FINAL
Preliminary Assessment Report
Nome Army Air Operating Facility
Nome, Alaska

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

August 2020

Prepared for:

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

UNCLASSIFIED

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AAOF	Army Aviation Operating Facility
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AKARNG	Alaska Army National Guard
AOI	area of interest
ARNG	Army National Guard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	conceptual site model
EDR™	Environmental Data Resources, Inc.™
FTA	fire training area
HA	Health Advisory
PA	Preliminary Assessment
NAFD	Nome Airport Fire Department
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
SI	Site Inspection
UCMR3	Unregulated Contaminant Monitoring Rule 3
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WWTP	Wastewater Treatment Plant

Executive Summary

The Army National Guard (ARNG) is performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. A PA for per- and polyfluoroalkyl substances (PFAS)-containing materials was completed for Nome Army Aviation Operating Facility (AAOF) in Nome, Alaska to assess potential PFAS release areas and exposure pathways to receptors. Nome AAOF provides training and maintenance for the various aviation units that support the Alaska ARNG (AKARNG). The facility includes a single hangar and concrete pad on just over an acre. The land has been leased by the AKARNG from the Alaska Department of Transportation since 1988, and the hangar was constructed approximately in 1992.

The performance of this PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 31 August 2018 and completed visual site inspections at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current Nome AAOF personnel during the site visit including the Facility Commander; and,
- Identified Area(s) of Interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential source-pathway-receptor linkages of potential PFAS in soil, groundwater, surface water, and sediment for each AOI.

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

Table ES-1: AOIs at Nome AAOF

Area of Interest	Name	Used by	Potential Release Date
AOI 1	AAOF Hangar	AKARNG	1992 to present

Based on potential PFAS releases at AOI 1, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for AOI 1, which presents the potential receptors and media impacted, is shown on **Figure ES-2**. Based on the US Environmental Protection Agency (USEPA) Unregulated Contaminant Monitoring Rule 3 (UCMR3) data, it was indicated that no PFAS were detected in a public water system above the USEPA's lifetime Health Advisories (HAs) within 20 miles of the facility. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR3 but might be detected if analyzed today.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Nome AAOF, AK			
REVISED	7/20/2020	GIS BY	MS	7/20/2020
SCALE	1:4,800	CHK BY	LC	7/20/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	7/20/2020

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Summary of Findings

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Figure ES-1

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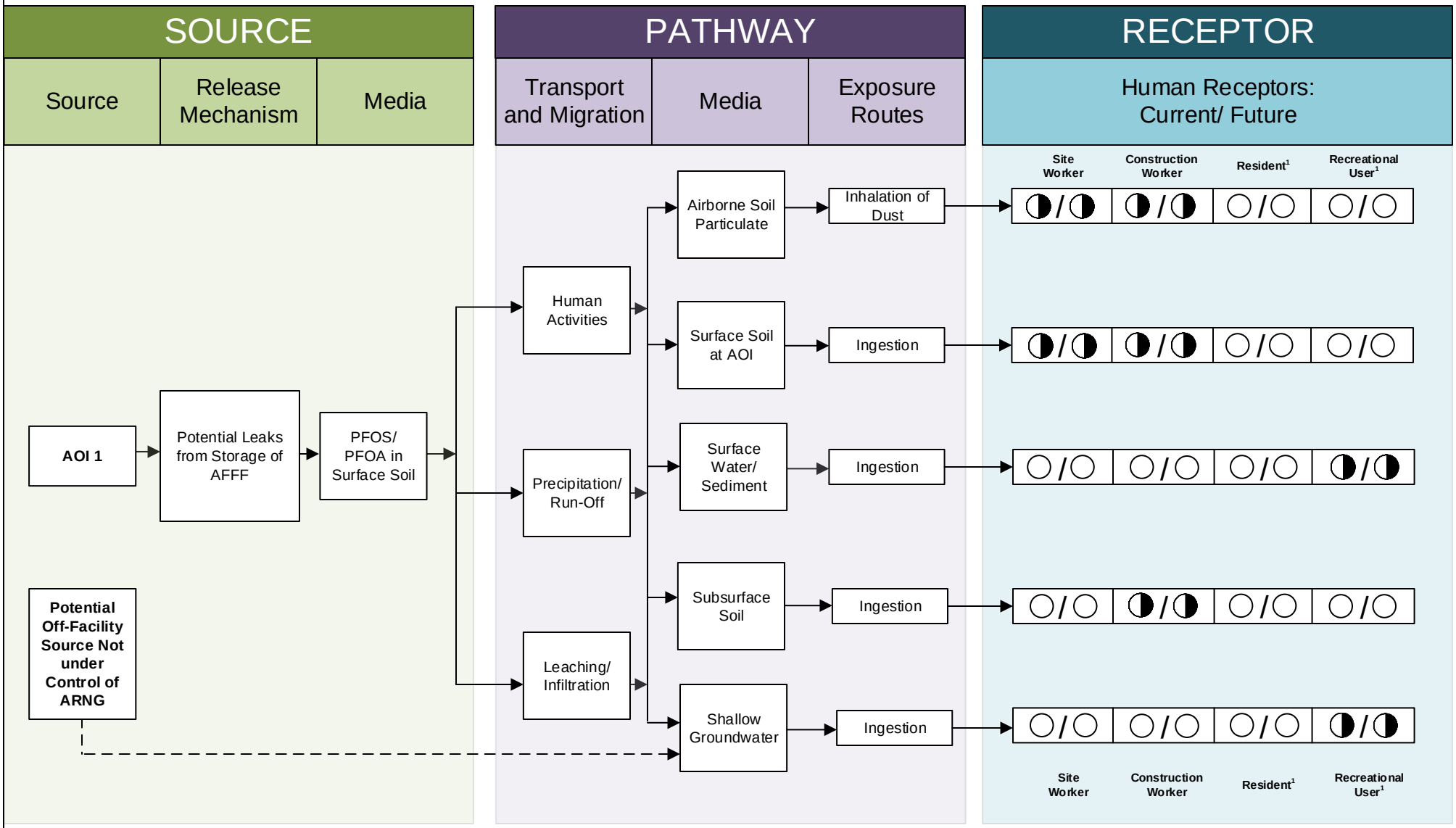

