this designated detention pond has been used for fire training activities and controlled burns. The fire training activities included the release of approximately one gallon of 3% concentrated AFFF from each of the six TriMax 30 tanks over a fifteen to twenty year period. The detention pond is unlined and any residual from the pond collects in underground drainage basins that then discharge through an off-site stormwater outfall just outside the northeastern boundary of the facility. The stormwater outfall flows into Mission Ditch, which discharges into Pringle Creek, a tributary of the Willamette River. While another stormwater detention pond is located directly north of FTA 01, no fire training activities or AFFF related releases were ever reported at this pond.

FTA 02 is the Open Field area. From approximately 1989 through 1991, annual fire training activities occurred in this open field, west of Hangar 1. Similar to the fire training activities that occurred at FTA 01, burning of wood and other organic debris would occur at this location annually. A firetruck with an AFFF tank capacity of approximately 50 gallons would be used during these annual training events; however, exact AFFF quantities used during each event and concentration of AFFF are unknown. Several stormwater catch basins are located along the east perimeter of the grassy FTA. These catch basins collect stormwater that is then discharged into Mission Ditch, just outside the northeast boundary of the facility. Mission Ditch discharges into Pringle Creek, a tributary of the Willamette River.

FTA 03 is the Helicopter Training Area. During interviews with the former Salem Training Site Manager, it was noted that annual helicopter training events occurred at Salem AASF from approximately 1998 until 2014. A 1,000-gallon water tank and a 35-gallon AFFF tank were used during these events; however, it is only estimated that approximately 5 gallons of concentrated AFFF were used during each of these training events. While a designated area to drop the AFFF and water mixture was not established during training activities, it was estimated that during training, the AFFF and water mixture were commonly released to the west of the flightline, surrounding FTA 01 and FTA 02.

Ground-disturbing activities at AOI 1 could result in site worker and construction worker exposure to potential PFAS contamination via ingestion of surface soil or inhalation of soil

particles (dust). 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 for AOI 1.

While the surface water intakes for the City of Salem drinking water are all located upgradient of the AASF, private drinking water wells are located less than a mile downgradient from the AASF facility. Additionally, the Willamette River and its surrounding tributaries are popular for recreational activities. Because private drinking water wells are located downgradient of the AASF and recreational use of the surrounding surface water bodies is heavy, the ingestion exposure pathway for groundwater, surface water, and sediment is considered potentially complete for off-post residents and recreational users at AOI 1. Based on groundwater and surface water flow patterns, identified adjacent sources are not anticipated to have an impact on the Salem AASF. The CSM for AOI 1 is shown on **Figure 6-2**.

6.2 AOI 2 Non-FTAs

AOI 2 is the Non-FTAs. Several of the former non-FTAs previously identified in Section 3, Hangar 2, Former Chrome Plating Facility, Wash Pads, and Ramp Area, are located within AOI 2. Based on groundwater and surface water flow direction, similar potential historic AFFF releases, and close proximity to one another, these non-FTAs were grouped into one AOI. A description of each of these non-FTAs and their relation to potential PFAS exposure are described below.

According to interviewee's, Hangar 2 historically stored a firetruck with an AFFF tank within a designated bay. This truck would routinely participate in fire training activities involving AFFF from approximately 1974-1988. Commonly, firetrucks are washed following fire training activities to remove any potential residual AFFF left on the truck. While a designated area for the washing of this truck could not be confirmed, washing likely occurred at the storage location within Hangar 2. The storage bay area of Hangar 2 does not have floor drains, so any potential AFFF that was rinsed from the truck during washing would have likely flowed onto the nearby paved asphalt area outside the bay door. Additionally, this hangar currently has six empty TriMax tanks stored within a closed bay. These tanks have been stored in this hangar since December 2017; however, it is unknown if other TriMax tanks were previously stored inside this hangar.

The Former Chrome Plating Facility is located between Hangar 2 and Hangar 3. Previous operations at this facility included chrome and metal plating activities, which commonly involve the use of PFAS-containing mist suppressants. While there is no knowledge of any AFFF-related activities at this previous plant, given the timeframe of use, previous chrome plating activities, and historic presence of hexavalent chromium at this location, it is possible that PFAS-containing materials were used or stored at some point during the operational history of the plant. Portions of the former facility boundary now consist of paved asphalt areas and small grass patches.

