FINAL
Preliminary Assessment Report Orchard Combat Training Center, Boise, Idaho

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

February 2020

Prepared for:

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
amsl	above mean sea level
AOI	area of interest
AR	alcohol resistant
ARNG	Army National Guard
ASP	Ammunition supply point
bgs	below ground surface
BLM	Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	conceptual site model
FTA	fire training area
IDARNG	Idaho Army National Guard
IED	Installations and Environment Division
NCO	Non-Commissioned Officer
OCTC	Orchard Combat Training Center
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site inspection
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VSI	visual site 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) (a suite of related chemicals), primarily in the form of aqueous film forming foam released during firefighting activities or training, although other PFAS sources are possible.

AECOM completed a PA for PFAS at Orchard Combat Training Center (OCTC) south of Boise, Idaho, to assess potential PFAS release areas and exposure pathways to receptors. OCTC is used by the Idaho ARNG (IDARNG) under a Memorandum of Understanding with the Bureau of Land Management (BLM) and Idaho Military Division (IDARNG, 2018). The OCTC property consists of 143,000 acres of training area for both the federal and state missions of the IDARNG.

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 27 February 2019
- Interviewed current OCTC personnel during the site visit including fire department personnel and operations staff
- Completed visual site inspections at known or suspected PFAS release locations and documented with photographs
- Developed a preliminary conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Areas of Interest (AOIs) and the facility

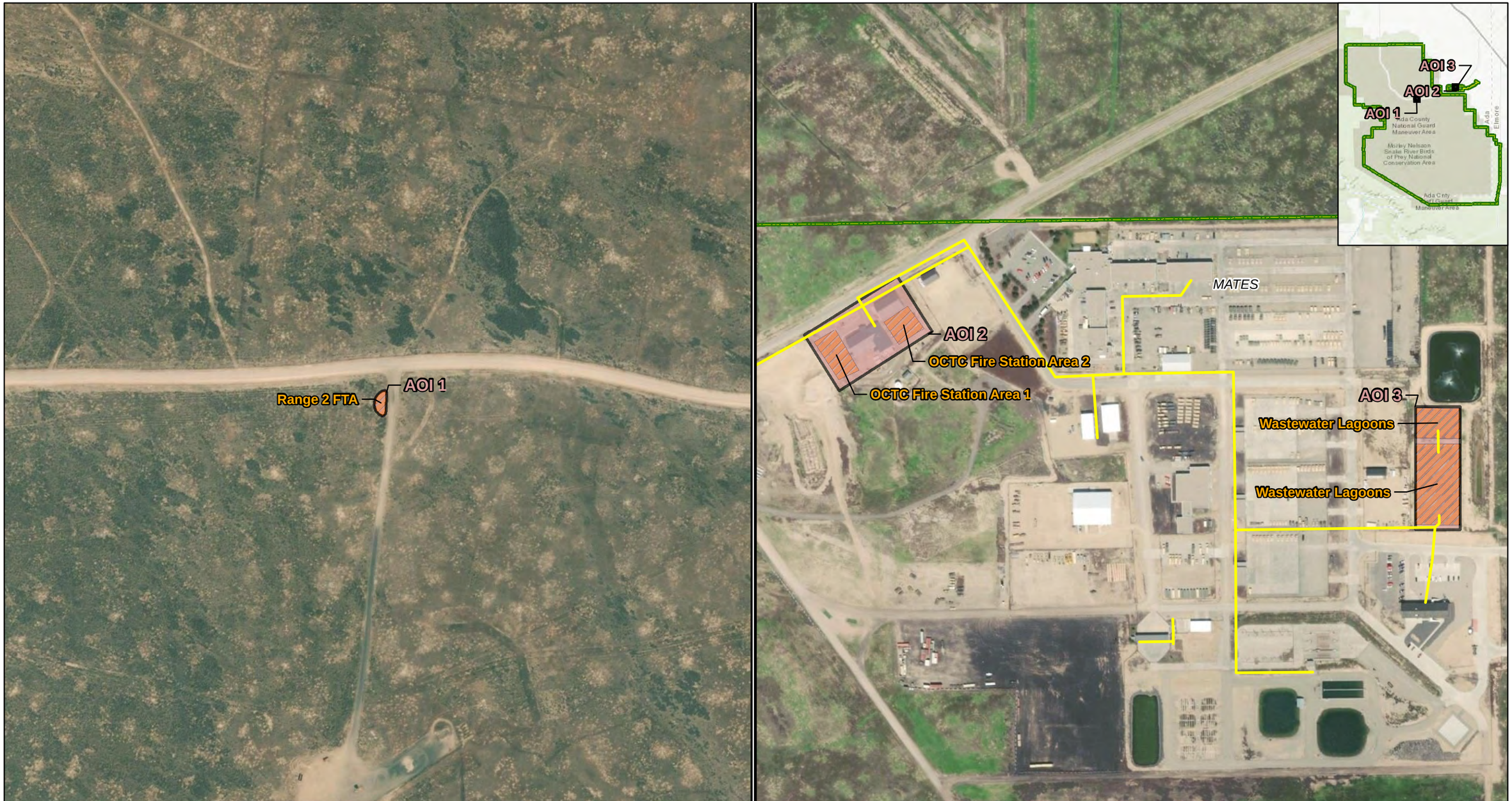
Three AOIs related to potential PFAS releases were identified at OCTC during the PA. The AOIs are shown on **Figure ES-1** and described in **Table ES-1** below:

Table ES-1 AOIs at OCTC

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Range 2 FTA	IDARNG	2014 to 2015
AOI 2	OCTC Fire Station	IDARNG	2013 to 2017
AOI 3	Wastewater Lagoons	IDARNG	2013 to 2017

Based on documented potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in surface soil to site workers, construction workers, and trespassers/recreational users via ingestion and inhalation; subsurface soil to construction workers via ingestion and inhalation; and surface water and sediment to site workers, construction workers, and trespassers/recreational users via ingestion. The preliminary CSM for the OCTC is shown on **Figure ES-2**.

Based on the US Environmental Protection Agency (USEPA) Unregulated Contaminant Monitoring Rule 3 data, it was indicated that no PFAS were detected in a public water system above the USEPA Health Advisory level within 20 miles of the facility.



CLIENT	ARNG			
Preliminary Assessment for PFAS at Ochard Combat Training Center, ID				
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SCALE	1:4,200	CHK BY	PD	12/16/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	12/16/2019

Legend

- Area of Interest
- Potential PFAS Release
- Facility Boundary
- Combine Sanitary and Stormwater Sewer

0 175 350 700 Feet

N

Summary of Findings

AECOM
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Figure ES-1

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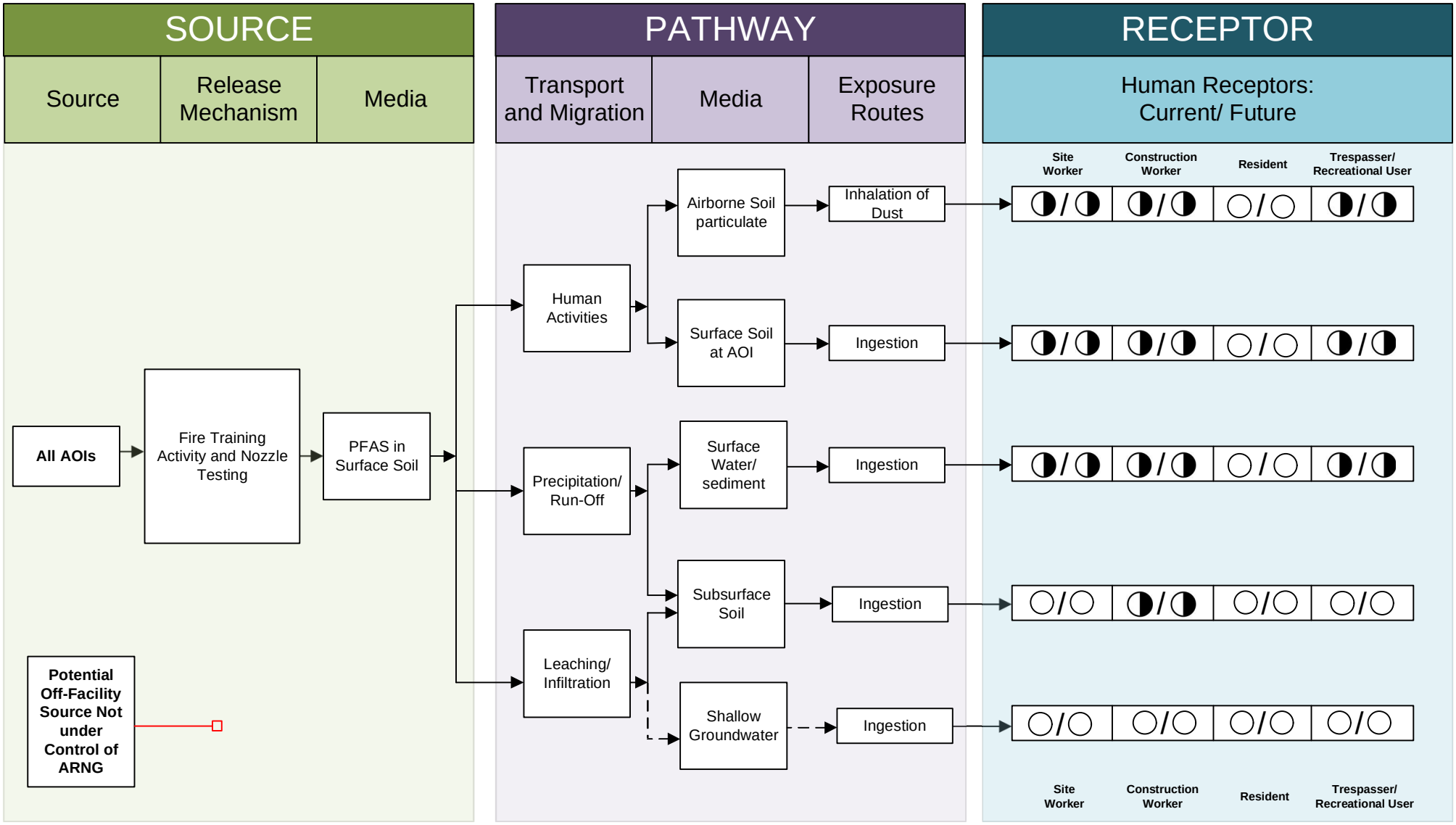


Note: The residential receptor refers to an off-facility receptor.