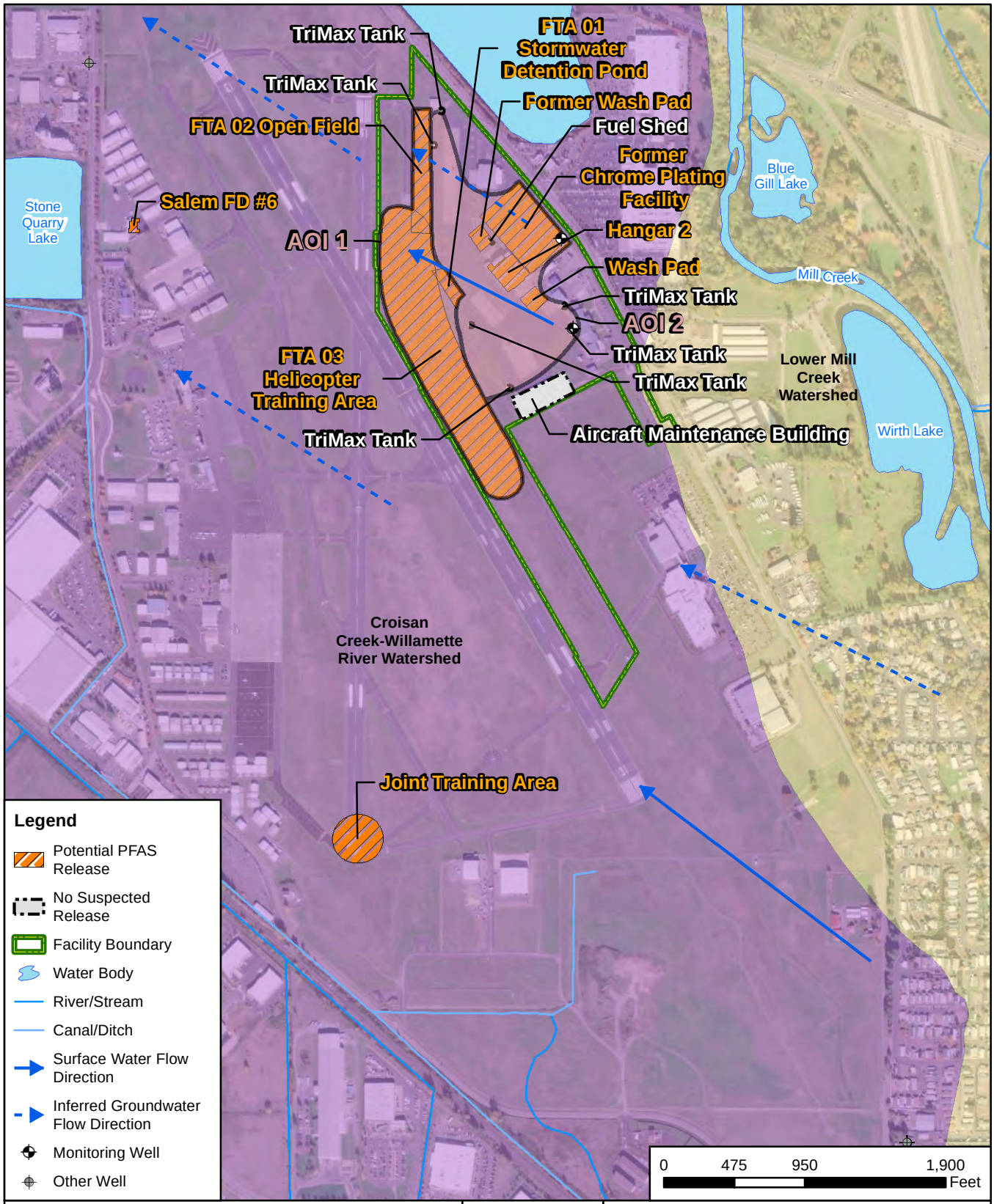
The Wash Pad is designated for helicopter and other aircraft washing, and was installed in 2002. Following annual helicopter training events, the AFFF tanks from the helicopter would be rinsed and washed at the wash pad. The concrete wash pad area contains drains that collect any residual and control flow based on a demand valve. When the valve is not actuated, residual flows to the stormwater system. When the valve is actuated, residual flows through an OWS and eventually an evaporator. The evaporator collects and stores any solid residual, while liquid residual is discharged through the nearby offsite stormwater outfall. The stormwater outfall discharges to Mission Ditch, which then flows into Pringle Creek, a tributary of the Willamette River.

The Ramp Area consists mostly of paved asphalt area outside the hangars. As discussed above, firetrucks were routinely washed following training activities. Given the long-term storage of a firetruck with Hangar 2 and the lack of drains within the storage bay, it is likely this truck was washed on the ramp area just outside of Hangar 2. The current wash pad was not installed until 2002; therefore, it is likely that the washing of firetrucks following AFFF-related training activities occurred at the previous wash pad area and the surrounding paved vicinity of the ramp area. Additionally, since December 2017, there have been six full TriMax tanks located throughout the ramp area of the Salem AASF. These tanks are inspected monthly by DRMO and are replaced as needed. Based on aerial photography review, various TriMax tanks have been stored outside since at least 2005. No spills or released have been reported from any of the tanks.

Activities at AOI 2 include potential washing of firetrucks following fire training activities with AFFF, potential historic presence of PFAS-containing mist suppressants, known and potential washing of aircraft at two concrete wash pads, and other potential releases within the paved ramp area.

Ground-disturbing activities at AOI 2 are likely to result in site worker and construction worker exposure to potential PFAS contamination via ingestion of surface soil or inhalation of soil particles (dust). Additionally, ground-disturbing activities to subsurface soil at AOI 2 are also likely to 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 for AOI 2.

Following drainage to the oil water separator, liquid residual from the wash pad is discharged to the stormwater outfall at Mission Ditch, just outside the facility boundary. While the surface water intakes for the City of Salem drinking water are all located upgradient of the AASF, private drinking water wells are located less than a mile downgradient from the AASF facility. In general, groundwater and surface water flow within the vicinity of the Salem AASF is generally west/northwest, following the watershed discharge and toward Mission Ditch. The Willamette River and its surrounding tributaries are popular for recreational activities. Because private drinking water wells are located within a mile downgradient of the AASF and recreational use of the surrounding surface water bodies is heavy, the ingestion exposure pathway for groundwater, surface water, and sediment is considered potentially complete for off-post residents and recreational users at AOI 2. Based on groundwater and surface water flow patterns, identified adjacent sources are not anticipated to have an impact on the Salem AASF. The CSM for AOI 2 is shown on **Figure 6-2**.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at McNary Field Salem AASF, OR			
REVISED	5/30/2019	GIS BY	MS	5/30/2019
SCALE	1:11,400	CHK BY	TK	5/30/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/30/2019

N

Areas of Interest

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Figure 6-1

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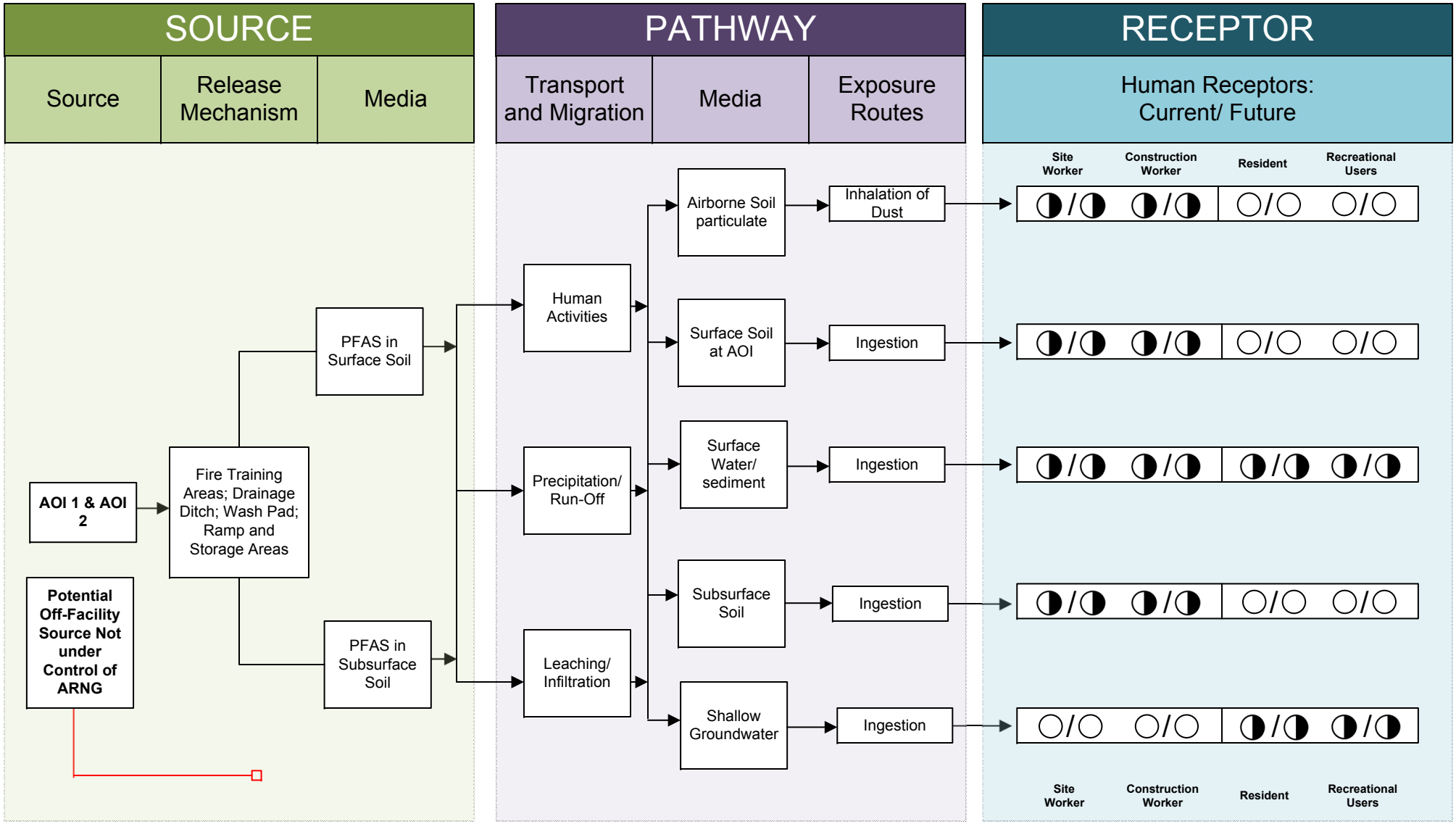


LEGEND

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

Figure 6-2
Conceptual Site Model
AOI 1 and AOI 2
Salem AASF #1

7. Conclusions

This report presents a summary of available information gathered during PA efforts on the use and storage of AFFF at the AASF. The PA findings are based on personnel interviews, environmental investigations and reports, historical documents, and the VSI.

7.1 Findings

Two AOIs related to a PFAS release were identified (**Table 7-1**) at the Salem AASF during the PA (**Figure 7-1**).

Table 7-1: AOIs at Salem AASF #1

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Former FTAs	ORARNG & Salem Fire Department	~1989-2017
AOI 2	Non-FTAs	ORARNG & Eyerly Aircraft Company	~1940s-2017

Based on the AFFF releases at these AOIs, there is potential for exposure to PFAS contamination in surface soils to site and construction workers, nearby residents, and recreational users, and in subsurface soils to site and construction workers via inhalation and ingestion. There is also the potential for exposure to PFAS contamination in surface water and sediment for all receptors via ingestion, and in shallow groundwater for all receptors due to flow patterns and the close proximity of private drinking water wells.

The following areas discussed in **Section 2** through **Section 5** were determined to have no suspected PFAS releases to the environment (**Table 7-2**).