LEGEND

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

Figure ES-2
Preliminary Conceptual Site Model
Camp Navajo

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. The ARNG is assessing potential effects on human health related to processes at their facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily releases of aqueous film forming foam (AFFF) although other sources of PFAS 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 these PFAS compounds in the environment will vary. 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 Idaho does not currently have promulgated standards for PFAS in drinking water.

This report presents findings of a PA for PFAS at Orchard Combat Training Center (OCTC), Idaho, 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 additional locations where PFAS may have been released into the environment at OCTC (also referred to as the “facility”). 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 27 February 2019
- Interviewed current OCTC personnel during the site visit including Idaho ARNG (IDARNG) readiness staff, fire-fighting staff, and maintenance personnel
- Completed visual site inspections (VSI) at known or suspected PFAS release locations and documented with photographs
- Developed a preliminary conceptual site model (CSM) to outline the potential release and pathway of PFAS for the Areas 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** – **Preliminary Conceptual Site Model:** describes the pathways of PFAS transport and receptors at each AOI.
- **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 OCTC is a 143,307-acre training facility located approximately 13 miles south of Boise, Idaho (**Figure 1-1**). The OCTC is used as a training area by the IDARNG as authorized under Public Law 103-64 and the 2010 OCTC Memorandum of Understanding (MOU) between IDARNG and the Bureau of Land Management (BLM). The land remains publicly owned. Since the 1953, it has been used for military training (by IDARNG), livestock grazing, and public recreation (IDNG EMO, 2013).

The majority of IDARNG training activities are conducted at the facility. About 41,000 acres are designated as Impact Area, while the remaining approximate 102,000 acres are used for training maneuvers. The training activities are mainly conducted to ensure military readiness.

1.5 Facility Environmental Setting

The OCTC is within the Snake River Valley. The ground surface is characterized by low rolling hills. The landscape has scarce vegetation, with all plants generally under 3 feet tall, and no tree species. The facility is also located entirely within the Morley Nelson Snake River Birds of Prey National Conservation Area. No wetlands or permanent surface water bodies exist at the OCTC (IDNG EMO, 2013).

1.5.1 Geology

The OCTC lies within the western portion of the Snake River Plain, which is a fault-bounded basin filled by volcanic flows and lake bed sediments that compose the Idaho Group (USGS, 1992). The Snake River runs through a deep gorge to the south of the OCTC.

The OCTC is almost entirely located within surficial Quaternary basalt deposits of the Snake River Group (**Figure 1-2**). Basalt ridges, buttes, cinder cones, and lava tubes punctuate the low rolling hills that define the OCTC. Elevations at the facility range from 3,000 to 3,500 feet above mean sea level. The basalt is generally overlain by 0–10 feet of alluvium or wind-blown sedimentary deposits. The young basalt deposits of the Snake River Group are generally 500–1,000 feet thick under the facility. Below the Snake River Group lies the Idaho Group of Tertiary to Quaternary age, which is comprised of subaerial and lacustrine sedimentary deposits and basalt deposits (USGS, 1992).

Although the Snake River Plain is bounded by faults, there is no evidence of major faulting within the OCTC (BSU & IDARNG, 2013).

1.5.2 Hydrogeology

The western Snake River Plain is typically characterized by Quaternary-aged alluvial deposits; however, young basalt deposits dictate the geology and physiography of the OCTC area. From hundreds up to a thousand feet of Quaternary to Tertiary Basalt deposits lie underneath the entirety of the OCTC. The water table can be up to 800 feet below ground surface (bgs) or deeper. In general, regional groundwater flows towards the Snake River, to the southwest, across the OCTC.

Wells drilled in the basalt deposits of the Snake River Group have some of the highest yields found in the country. Yields of 2,000 to 3,000 gallons per minute (gal/min) are common, and some wells with production as high as 7,000 gal/min have been observed. In general, transmissivity of the Snake River Group basalt packages is much higher than the transmissivity of the adjacent alluvial deposits (USGS, 1992).

Water movement in the young basalt aquifer is highly dependent on the heterogeneity of these volcanic deposits. Water flows horizontally through porous and permeable interflow zones in the basalt aquifers. An interflow zone consists of highly fractured vesicular basalt and cinders that compose the top part of one flow and the base of the overlying flow. Horizontal water movement can be several orders of magnitude higher in these zones than in other parts of the basalt aquifer. Water also moves vertically along joints and faults, which is dependent upon the degree of jointing and fracturing in the rock. Layers of dense basalt with extremely low hydraulic conductivity may act as localized confining units in some areas, causing anomalous water levels (USGS, 1992). Localized groundwater flow paths at the OCTC are not well understood, however, groundwater in the Snake River Valley area generally flows south towards the Snake River (USGS, 1996).

The facility draws drinking water from two wells in the Cantonment area. The Idaho Department of Water Resources well registry lists these two wells at total depths of 755 feet and 753 feet (IDWR, 2019). Static water levels for the two wells at the time of drilling were recorded at 491 feet and 479 feet, respectively. According to the driller's logs, both of these wells are partially screened in volcanic deposits and partially screened in underlying fluvial or lacustrine sediments (IDWR, 2019). Three additional potable water wells are located at OCTC as shown on **Figure 1-3**.

Downgradient of the facility, multiple wells of 'other/unknown' use and one domestic well are located within 6 miles of the facility boundary. Only one well, which is listed as 'other/unknown'

use, is located within 1-mile downgradient of the facility boundary. Wells with domestic, public supply, industrial, irrigation, and other/unknown uses are located outside of the facility's northeast boundary, which is upgradient of the groundwater flow direction (**Figure 1-2**).

Based on the USEPA Unregulated Contaminant Monitoring Rule 3 data, it was indicated that no PFAS were detected in a public water system above the USEPA Health Advisory level within 20 miles of the facility.

1.5.3 Hydrology

The OCTC lies within the Snake River watershed, which is broken up into a number of smaller watersheds within the facility boundaries (**Figure 1-3**). The Snake River runs to the south and southwest of the site; however, the OCTC has a very high rate of infiltration and no major surface water features. A few intermittent streams run for only a few hours 4-5 times per year during major storm events. Groundwater is generally 300 feet–600 feet bgs, or deeper, in the OCTC area. Some surface water is held in playa lake beds in the spring, but the playas are typically dry by May or June (IDNG EMO, 2013).

1.5.4 Climate

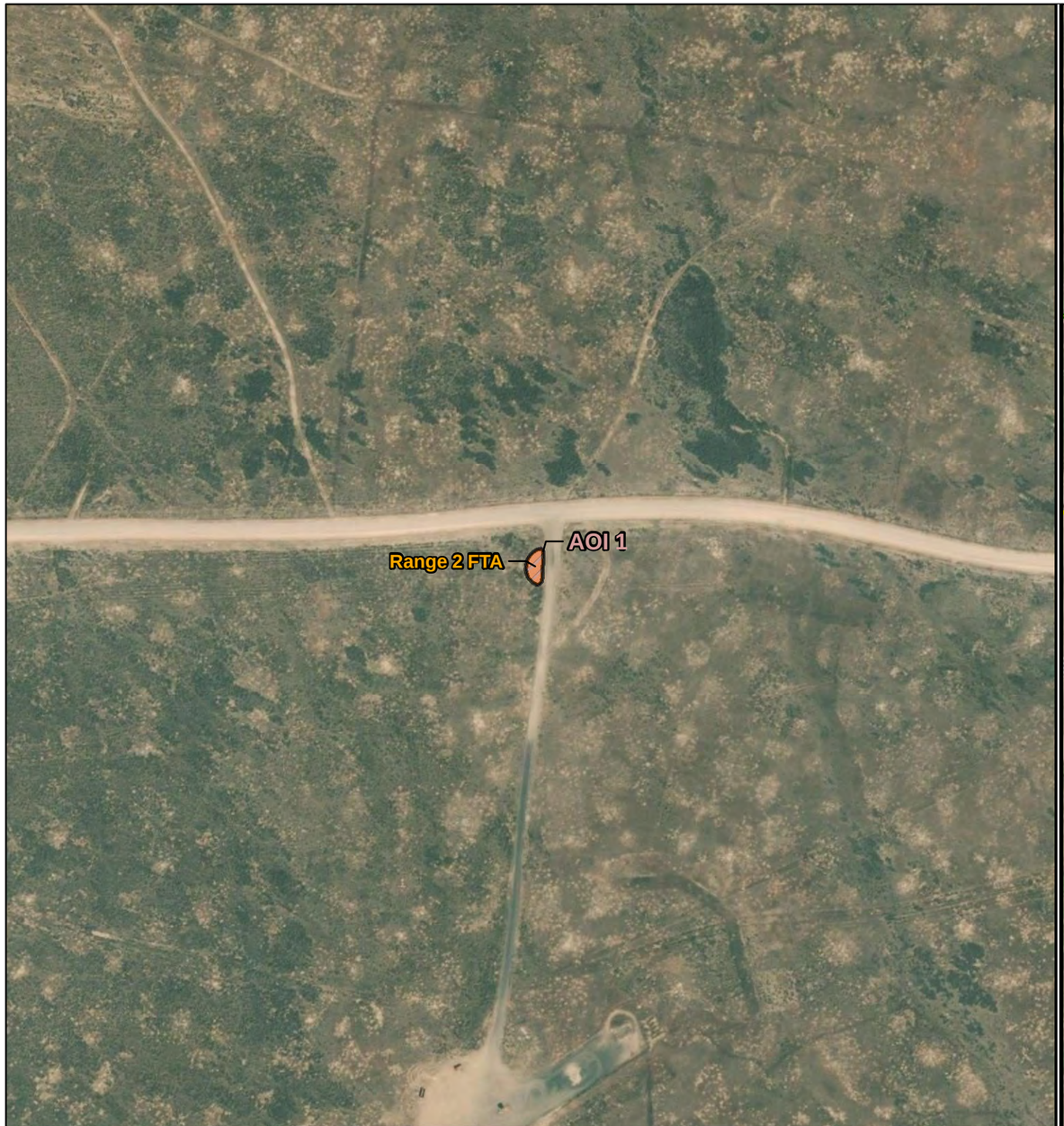
The OCTC is characterized by a semiarid climate. Mean annual temperatures in the area are approximately 52.5 degrees Fahrenheit (°F), with an average winter low of 25.6° F, and an average summer high of 87.5° F (NOAA, 2019). The Boise Mountains to the northeast and the Owyhee Mountains to the southwest greatly influence precipitation events on the Snake River Plain. The OCTC is divided in half by the rain shadow of the Owyhee Mountains. As a result, the southern half of the OCTC has historically received annual precipitation of 5-8 inches, while the northern half of OCTC has historically received annual precipitation of 7-12 inches (IDNG EMO, 2013). Due to the climate, land use activities, and scarce vegetation, wind erosion is common in the summer months.