Table 7-2: No Suspected Release Areas

No Suspected Release Area	Used by	Rationale for No Suspected Release Determination
Aircraft Maintenance Building	ORARNG and Salem Fire Department	Several interviewees' stated that only water was used for these trainings.
Fuel Shed	ORARNG	According to interviews, the 5-gallon buckets of AFFF were unopened and unused during the duration of storage in the fuel shed. No spills or releases were reported in this fuel shed.

7.2 Uncertainty

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 Salem AASF. Historically, documentation of PFAS use was not required because PFAS were considered benign. Records were not typically kept by the facility or available during the PA on the use of PFAS in emergency response or by non-ORARNG units during training events at the AASF.

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. 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. 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, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected. **Table 7-3** summarizes the uncertainties associated with the PA.

Table 7-3: Uncertainties

Area of Interest	Source of Uncertainty
All AOIs	Exact timeframe of use at the AOIs is unknown or estimated. Based on interviewee knowledge and review of historical documents, information regarding any associated AFFF-activity was only available from approximately 1974 until present. No information relating to AFFF was available prior to 1974.
Stormwater Detention Pond	Fire training events at this location were undocumented; therefore, exact quantities of AFFF used during these events is estimated based on interviewee knowledge. The timeframe of fire training activities at this location is estimated between 1999 and 2017; however, exact years are unknown.
Open Field	The type, quantity, and concentration of AFFF potentially used at this AOI are unknown. The exact location of the training events that occurred at this FTA is unknown; therefore, the FTA boundary is estimated based on interviewee knowledge.
Helicopter Training Area	The type, quantity, and concentration of AFFF potentially used at this FTA are unknown. The exact location where the AFFF tank on the helicopter was filled prior to trainings is unknown. The storage location of the 5-gallon buckets used to fill the tank is also unknown.
Wash Pads	Interviewees stated that the current wash pad area was used to wash helicopters following AFFF-related fire training exercises; however, the timeframe of the training exercises began before the installation of the wash pad. It is unknown if helicopters were washed at the former wash pad area following training events prior to the installation of the current wash pad.
Hangar 2	It is unknown whether any potential releases of AFFF during storage or washing of AFFF-capable firetrucks historically occurred at this location. Given there are no floor drains located in the designated storage area for a formerly stored AFFF-capable firetruck, it is likely that washing of the truck following

Area of Interest	Source of Uncertainty
	fire training activities occurred within or directly outside of Hangar 2.
Former Chrome Plating Facility	The previous facility which conducted chrome plating operations is no longer present. While PFAS is commonly used in metal plating operations, there is no knowledge of AFFF fire suppression systems or PFAS-containing mist suppressants at this plant prior to demolition.
TriMax Storage Areas	The TriMax 30 tanks located throughout the facility, mostly near the flightline, are inspected annually. Releases from these tanks only occur in designated areas for fire training activities. No spills or unintended releases have been reported from any of the tanks located outside at the various storage areas.

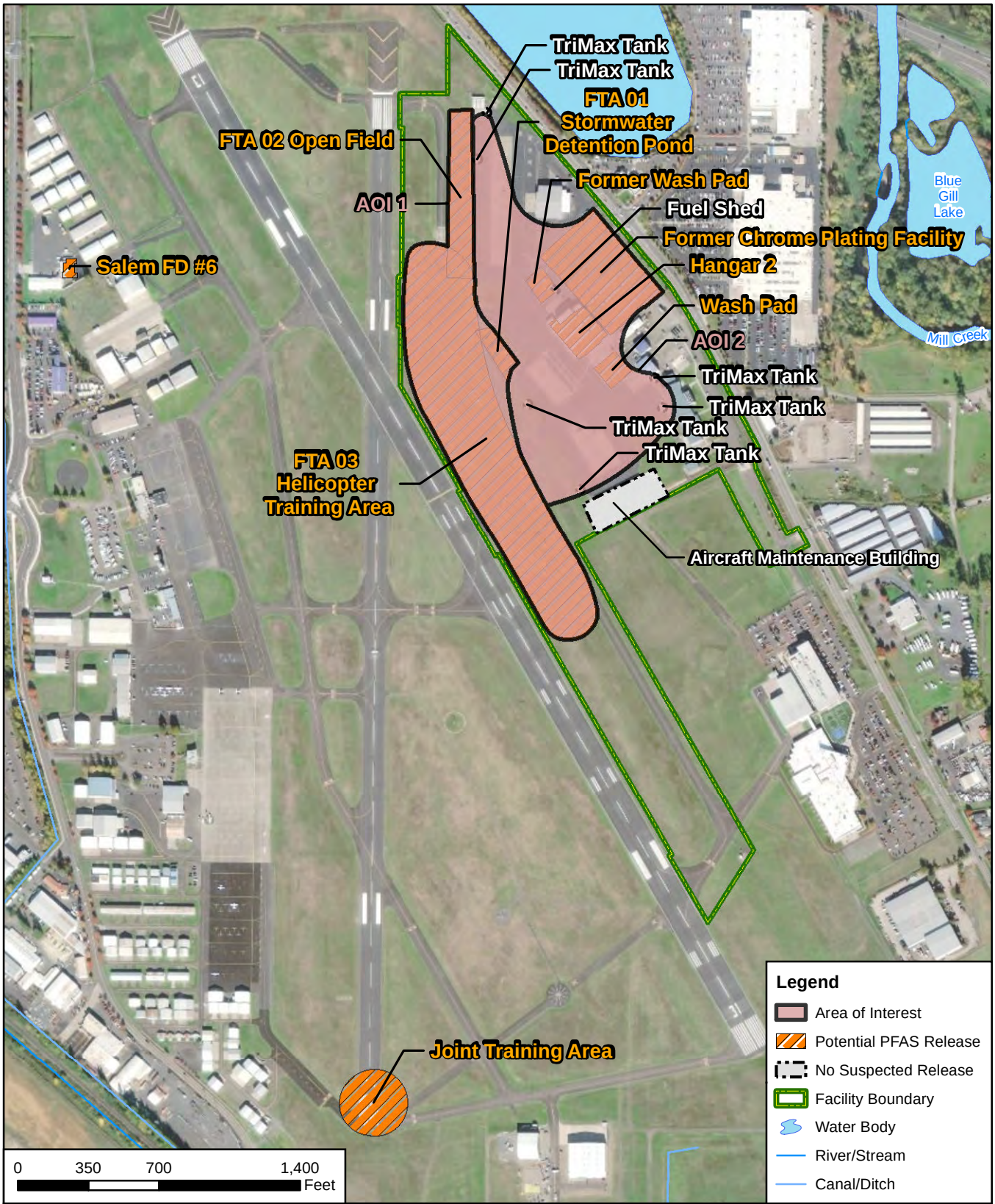
7.3 Potential Future Actions

Interviews and records (covering 1974 to present) indicate that current or former ARNG activities may have resulted in potential PFAS releases at the two AOIs identified during the PA. Based on the CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater, surface water, and sediment at these AOIs. **Table 7-4** summarizes the rationale used to determine if the AOI should be considered for further investigation under the CERCLA process and undergo a Site Inspection (SI).

ARNG will evaluate the need for an SI at AOIs 1 and 2 at Salem AASF based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources.

Table 7-4: PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1 Former FTAs	44°54'40.40"N 123° 0'6.62"W	Use of AFFF during fire training activities from 1989 to 2017.	Proceed to an SI, focus on soil, groundwater, surface water, sediment
AOI 2 Non-FTAs	44°54'50.02"N; 122°59'58.35"W	Activities included washing of firetrucks after training, potential presence of PFAS-containing mist suppressants, washing of aircraft at two concrete wash pads, and other potential releases during storage.	Proceed to an SI, focus on soil, groundwater, surface water, sediment



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at McNary Field Salem AASF, OR			
REVISED	5/30/2019	GIS BY	MS	5/30/2019
SCALE	1:8,400	CHK BY	TK	5/30/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/30/2019

Summary of Findings

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Figure 7-1

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Appendix A
Data Resources

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

Salem AASF Leases, Licenses, and Permits

- 1971 Bargain and Sale Deed between the City of Salem and the State Military Department
- 1985 Bargain and Sale Deed between the City of Salem and the State Military Department
- 1986 Airport Lease Agreement between the City of Salem and the State of Oregon Military Department
- 1987 Airport Lease Agreement between the City of Salem and the State of Oregon Military Department
- 1989 Airport Lease Agreement between the City of Salem and the State of Oregon Military Department
- 1994 Airport Lease Agreement between the City of Salem and the State of Oregon Military Department
- 2009 Airport Lease and Access Agreement between the City of Salem and the State of Oregon by and through the Oregon Military Department
- 2012 Easement and Equitable Servitude from Oregon Military Department to Oregon Department of Environmental Quality
- 2012 Easement and Equitable Servitude between Jack. V Everly Revocable Trust and the State of Oregon through the Oregon Department of Environmental Quality
- 2012 Consent Order for Closure of Eyerly Aircraft Site from Oregon Military Department to Oregon Department of Environmental Quality
- 2012 Statutory Warranty Deed between Jon V. Eyerly and the State of Oregon by and through the Oregon Military Department

Salem AASF PFAS Release Information

- 2004 Tri-Max Material Safety Data Sheet

Previous Investigations Completed at the Salem AASF

- 1994 Salem District Proposed Resource Management Plan/Final Environmental Impact Statement, Volume I
- 2002 Site Assessment Survey No. 83-EH-5049A-02 Oregon Army National Guard Army Aviation Support Facility No. 1, Salem, Oregon
- 2006 AMEC Earth & Environmental, Inc. Phase II Environmental Baseline Study: Army Aviation Support Facility No. 1
- 2008 Site Development Plan, Oregon Military Department Salem Army Aviation Support Facility (AASF) #1 Master Plan
- 2011 Staff Report for the Recommended Remedial Action for the Eyerly Aircraft Site

Salem AASF Installation Maps

- 2005 Jack Eyerly Trust Property Remediation Sub Areas
- 2006 Former Eyerly Aircraft Property
- 2018 US Fish and Wildlife Service Wetlands Map – Salem AASF 1

2018 Site #41C05 McNary Field Salem AASF

Salem As-Builts

- 1971 Hangar 1 As-Built Construction Plans
- 1975 Hangar 2 As-Built Construction Plans
- 1991 Hangar 3 As-Built Construction Plans
- Former Wash Pad Location As-Built

Salem AASF Correspondence

- 2018 Confirmation of no AFFF use Correspondence

Salem AASF EDR Report

- 2018 Salem AASF Environmental Data Resource Report

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility: Salem AASF #1
Interviewer: [redacted]
Date/Time: 9/13/18

Interviewee: [redacted] **Title:** OMD Environmental Manager / OMD Cultural Resources Mgr. **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

1. Roles or activities with the Facility/years working at the Facility.

[redacted] Env. Manager for OMD (~15 years)

[redacted] Cultural Resource Manager @ Adair + Bilea (~15 years)

2. Where can I find previous facility ownership information?

[redacted] will gather + send lease/ownership info.