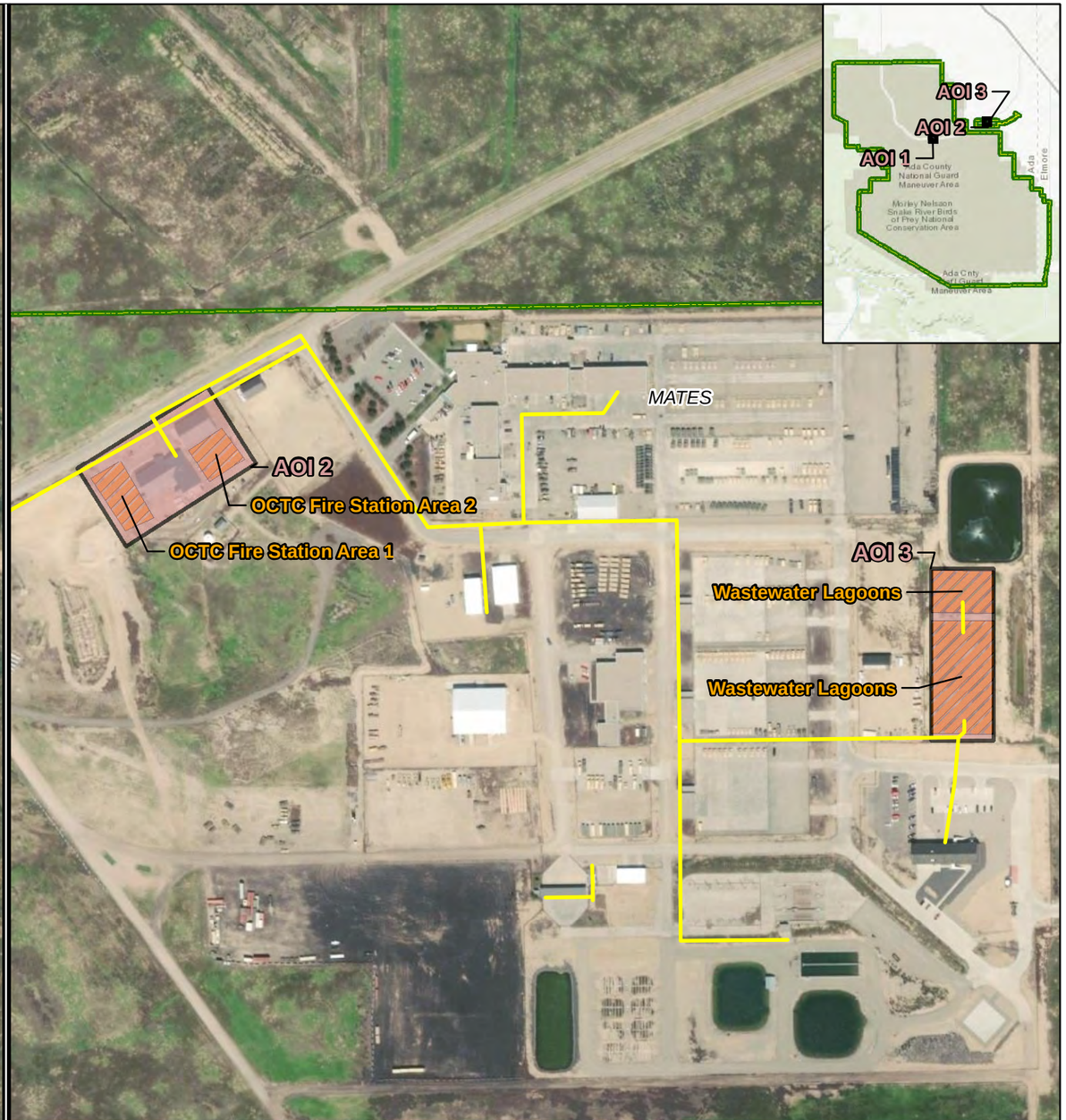
1.5.5 Current and Future Land Use

At present, the OCTC operates on a total land area of 143,000 acres. Cantonment and general support facilities for OCTC operations are in the area adjacent to the MATES facility. The IDARNG Headquarters is at Gowen Field, which is co-located with the Boise Airport. The mission of the OCTC is to provide training lands and Annual Training facilities primarily to the Army National Guard and Reserve Forces, and to other government and civilian organizations when possible (IDNG EMO, 2013).

The OCTC is the primary training area for IDARNG-assigned units, and it is one of the largest heavy force training areas for the National Guard. The Impact Area portion of the facility is closed to the public; however, the remainder of the OCTC is open to the public for grazing, hunting, off-road vehicle activity, and other recreational uses as approved by the BLM (IDNG EMO, 2013).

Land use at the OCTC is not expected to change in the foreseeable future.





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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	12/16/2019

Legend

- Area of Interest
- Potential PFAS Release
- Facility Boundary
- Combine Sanitary and Stormwater Sewer

0 175 350 700 Feet

N

Summary of Findings

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Figure ES-1

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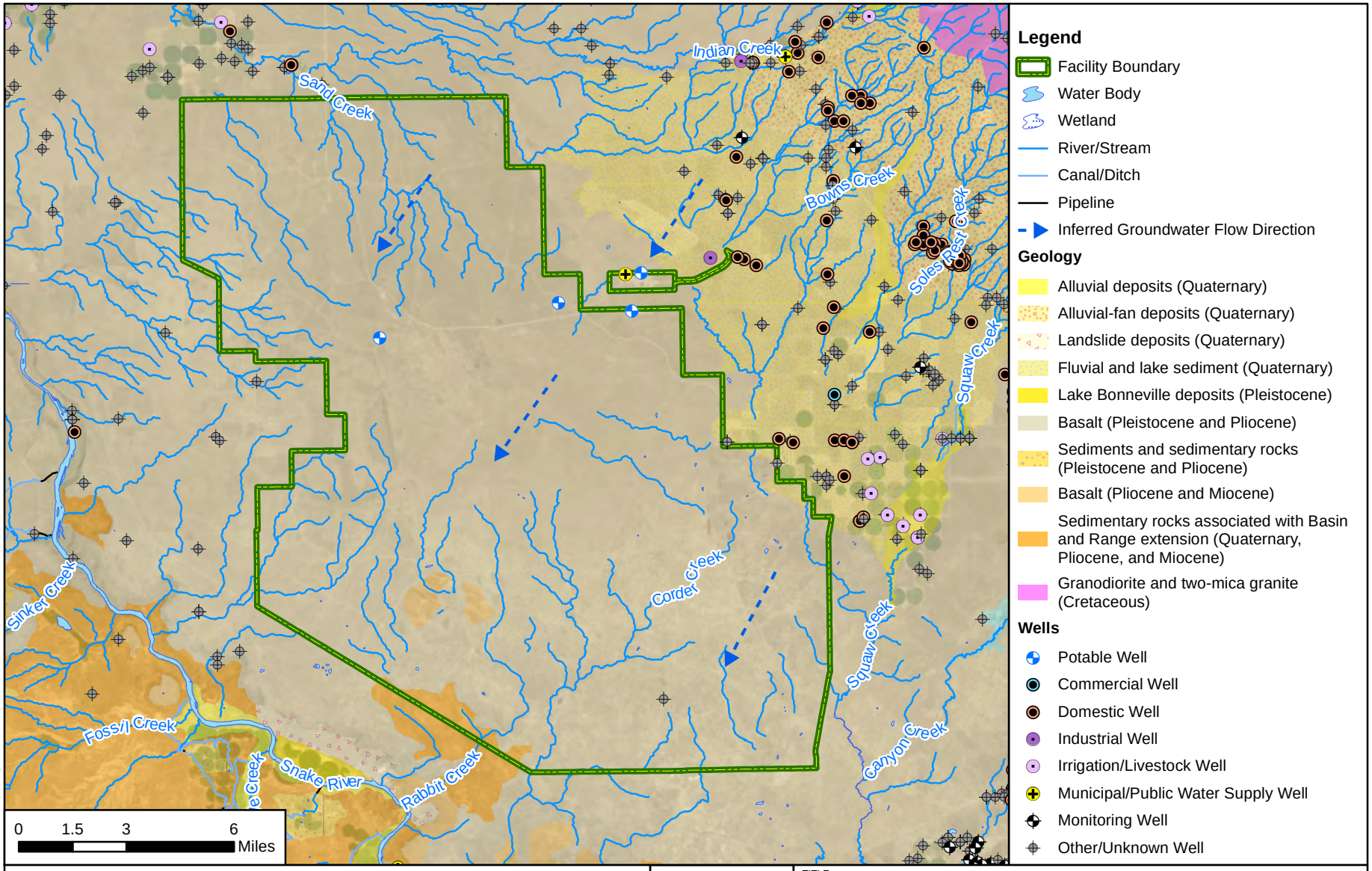