3. What can you tell us about the history of PFAS including aqueous film forming foam (AFFF) at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.

Maintenance
Fire Training Areas yes! old openfield; stormwater detention pond; helicopter training
Firefighting (Active Fire) N/A
Crash N/A
Fire Suppression Systems (Hangers/Dining Facilities) None
Fire Protection at Fueling Stations only TriMax tanks, no FSS
Non-Technical/Recreational/ Pest Management None
Metals Plating Facility Former chrome plating facility
Waterproofing Uniforms (Laundry Facilities) None
Other wash area for helicopters following trainings

4. Fill out CSM Information worksheet with the Environmental Manager.

5. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing the AFFF/suppression system? Do you have "As Built" drawings for the buildings?

No actual FSS in hangars; only portable TriMax 30 tanks

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

6. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam? If retrofitted, when was that done?

No | N/A

7. How is AFFF procured? Do you have an inventory/procurement system that tracks use?

Through USFPO; no set system, just order as necessary to avoid having to store foam

8. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?

To knowledge, only TriMax 30 tanks

9. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?

TriMax 30 tanks located throughout flightline
Empty TriMax tanks on-site; potentially in Hangar
Potentially 1 aircraft w/ AFFF tank but unsure

10. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

One FTA @ open grassy field (ask Mike Williams for details)
One FTA @ SW detention pond (ask Dave Wetter for details)

Hangar drains = Drains → sanitary sewer → SW
(city SW / PPP joint w/ ARNG)

Wash Pad (concrete) = Pad → underground vault → OWS evaporator building → sludge sent as haz waste
→ SW

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

11. When a release of AFFF occurs during a fire training exercise, now and in the past, how is the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

Not aware of cleanup procedures

12. Can you recall specific times when city, county, and/or state personnel came on-post for training? If so, please state which state/county agency or military entity? Do you have any records, including photographs to share with us?

No knowledge

13. Did military routinely or occasionally fire train off-post? List the units that you can recall used/trained at various areas.

May train @ nearby airport, but unsure

14. Did individual units come with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

unsure

15. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

None occurred to knowledge

None / no emergency response incidents
Salem FD #6 (see map) would respond to fires
↳ has 2 trucks w/ AFFF tanks (several releases reported + nozzle testing; dates unknown)

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

16. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

No
AFFF would not be used (to knowledge)

17. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

No

18. Are there mutual aid/use agreements between county, city, and local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement?

No; only verbal agreements

19. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste treatment plants, and AFFF ponds)?

Salem AASF is where trucks are filled from Adair, where wash pad/station is located; manual transfer; no knowledge of spills; timeframe unknown
Trucks stored @ Salem Reserve Center

20. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

No

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

21. Are there past studies you are aware of with environmental information on plants/animals/ groundwater/soil types, etc., such as Integrated Cultural Resources Management Plans or Integrated Natural Resources Management Plans?

Yes; see data resources

22. What other records might be helpful to us (environmental compliance, investigation records, admin record) and where can we find them?

Previous EBS / investigations from former carnival equipment operation

23. Do you have or did you have a chrome plating shop on base? What were/are the years of operation of that chrome plating shop?

Yes; former carnival ~~rid~~ equipment production plant (w/ old chrome plating) operational ~1940s-2008
ARNG acquired ~2010 following PA/RI/FS w/ DEQ

24. Do you know whether the shop has/had a foam blanket mist suppression system or used a fume hood for emissions control? If foam blanket mist suppression was used, where was the foam stored, mixed, applied, etc.?

Unsure, but possible; facility building/operations no longer exist

25. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

Used for annual training (empty tanks picked up by DRMO)

PA Interview Questionnaire - Environmental Manager

Facility:_____
Interviewer:_____
Date/Time:_____

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?

[redacted]

PA Interview Questionnaire - Other

Facility: Rilea
Interviewer: [redacted]
Date/Time: 9/11/18

Interviewee: [redacted] **Title:** Range Operations Mgr (Retired) **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:

Previous Range Operations Manager for Rilea (now retired) (~1989-unknown)

↓

(has knowledge of activities @ Salem AASF)

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
Previous FTA @ Salem AASF #1 (in grassy area/ openfield - see map)	Use
	Procurement
	Disposition
FTA ~1989-1991	Storage (Mixed)
would burn wood/debris (organic) + suppress w/ AFFF (1 training/year)	Storage (Solution)
trucks ~~(probably from SRE)~~ would come filled w/ AFFF; concentration + quantity unknown	Inventory, Off-Spec
	Containment
	SOP on Filling
↓	Leaking Vehicles
truck had ~50 gallon capacity + stayed @ Salem AASF ~1989-1994 or 1995 (F30C firetruck); unsure if entire tank would be released during each event	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: Salem AASF #1
Interviewer: [redacted]
Date/Time: _____

AGSE

Interviewee [redacted]
Title: Aviation + Ground Support
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 [redacted]

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

Fueler + aviation and ground support manager (employed ~34 years total; on/off @ Salem AASF)

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
6 TriMax 30 tanks along flightline (all full)	Use
6 TriMax 30 tanks stored inside Hangar 2 (all empty)	Procurement
	Disposition
Release ~1 gallon concentrate from each of the 6 tanks every year (nozzle practice/training)	Storage (Mixed)
↳ occurred @ designated location @ Stormwater Detention Pond	Storage (Solution)
Has been occurring ~15-20 years (during winter/~December; last release Dec. 2017)	Inventory, Off-Spec
TriMax on flightline inspected monthly (by DRMO)	Containment
Empty TriMax originated from flightline following last training in 2017	SOP on Filling
City of Salem FD will conduct joint barrel burn annually @ SW detention pond outside Hangar 2; used ~1 gallon/tank	Leaking Vehicles
	Nozzle and Suppression System Testing
	Dining Facilities
	Vehicle Washing
	Ramp Washing
	Fuel Spill Washing and Fueling Stations
	Chrome Plating or Waterproofing

Also joint training area @ Salem Airport (no other known details regarding dates/quantity)
↓
w/ Salem FD

PA Interview Questionnaire - Other

Facility: Salem AASF 1
Interviewer: [redacted]
Date/Time: 9/20/18 (phone interview)

Interviewee: [redacted] **Title:** Training Site 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:

current Training Site Manager @ Salem AASF
Previous State Aviation Officer

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
Annual fire training activities w/ helicopter every May (~1998-2014) Equipped w/ 1,000-gallon H_2O tank 35-gallon AFFF tank only 5-gallons of AFFF concentrate (% unknown) added to tank at a time; never used all of 35-gallon capacity during each event 5-20 flights around facility w/ small drops occurring @ each flight somewhat designated area for these drops; however, very estimated	Use Procurement Disposition Storage (Mixed) Storage (Solution) Inventory, Off-Spec Containment SOP on Filling Leaking Vehicles Nozzle and Suppression System Testing
Off-site FTA @ Salem Airport (@ end of 34 Runway) w/ Salem FD; used firetrucks to practice spraying; unsure of exact timeframe, quantity, concentration	Dining Facilities Vehicle Washing Ramp Washing Fuel Spill Washing and Fueling Stations
same annual training w/ Salem FD also occurred @ covered aircraft maintenance building ↘ only H_2O, no AFFF	Chrome Plating or Waterproofing

[redacted] flew helicopter

Appendix B.2
Visual Site Inspection Checklists

Visual Site Inspection Checklist

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

Recorded by: [redacted]

ARNG Contact: [redacted]

Date and Time: 9/10/18

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

Source/Release Information

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

Site / Area Acreage: Stormwater detention pond

Historic Site Use (Brief Description): owned+operated by Salem Airport (1930-1940); then by Navy 1940-1971; OMD 1971-Present

Current Site Use (Brief Description): Aircraft movement/support to medical evacuation; fire training activities @ Salem

Physical barriers or access restrictions: Access to AASF is restricted to base personnel; fence around perimeter, included SW detention pond

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 activities (~2000/2002-2017); nozzle tests w/ AFFF + controlled burns (likely not PFAS containing foam)

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

Commercial: Lowes, Walmart, grocery store
Residential
Former plating operation on currenty owned property

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

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

adjacent to Salem Municipal airport; flightline located on facility

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:

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:

NE corner to Mission Ditch → Pringle Creek → Willamette River

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

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

Drains flow towards detention ponds → Mission Ditch

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

3a. If so, please note the location:

MW on site
DW wells close to site

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.

Salem Municipal Airport

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

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

Salem Municipal Airport - AFFF training @ end of runway 34
Salem FD #6

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):

Hangar 3 constructed 1991; wash pad installed ~2002; former chrome plating facility/buildings no longer exist

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

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

Just grassy areas; some vegetation w/in stormwater detention pond

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:

No but detention ponds can fill up during heavy rain/snow events

Receptor Information

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

1a. If so, please note to what extent:

Gated entry/restricted; fence surrounding facility

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:

Residents to nearby N, NW, E, SE, NE

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 All surface water / runoff collected in drains and/or ponds; Drains located inside pond; all lead to Mission Ditch → Pringle Creek → Willamette River

SWDP = stormwater detention pond

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
#5	9/10/18 SWDP	Facing W, towards SWDP
#6	9/10/18 SWDP	Drain just outside SWDP; collects SW → SWDP; facing NE
#7	9/10/18 SWDP	Facing NW; drain outside SWDP can be seen
#8	9/10/18 SWDP	Facing N; one of 2 storm drains inside of SWDP; vegetation in pond can be seen

Visual Site Inspection Checklist

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

Recorded by:

ARNG Contact:

Date and Time: 9/10/18

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

Source/Release Information

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

Site / Area Acreage: Open Field (previous FTA)

Historic Site Use (Brief Description): land operated by Navy until '71; OMD '71 - Present; aircraft support/fire training

Current Site Use (Brief Description): Aircraft support; fire training

Physical barriers or access restrictions: Access to AASF restricted to facility personnel; fence around perimeter

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 activities/controlled burns w/ AFFF for fire suppression (~1989-1991)

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
Commercial: Lowes, Walmart
Residential
Former chrome plating facility on land currently owned by OMD

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

4a. If yes, provide a description of the airport/flightline tenants:
FTA near flightline/across property boundary to Salem Municipal 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:

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:

NE towards Mission Ditch → Pringle Creek → Willamette River

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

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

Drains flow towards detention ponds → NE to Mission Ditch

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

3a. If so, please note the location:

MW on site
DW wells close to site

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.