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	12/16/2019

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TITLE

Groundwater Features

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Figure 1-2

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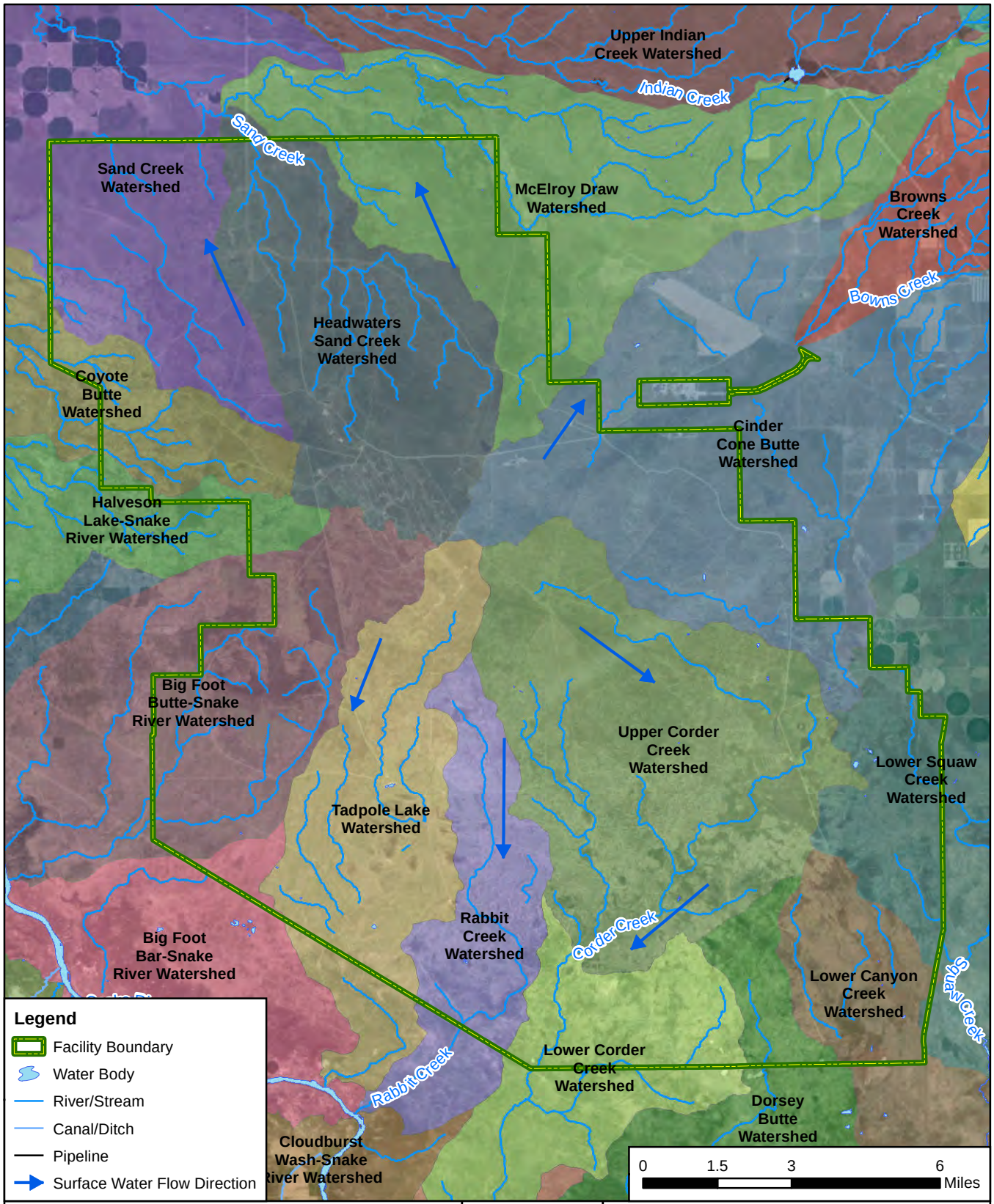

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

One FTA where PFAS were potentially released was identified during the PA. A description of the FTA is presented below, and the FTA is shown on **Figure 2-1**. Interview records appear in **Appendix B**, and photographs appear in **Appendix C**.

2.1 Range 2 FTA

The approximate geographic coordinates of the Range 2 FTA are 43°16'25.7" N; 116°09'06.5" W (**Figure 2-1**). The Range 2 FTA consists of an area used to conduct controlled burns of vehicles. According to the OCTC Fire Department Readiness Non-Commissioned Officer (NCO), cars were burned on three to six occasions at this area from 2014–2015. Each training session included the use of water to suppress the flames three times, followed by the use of an unknown quantity of 3% AFFF foam to suppress the flames one time. The AFFF was allowed to dissipate and infiltrate into the soil at the FTA.

CLIENT	ARNG			
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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	12/16/2019

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Fire Training Area

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Figure 2-1

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3. Non-Fire Training Areas

One non-FTA where PFAS were potentially released was also identified during the PA. A description of the non-FTA is presented below, and the non-FTA is shown on **Figure 3-1**. Interview records appear in **Appendix B**, and photographs appear in **Appendix C**.

3.1 OCTC Fire Station

The OCTC Fire Station is located on the western side of the MATES area. The geographic coordinates are 43°17'55.2" N; 116°03'47.0" W. The OCTC Fire Station was constructed between 2012 and 2013, prior to which, there was no fire department at the facility.

Currently, about 20-30 gallons of 3% AFFF are stored on one firetruck at the OCTC Fire Station. Interviewees reported that no leaks or spills have occurred during the time the fire department was established (2013) to present, and the truck has never been used for emergency response. Additionally, four backpack firefighting packs are stored at the OCTC Fire Station. Each unit includes two bottles of 20 fluid ounces of Chemguard 3% AFFF, for a total of 160 fluid ounces of AFFF in bottled storage. These backpack units were issued to troops overseas to extinguish vehicle fires.

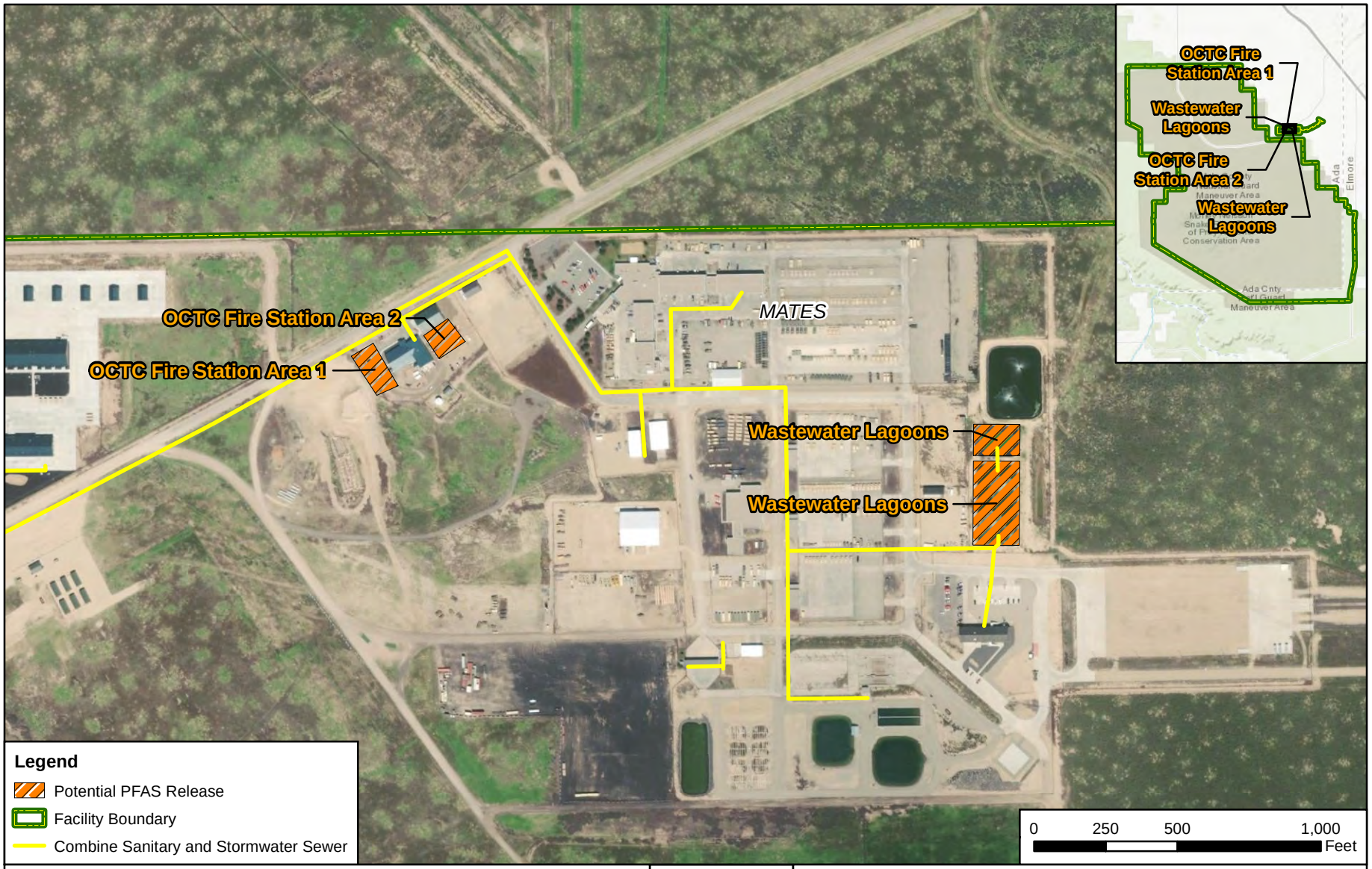
Historically, nozzle testing/foam proportion testing was conducted outside the OCTC Fire Station onto the bare ground at two locations adjacent to the building on more than one occasion from 2013–2017. The amount of foam used for each testing activity is estimated to have covered a 25- by 25-foot area on the ground outside of the station. **Figure 3-1** shows the approximate release areas. The exact amount of foam used is unknown. On the northeast side of the building, foam that hit the ground infiltrated in the immediate vicinity.

On the southwest side of the building, foam would have either infiltrated in the immediate vicinity or entered a grass ditch that runs along Orchard Access Road. Runoff that enters the ditch is directed into a grate that leads to below-grade pipes of the combined sanitary and stormwater sewer system. This system flows to the east into two lined wastewater lagoons where water is left to evaporate (**Figure 3-1**). According to site personnel, a system is in place that can direct excess water from the lagoons into a leach field; however, this system has never been used.

Use of foam for nozzle testing has ceased, and the fire department currently holds foam only for potential emergency responses, which are discussed in **Section 4**.