Salem Municipal Airport

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

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

Salem Municipal Airport - AFFF (training) @ end of runway 34
Salem FD #6

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):

former chrome plating facility/ assoc. buildings no longer exist

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

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

Just grassy areas; vegetation within stormwater detention ponds

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:

No but detention ponds can fill up during heavy rain/ snow events

Receptor Information

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

1a. If so, please note to what extent:

Gated entry/ restricted; fence surrounding facility

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:

Residents to nearby N/NE/NW and E/SE

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 All surface water/runoff → drains → SWDP → Mission Ditch → Pringle Creek → Willamette River

SWDP - stormwater detention pond

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
# 9	9/10/18 Flightline	Facing NW; open field where previous FTA can be seen along w/ drains
#10	9/10/18 Flightline	Facing NW; open field where previous FTA can be seen along w/ TriMax + nearby fueling station

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Salem AASF #2

Why has this location been identified as a site?

Multiple AFFF releases previously occurred on this property. A former chrome plating facility is also located on what is now property owned by ORARNG.

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

Yes, several releases reported at the nearby Salem Fire Department (#6) and joint fire trainings at the Salem Airport

Training Events

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

If so, how often? Various dates at multiple locations, ranging between 1989 and 2017

How much material was used? Is it documented? Estimated approximately 6 gallons per year at stormwater detention pond; however, quantities at other locations unknown. All releases were undocumented.

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? East towards Willamette River tributaries (Wirth Lake, Blue Gill Lake, Mission Ditch, Mill Creek)

Average rainfall? 40 inches/year

Any flooding during rainy season? No

Direct or indirect pathway to ditches? Direct pathway to ditches

Direct or indirect pathway to larger bodies of water? Indirect pathway

Does surface water pond any place on site? Yes, two stormwater detention ponds

Any impoundment areas or retention ponds? Yes, two stormwater detention ponds

Any NPDES location points near the site? No

How does surface water drain on and around the flight line? Surface water within the AASF flows towards the storm drain system, which is located on the paved western edge of the facility. Stormwater and surface water runoff are directed into two stormwater detention ponds which discharge to Mission Ditch, just outside the southeast boundary of the facility

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? East/southeast

Depth to groundwater? Typically 12-25 bgs in the area surrounding the facility

Uses (agricultural, drinking water, irrigation)? Drinking and industrial

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? Yes

Is groundwater used for drinking water? Yes

Are there drinking water supply wells on installation? No

Do they serve off-post populations? N/A

Are there off-post drinking water wells downgradient? Yes, within one mile

Waste Water Treatment Plant:

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

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? Yes, sludge waste from the oil water separator is sent as hazardous waste for disposal once the reservoir is full.

Is surface water from potential contaminated sites treated? No, only surface water in/around the wash pad area, which is directed to the oil water separator. All other surface water/stormwater flows directly into onsite detention ponds which then flow to Mission Ditch, directly offsite.

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go? Potential previous firefighting activities involving helicopters involved washing at the wash rack, which has drains connected to the oil water separator which then discharges liquid waste to Mission Ditch, just outside the southeast boundary of the facility.

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? No firetrucks on site with AFFF; all firefighting activity occurs at local Salem Fire Department #6, west of the facility. Interviewee's believed nozzles are tested directly on ground outside of fire station.

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker: Yes

Construction Worker: Yes

Recreational User: Yes

Residential: Yes

Child: Yes

Ecological: Yes

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?
Residential and industrial areas, shopping centers, schools, hospital, churches,

Documentation

Ask for Engineering drawings (if applicable): Done

Has there been a reconstruction or changes to the drainage system? When did that occur?: No

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 1

Description:

Facing south. One of the six full TriMax 30 tanks, collocated with non-PFAS containing portable fire extinguishers, located along the flightline.

Photograph No. 2

Description:

Facing East. The building directly in front is Hangar 3. The TriMax 30 tank is stored outside, to the left of the hangar. The small building just to the left of the TriMax 30 houses the oil water separator (OWS) evaporator.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 3

Description:

Floor drains inside of Hangar 3. These drains lead to the local sanitary sewer which is sent to the Willow Lake Wastewater Treatment Plant before being discharged into the Willamette River.

Photograph No. 4

Description:

Facing Southeast. One of the two grate drains present at the south end entrance of Hangar 2. The trench drains discharge to the OWS..

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 5

Description:

Facing West. One of the two stormwater management ponds located at Salem AASF #1.

Photograph No. 6

Description:

Facing Northeast, towards Hangar 2. One of the stormwater drains directly outside the stormwater management pond..

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 7

Description:

Facing Northwest towards AOI 1. One of the storm drains directly outside the stormwater management pond.
.

Photograph No. 8

Description:

Facing North. One of the two storm drains located within the stormwater management pond. This storm drain leads to the stormwater outfall just outside the northeast boundary of the facility.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 9

Description:

Facing Northwest, towards AOI 2. Stormwater and surface runoff collected in this drain discharges to the stormwater outfall just outside the northeast boundary of the facility.

Photograph No. 10

Description:

Facing Northwest. One TriMax 30 tank located within AOI 2, the current fueling station can be seen on the right hand side of the picture.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 111

Description:

Facing Southwest. Location of the fueling point located on the northern tip of the facility.

+

Photograph No. 112

Description:

Facing Southeast. Pictured is Mission Ditch, where all stormwater and surface runoff from the facility is discharged. This off-site ditch flows west/northwest discharging into Pringle Creek, and eventually flowing into the Willamette River.

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Salem AASF #1	Salem, Oregon

Photograph No. 113

Description:

The previous firetruck storage area within Hangar 2. No drains are located within this storage area.

Photograph No. 14

Description:

Six empty TriMax 30 tanks stored within a non-climate controlled room of Hangar 2.