3.2 Wastewater Lagoons

The Wastewater Lagoons are located on the eastern side of the cantonment area. The geographic coordinates are 43°17’51’’ N; 116°03’19.5’’ W. Historical releases of AFFF at the OCTC Fire Station potentially entered the combined sanitary and stormwater sewer system (**Figure 3-1**). This system discharges to the Wastewater Lagoons; therefore, there is the potential for AFFF to have entered the lagoons. The ponds are lined, and water has never been discharged from them. Water that enters the south lagoon feeds into the north lagoon, and water is removed from the lagoon system through evaporation only.



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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	12/16/2019

TITLE

Non-Fire Training Area

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Figure 3-1

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4. Emergency Response Areas

Site personnel reported no historical instances of emergency response from 1999-present at the OCTC. Interviewees had no knowledge of emergency responses at the OCTC prior to their tenure (1953 – 1999); however, there are uncertainties about this time period due to a lack of primary information.

5. Adjacent Sources

Based on interviewee knowledge and review of the EDR report, no off-facility PFAS sources adjacent to the OCTC were identified during the PA.

6. Preliminary Conceptual Site Model

Based on the PA findings, three AOIs were identified at the OCTC: Range 2 FTA, OCTC Fire Station, and Wastewater Lagoons. The AOI locations are shown on **Figure 6-1**. The following sections describe the CSM components and the specific preliminary CSMs developed for each AOI. 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 to humans are through ingestion and inhalation. Human exposure via the dermal pathway may occur, and current risk practice suggests it is an insignificant pathway compare to ingestion; however, exposure data for dermal pathways are sparse and continues to be the subject of PFAS toxicological study. Receptors for the OCTC include site workers, construction workers, residents, recreational users, and trespassers. The preliminary CSMs for each AOI indicate which specific receptors could potentially be exposed to PFAS.

6.1 AOI 1 – Range 2 FTA

AOI 1 is the Range 2 FTA. According to the OCTC Fire Department Readiness NCO, cars were burned on three to six occasions at this area from 2014–2015. Each training session included the use of water to suppress the flames three times, followed by the use of an unknown quantity of 3% AFFF foam to suppress the flames one time. The AFFF was allowed to dissipate and infiltrate into the soil at the FTA. No remediation activities have occurred at AOI 1.

PFAS are water soluble and can migrate readily from soil to groundwater. The Idaho Department of Water Resources lists two ARNG owned wells in the range area at the OCTC, with static water levels of 767 feet bgs and 605 feet bgs. The wells are both located approximately 2.5 miles away from Range 2 FTA to the west and to the east-northeast. The IDARNG has confirmed that both of these wells are used for potable purposes; however, they are both located cross-gradient in terms of assumed groundwater flow. Due to the arid environment and high rates of evaporation in this region, the distance of the potable wells, and the cross-gradient position of the potable wells, it is unlikely that PFAS have impacted these drinking water sources.

Ground-disturbing activities to surface soil at AOI 1 may result in dust generation and potential exposure to PFAS contamination for site workers, construction workers, trespassers, and recreational users. Ground-disturbing activities to subsurface soil could result in construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Based on the large depth to the water table, the high rate of evaporation in this region, and the lack of potable wells directly downgradient, the exposure pathway for groundwater to all receptors is incomplete. No surface water features flow through this AOI; therefore, surface water and sediment exposure pathways are incomplete. The preliminary CSM for AOI 1 is shown on **Figure 6-2**.

6.2 AOI 2 – OCTC Fire Station

AOI 2 is the OCTC Fire Station. Potential PFAS releases to soil by the IDARNG occurred at least once between 2013–2017 during nozzle and foam proportion testing. AFFF discharges along the northeast side of the building would have infiltrated in the immediate vicinity, and discharges along the southeast side of the building would have infiltrated or flowed into a grassy drainage ditch that leads to the combined sanitary and stormwater sewer system. No remediation activities have occurred at AOI 2.

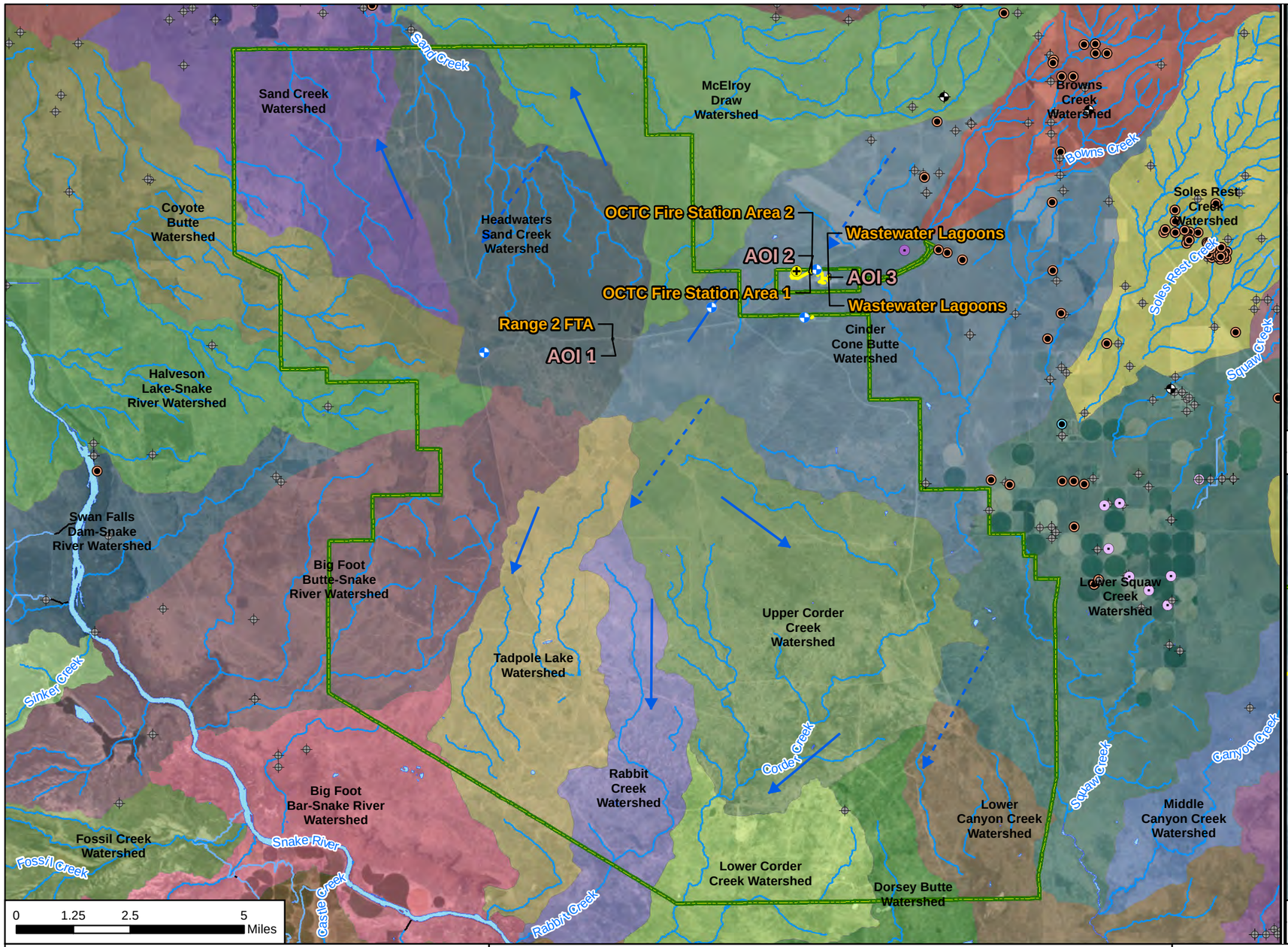
PFAS are water soluble and can migrate readily from soil to groundwater via leaching. The release area at AOI 2 is less than 0.25-miles from both of the OCTC drinking water wells. The Idaho Department of Water Resources gives static water levels of 491 feet bgs and 479 feet bgs for the two wells. Drinking water samples from these wells were analyzed for PFAS in 2017. All results for PFOA/PFOS were non-detect. A potable ammunition supply point (ASP) well is located approximately 0.85-miles to the south of the OCTC Fire Station according to information provided by the IDARNG. This well is located downgradient of AOI 2. According to drainage maps provided by the IDARNG, it is possible that AFFF released along the southwest side of the fire station entered the combined sanitary and stormwater sewer system. This system eventually leads to the wastewater lagoons on the east side of the cantonment area, as discussed in **Section 6.3**. According to site personnel, water in the lagoons is left to evaporate. A system is in place for the lagoons to overflow into a leach field if needed; however, this has never occurred.

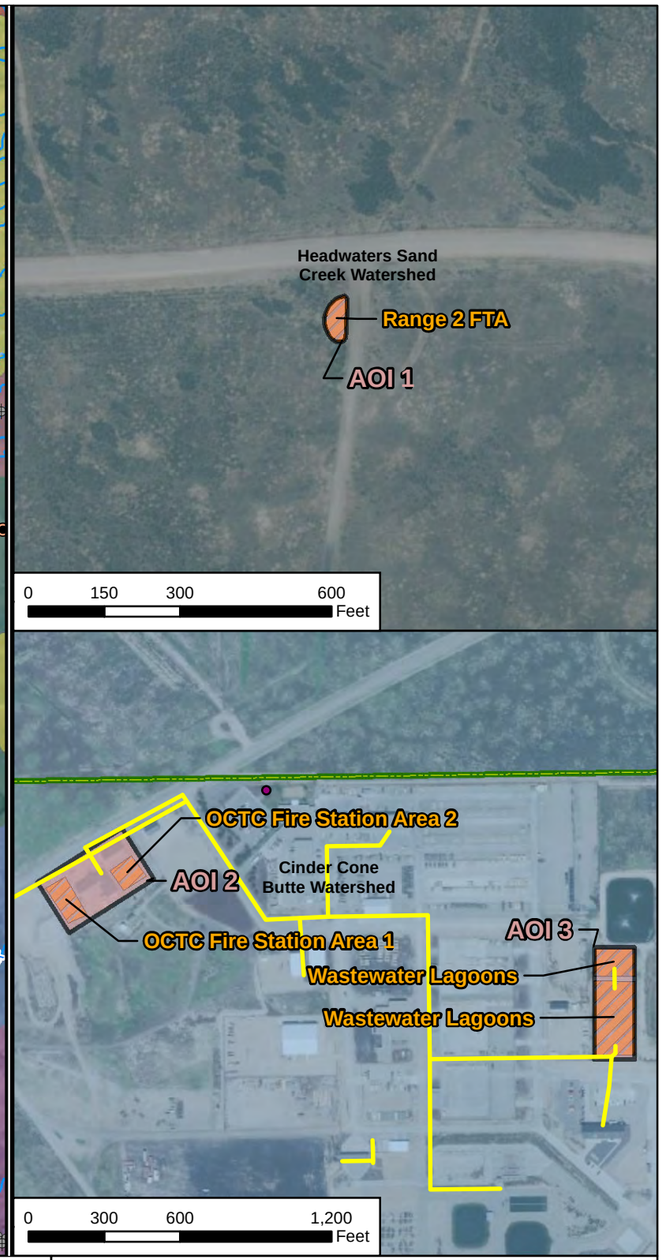
Ground-disturbing activities to surface soil at AOI 2 may result in dust generation and site worker, construction worker, and trespasser exposure to potential PFAS contamination. Ground-disturbing activities to subsurface soil could result in construction worker exposure. Therefore, the exposure pathways for inhalation of soil particles and ingestion of soil are potentially complete for these receptors. Based on the location of the potable ASP well downgradient from the OCTC Fire Station, the exposure pathway for groundwater to site workers is potentially complete. The potential presence of residual AFFF in the wastewater lagoons and the subsequent exposure pathway for ingestion of surface water and sediment are discussed as a separate AOI in **Section 6.3**. The preliminary CSM for AOI 2 is show on **Figure 6-3**.

6.3 AOI 3 – Wastewater Lagoons

AOI 3 is the Wastewater Lagoons. Potential PFAS releases to the lagoons occurred through the sanitary and stormwater sewer system as a result of releases at the OCTC Fire Station. No remediation activities have occurred at AOI 3.

The ponds are lined, and water has never been discharged from them. Water that enters the south lagoon feeds into the north lagoon, and water is removed from the lagoon system through evaporation only. Therefore, exposure pathways for soil and groundwater to all receptors are incomplete. The exposure pathways for ingestion of surface water and sediment are potentially complete for site workers, construction workers, and trespassers. The preliminary CSM for AOI 3 is shown on **Figure 6-4**.





CLIENT	ARNG			
Preliminary Assessment for PFAS at Ochard Combat Training Center, ID				
REVISED	12/16/2019	GIS BY	MS	12/16/2019
SCALE	1:7,200	CHK BY	PD	12/16/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	12/16/2019

- Area of Interest
- Potential PFAS Release
- Water Body
- Wetland
- River/Stream
- Canal/Ditch
- Pipeline
- Combine Sanitary and Stormwater Sewer
- Surface Water Flow Direction
- Inferred Groundwater Flow Direction
- Potable Well
- Commercial Well
- Domestic Well
- Industrial Well
- Irrigation/Livestock Well
- Municipal/Public Water Supply Well
- Monitoring Well
- Other/Unknown Well

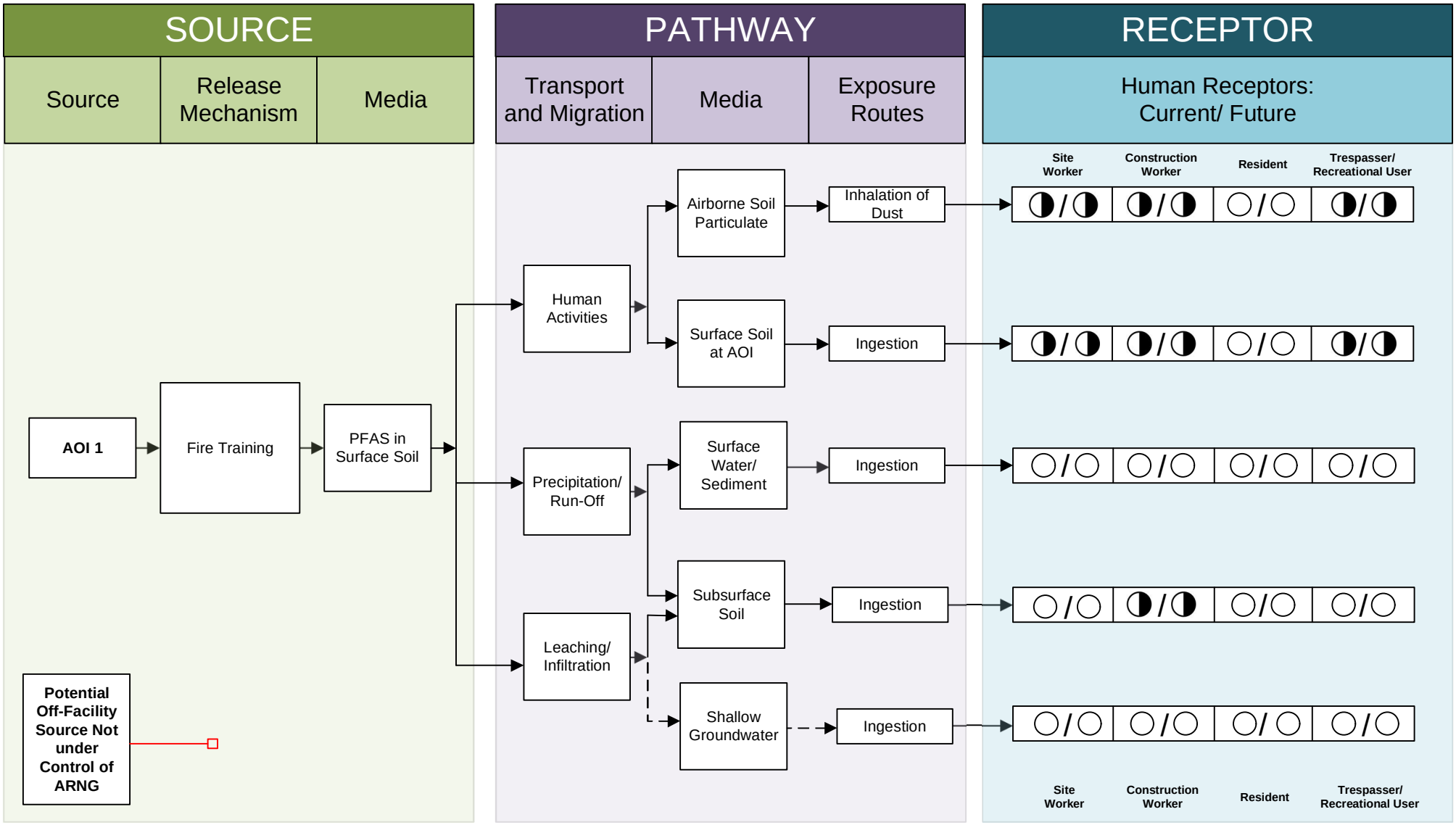
N

Areas of Interest

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-1

Q:\Projects\ENV\GEARS\GEO\ARNG PFAS\900-CAD-GIS\920-GIS or Graphics\MXD\ID\OCTC_Figures\OCTC_PA_Figures\Fig_6-1_OCTC_AOIs.mxd

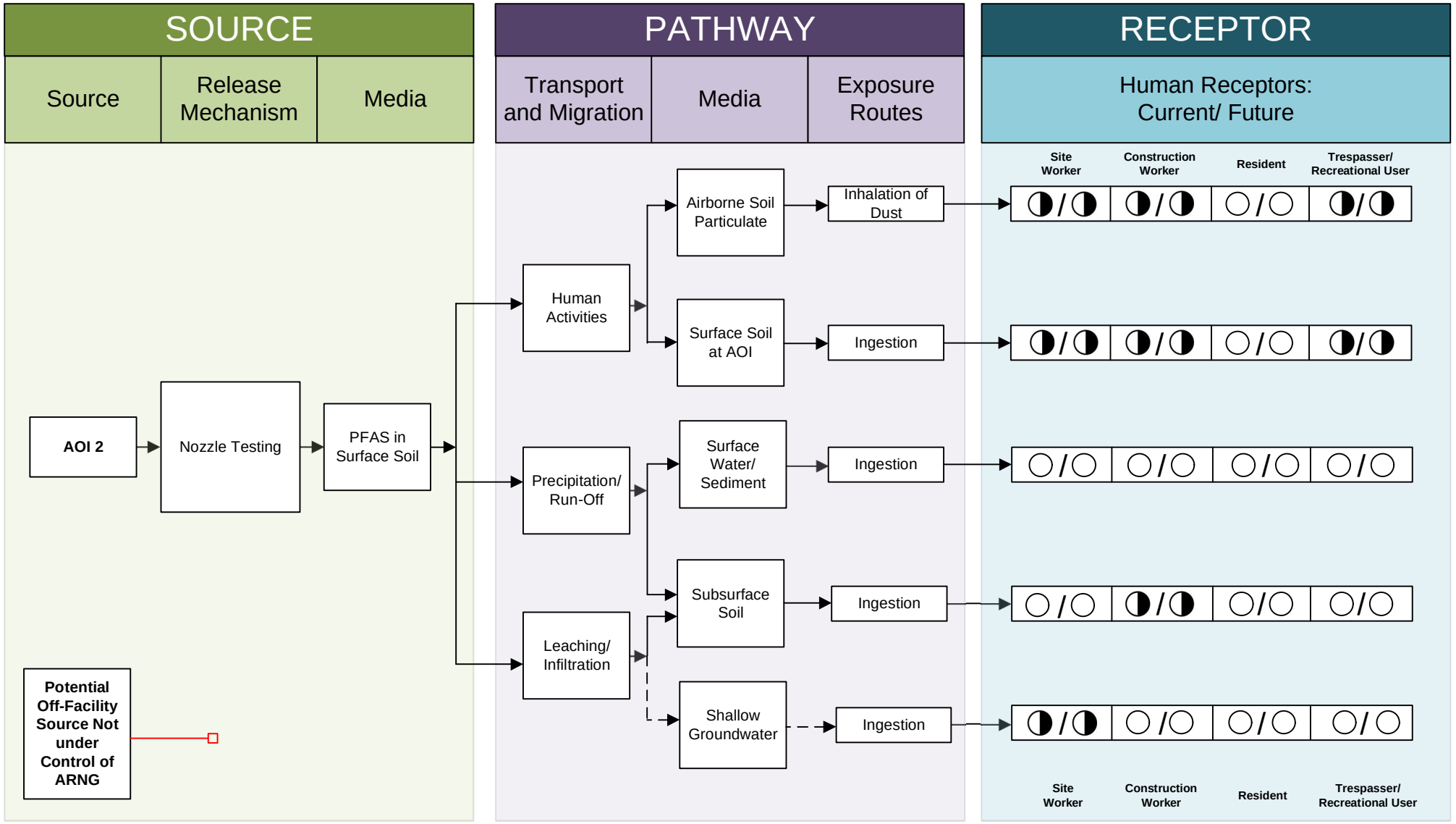


Note: The residential receptor refers to an off-facility receptor.

LEGEND

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

Figure 6-2
Preliminary Conceptual Site Model
AOI 1 Range 2 FTA

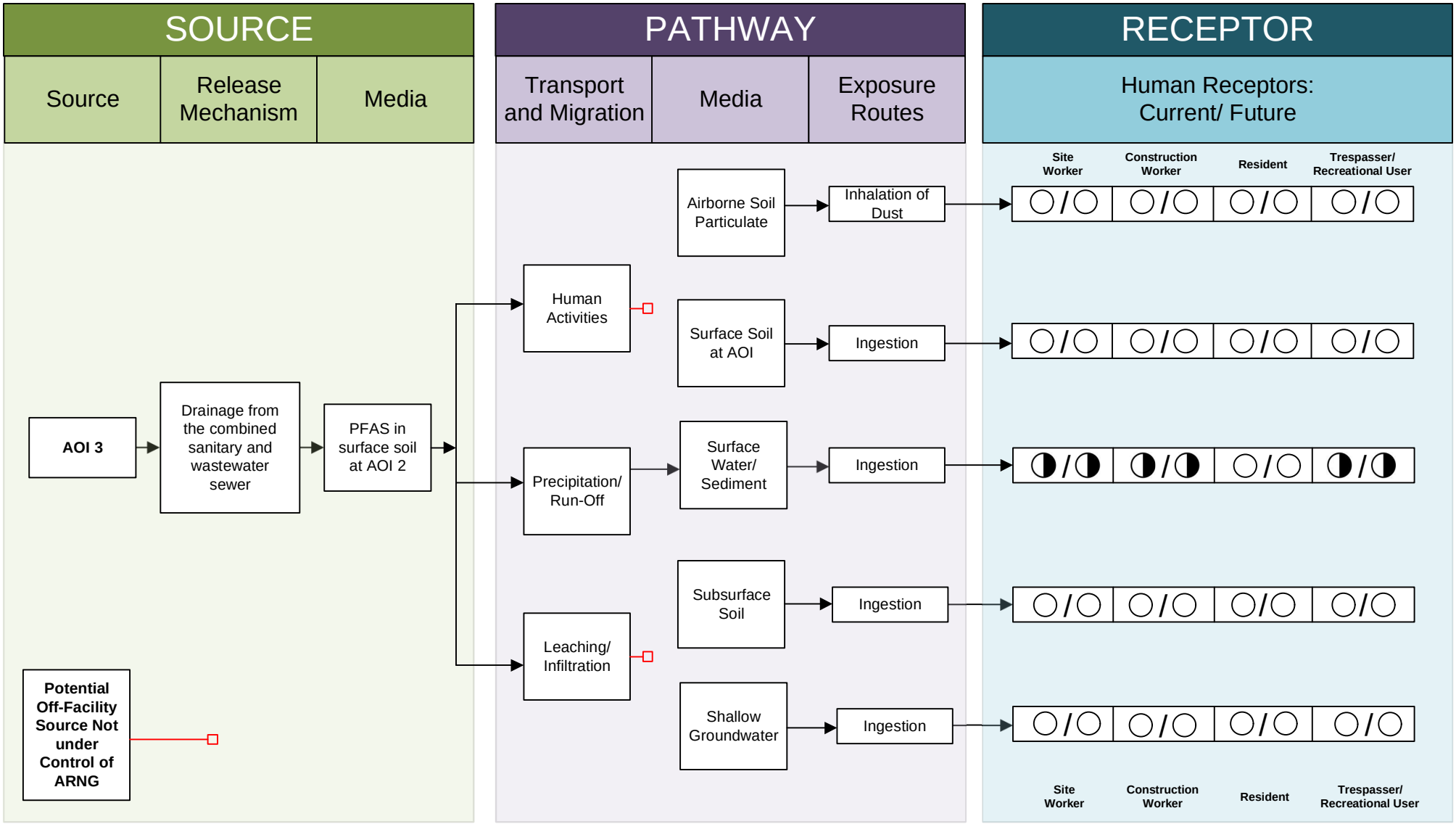


Note: The residential receptor refers to an off-facility receptor.

LEGEND

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

Figure 6-3
Preliminary Conceptual Site Model
AOI 2 – OCTC Fire Station



Note: The residential receptor refers to an off-facility receptor.

LEGEND

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

Figure 6-4
Preliminary Conceptual Site Model
AOI 3 – Wastewater Lagoons

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 OCTC. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Three AOIs related to potential PFAS release were identified (**Table 7-1**) at the OCTC during the PA.

Table 7-1 AOIs at OCTC

Potential Release Area	Used By	Determination	Rationale
AOI 1 - Range 2 FTA	IDARNG	Reported AFFF releases to the ground surface	AFFF releases have occurred 3 – 6 times during fire training activities.
AOI 2 - OCTC Fire Station	IDARNG	Reported AFFF releases to the ground surface	AFFF was released more than one time between 2013 – 2017.
AOI 3 – Wastewater Lagoons	IDARNG	Potential AFFF presence in surface water and sediment	AFFF potentially entered the lagoons through combined sanitary and stormwater sewer.

No potential off-facility sources of PFAS were identified during the PA.

Based on documented potential PFAS releases at these AOIs, there is potential for exposure to PFAS contamination in surface soil to site workers, construction workers, and trespassers/recreational users via ingestion and inhalation; subsurface soil to construction workers via ingestion and inhalation; and surface water and sediment to site workers, construction workers, and trespassers/recreational users via ingestion. A summary of PA findings is presented in **Figure 7-1**.

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. Gathered information has a degree of uncertainty due to the absence of written documentation, the time passed since PFAS were first used (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS release locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected. **Table 7-2** summarizes the uncertainties associated with the PA:

Table 7-2 Uncertainties

Area of Interest	Source of Uncertainty
AOI 1 & AOI 2	No or limited information was available on the type, amount, and concentration of AFFF used at each AOI.
AOI 1 & AOI 2	Given the large depth to the water table at the OCTC, it is unknown whether AFFF at released to surface soil has migrated down to the water table.
AOI 3	It is unknown how much AFFF entered the lagoons through the combined sanitary and stormwater sewer system.
General	Information was only obtained from interviewees with knowledge from 1999 – present. There is a lack of primary information about site operations from 1953 – 1999.

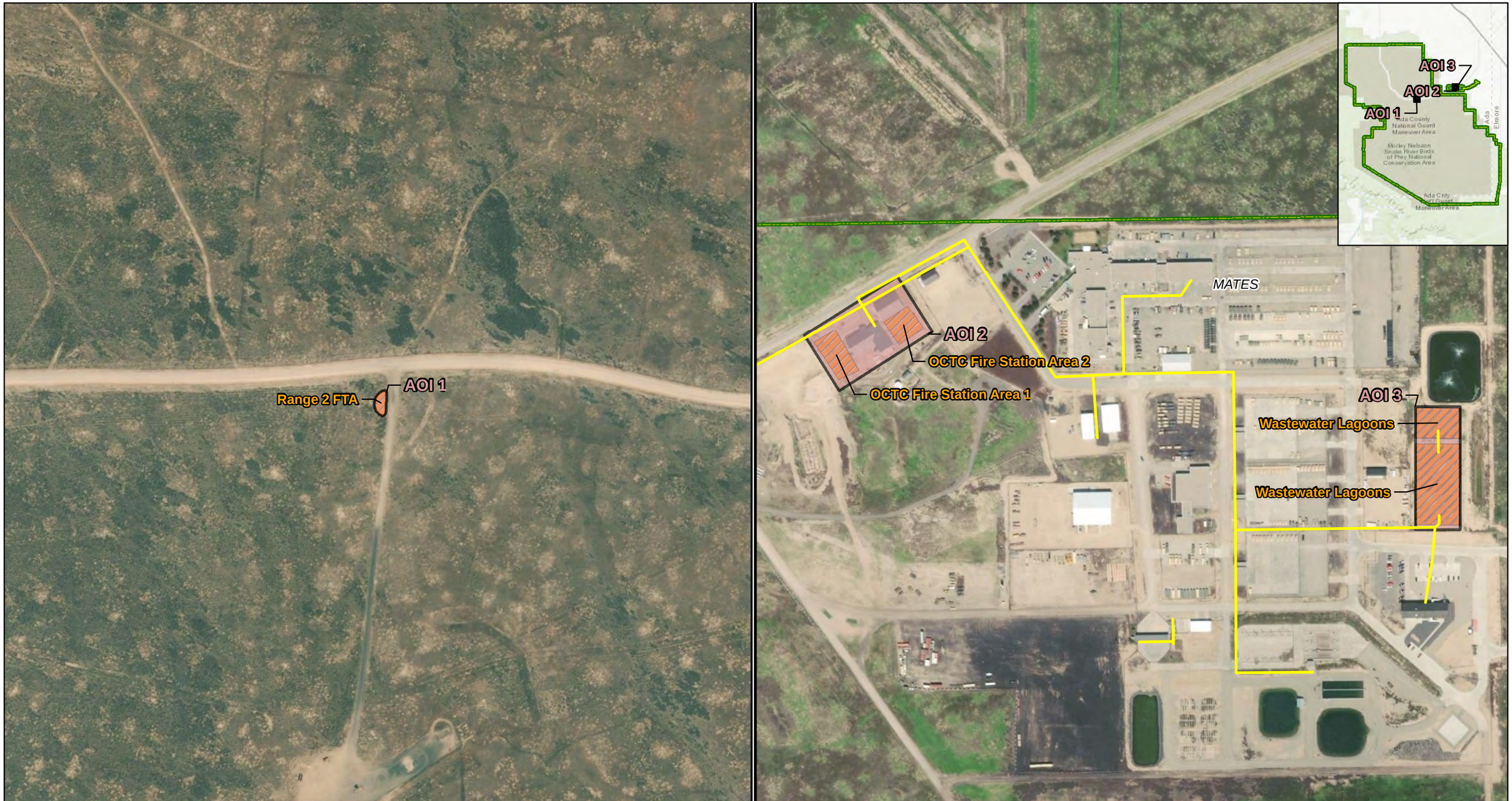
7.3 Potential Future Actions

Interviews and records (covering 1999 – present) indicate that former ARNG activities may have resulted in potential PFAS releases at the three AOIs identified during the PA. Based on the preliminary CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil, surface water, and sediment at these AOIs. **Table 7-3** 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).

Table 7-3 PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1 – Range 2 FTA	43°16’25.5”N; 116°09’06.7” W	Fire training activities using AFFF were conducted here on 3-6 occasions.	Proceed to an SI. Focus on soil.
AOI 2 – OCTC Fire Station	43°17’55.3”N; 116°03’47.0”W	Nozzle testing activities using AFFF were conducted here on multiple occasions.	Proceed to an SI. Focus on soil.
AOI 3 – Wastewater Lagoons	43°17’51”N; 116°03’19.5”W	AFFF potentially entered the lagoons through the combined sanitary and stormwater sewer.	Proceed to an SI. Focus on surface water and sediment.

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



CLIENT	ARNG			
Preliminary Assessment for PFAS at Ochard Combat Training Center, ID				
REVISED	12/16/2019	GIS BY	MS	12/16/2019
SCALE	1:4,200	CHK BY	PD	12/16/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	12/16/2019

Legend

- Area of Interest
- Potential PFAS Release
- Facility Boundary
- Combine Sanitary and Stormwater Sewer

0 175 350 700 Feet

N

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

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Appendix A
Data Resources

Data Resources will be provided separately on CD. Data Resources for OCTC include:

Previous Investigations Completed at OCTC

- 2013 Integrated Cultural Resources Management Plan
- 2018 Draft Environmental Assessment for the DAGIR in OCTC Impact Area
- 2013 Integrated Natural Resources Management Plan

OCTC 2019 EDR Report

- March 2019 Orchard EDR Report

Boise Area Maps

- US Geological Survey Map of the Snake River Basin

Idaho Department of Water Resources

- 2019 Idaho Department of Water Resources Online GIS Data Viewer

Land Use Information

- State of Idaho Lease, Instrument Number M600069

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire – Fire Station

Facility: OCTC
Interviewer: [redacted]
Date/Time: 2/27/19 @ 09:00

Interviewee: [redacted] **Title:** **Phone Number:** **Email:** [redacted]	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.

Fire Cheif [redacted] at Idaho Falls Fire and involved in firehouse @ OCTC

20 years

2. What can you tell us about the history of 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.

Releases Near Fire House (testing)
Range 3

Maintenance (e.g., ramp washing)
Fire Training Areas
Firefighting (Active Fire)
Crash
Fire Suppression Systems (Hangers/Dining Facilities)
Fire Protection at Fueling Stations
Non-Technical/Recreational/ Pest Management

3. 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 at the AFFF/suppression systems?

No

4. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?

No

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

N/A

PA Interview Questionnaire – Fire Station

Facility: OCTC
Interviewer: [redacted]
Date/Time: 2/2/19

6. 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)?

3% only

7. Is AFFF formulated on base? If so, where is the solution mixed, contained, transferred, etc.?

No

8. 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?

Now it is just in one truck and stored in 4 backpack fire suppression units

9. How is the AFFF transferred to emergency response vehicles, suppression systems, flightline extinguishers? Is/was there a specified area on the facility where vehicles are filled with AFFF and does this area have secondary containment in case of spills? How and where are vehicles storing AFFF cleaned/decontaminated?

N/A

10. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located?

One vehicle at the station now.

11. Any vehicles have a history of leaking AFFF? Do you/did you test the vehicles spray patterns to make sure equipment is working properly? How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?

No leaking. Testing right outside firehouse. (2013-2017)
Unsure of frequency.

PA Interview Questionnaire – Fire Station

Facility: OCTC
Interviewer: [redacted]
Date/Time: 2/27/19

12. 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?

Range 2 - training activity. (2014-2015)

Most training conducted off-site @ city burn pit

13. What types of fuels/flammables were used at the FTAs?

N/A

14. What was the frequency of AFFF use at each location? When a release of AFFF occurs during a fire training exercise, now and in the past, how is/was 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?

AFFF was left to infiltrate.

15. Are there mutual aid/use agreements between county, city, local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement? Can you recall specific times when city, county, state personnel came on-post for training? If so, please state which state/county agency, military entity? Do you have any records, including photographs to share with us?

Yes - ARNG personnel will respond to the highway. Never had to use AFFF.

16. Did individual units come on-post 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?

N/A

PA Interview Questionnaire – Fire Station

Facility: OCTC
Interviewer: [redacted]
Date/Time: 2/27/19

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

Yes. City burn pit.

18. 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?

N/A

19. 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.

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

No.

21. 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 water treatment plants, and AFFF ponds)?

No.

PA Interview Questionnaire – Fire Station

Facility: OCTC
Interviewer: [redacted]
Date/Time: 2/27/19

22. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved? No.
23. 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? N/A
24. Do you recommend anyone else we can interview? If so, do you have contact information for them?

PA Interview Questionnaire - Other

Facility: OCTC
Interviewer: [redacted]
Date/Time: 2/27/19 @ 09:00

Interviewee: [redacted] **Title:** Readiness NCO **Phone Number:** **Email:** [redacted]	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:

Readiness NCO since 2011

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
NU trucks leaking	Use
	Procurement
Proportioning valve might leak	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

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: 2/27/19

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

Source/Release Information

Site Name / Area Name / Unique ID: Fire Station

Site / Area Acreage:

Historic Site Use (Brief Description):

Current Site Use (Brief Description): Fire station

Physical barriers or access restrictions:

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):

Sprayed outside building to [redacted] test equipment, and proportionality of 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

N/A

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

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

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:

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

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

Flows away from station to NE and SW

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

3a. If so, please note the location:

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

4a. If so, please note the location:

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

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

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

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

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:

ARNG property

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 - Engine 8 holds 20-30 gal of AFFF
- 4 "ghost buster" units in storage
- Testing was done just outside the station

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
	10:38	Truck w/ some foam 20-30 gal
	10:39	"Ghost Busters" AFFF unit

Visual Site Inspection Checklist

[redacted]

Names(s) of people performing VSI:

Recorded by:

ARNG Contact:

Date and Time: 2/27/19

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

Source/Release Information

Site Name / Area Name / Unique ID: MATES Building

Site / Area Acreage:

Historic Site Use (Brief Description):

Current Site Use (Brief Description): Hangar (helicopters)

Physical barriers or access restrictions:

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):

Unconfirmed. May have been an accidental release during a fire equipment training course.

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

N/A

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

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

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:

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:

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

4a. If so, please note the location:

To the west on-site.

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

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

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

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

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):

N/A

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:

ARNG property

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 Possible AFFF release would have been out in front of the hangar on concrete

Photographic Log

Photo ID/Name	Date & Location	Photograph Description

Visual Site Inspection Checklist

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

Recorded by:

ARNG Contact:

Date and Time: 2/27/19

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

Source/Release Information

Site Name / Area Name / Unique ID: Range 2

Site / Area Acreage:

Historic Site Use (Brief Description): Range / training ground

Current Site Use (Brief Description): Range / training ground

Physical barriers or access restrictions: Open to the public

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 activity. Controlled vehicle burn.

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

N/A

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

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

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:

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:

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

4a. If so, please note the location:

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

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

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

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

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):

N/A

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:

Public can access

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:

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Orchard Combat Training Center (OCTC)

Why has this location been identified as a site?

AFFF release(s) at the fire station and at Range 2

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

No

Training Events

Have any training events with AFFF occurred at this site? Yes, at Range 2

If so, how often? Training occurred 3-6 times

How much material was used? Is it documented?

No documentation, not sure how much was used.

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? No surface water flow

Average rainfall? 5-12 inches

Any flooding during rainy season? No

Direct or indirect pathway to ditches? Some ditches in the cantonment area

Direct or indirect pathway to larger bodies of water? No

Does surface water pond any place on site? Not naturally.

Any impoundment areas or retention ponds? Holding ponds in the cantonment area. Evaporation.

Any NPDES location points near the site? No

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

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Toward Snake River (to the south/southwest)

Depth to groundwater? Very deep. 600 feet or more.

Uses (agricultural, drinking water, irrigation)? Drinking water for the base.

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? Unknown

Is groundwater used for drinking water? Yes

Are there drinking water supply wells on installation? Yes

Do they serve off-post populations? No

Are there off-post drinking water wells downgradient? Potentially, but they would be miles away.

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? N/A

Is surface water from potential contaminated sites treated?

No. Water that enters storm drains in the area of the firehouse would travel through pipes to holding ponds where it is kept and allowed to evaporate. It could drain out into leach field if needed, but this has never happened.

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

No.

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?

Yes, from 2013-2017 at Fire Station

3. Other?

Spray tests at Fire Station between 2013-2017.

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker – potential

Construction Worker – potential

Recreational User – N/A

Residential – potential

Child – potential (resident)

Ecological – potential

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

None. Site is a NCA.

Documentation

Ask for Engineering drawings (if applicable). Received drawings of sanitary sewer/stormwater system.

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

Yes, changes have recently occurred, and more planned changes to the system will occur in the near future.

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Orchard Combat Training Center	Boise, Idaho

Photograph No. 1

Description:

Range 2 FTA

(view to S)

February 27, 2019

Photograph No. 2

Description:

Engine 8 at the Fire Station, which holds 20-30 gallons of AFFF in the tank

February 27, 2019

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Orchard Combat Training Center	Boise, Idaho

Photograph No. 3

Description:

Backpack AFFF extinguisher system stored at the Fire Station

February 27, 2019