LEGEND

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

NOTES

1. The resident and recreational users refer to off-site receptors.

Figure ES-2
Preliminary Conceptual Site Model
Nome AAOF, AK

1. Introduction

1.1 Authority and Purpose

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

The ARNG is assessing potential effects on human health related to processes at their facilities that used per- and poly-fluoroalkyl substances (PFAS) (a suite of related chemicals), 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 varies. The regulatory framework at both federal and state levels continues to evolve. The US Environmental Protection Agency (USEPA) issued Drinking Water Health Advisories (HAs) for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined.

This report presents findings of a PA for PFAS-containing materials at Nome Army Aviation Operating Facility (AAOF) in Nome, Alaska 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 Army requirements and guidance.

This PA documents potential locations where PFAS containing materials are stored and have the potential to be released into the environment at or adjacent to the Nome AAOF. The term PFAS will be used throughout this report to encompass all PFAS chemicals being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 31 August 2018 and completed visual site inspections at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current Nome AAOF personnel during the site visit including the Facility Commander; and
- Identified Area(s) of Interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential source-pathway-receptor linkages of potential PFAS in soil, groundwater, surface water, and sediment for each AOI.

1.3 Report Organization

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

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

1.4 Facility Location and Description

The Nome AAOF is in Nome, Alaska on the southern coast of the Seward Peninsula, the middle of Alaska's three western lobes, approximately 130 miles from the Bering Strait (**Figure 1-1**). The AAOF is comprised of a single hangar where Prospect Street meets New Center Creek Road, across from Runway 12 near the northeastern end of the airfield. The 1.07-acre lot consists of the AAOF hangar, a section of asphalt pavement, a concrete pad, water and fuel/oil storage tanks, underground piping, and a wash water recycling system.

1.5 Facility Environmental Setting

The facility lies on a gently sloping coastal plain approximately a quarter mile inland from Norton Sound, an embayment of the Bering Sea. The coastal plain consists mainly of unconsolidated glacial deposits grading into colluvium at the foothills of the mountains to the northeast and worked into beach deposits along the coast. Loess deposits, along with silty gravel, silt, and peat are present over much of the plain, ranging in thickness from one to thirty six feet (Sainsbury, 1975).

1.5.1 Geology

Nome and its surroundings have undergone many geological studies in the 20th and 21st centuries due to Nome's importance as a gold mining town. Nome's coastal plain is made of placer deposits found in alluvial sands along the Snake River, which are mined using the technique commonly known as "panning for gold."

Regionally, the Seward Peninsula comprises rocks from a large section of geologic history including Precambrian metamorphics and limestone, Paleozoic carbonates, Jurassic volcanics, and sedimentary clastics from the Cretaceous and Tertiary. Felsic and intermediate composition granitic intrusions occur throughout the peninsula and basaltic lava flows are found centrally located overlying large areas of older rock (Sainsbury, 1975). Glaciation played a prominent factor in the shaping of Alaska's current landscape in the Quaternary Period, depositing the till of the coastal plain.

Locally, the sediments of the coastal plain vary greatly in composition and clast size, predominating in angular schist with minor limestone, but also including finer stream sediments (silt and sand), well-rounded gravel, and angular slabs of up to two feet (Moffit, 1913). Permafrost is prevalent in the area, freezing soils and unconsolidated sediments top to bottom, with ice at the surface in many places preventing or inhibiting infiltration.

1.5.2 Hydrogeology

Due to the local permafrost, groundwater in the Nome area is generally restricted along coastal areas as permafrost will confine groundwater flow to units above or below the frozen sections (**Figure 1-2**). Coastal sections of unfrozen ground may be hydraulically connected to marine water and therefore wells typically yield poor quality or insufficient quantities of potable water (Dorava, 1995).

Drinking water for Nome is provided by the municipal Moonlight Springs, located less than 3 miles to the north at the base of Anvil Mountain. A fractured marble aquifer is accessed by drinking water wells. Its secondary porosity provides variable hydraulic conductivity ranging from 10^{-2} to 10^{-8} centimeters per second. Static water levels in three of the spring wells measured 25 – 30 feet below ground surface (Bristol, 2005), and the wells are completed from approximately 80 to 120 feet. This difference in well depth versus groundwater levels indicates that the aquifer is confined. An EDR™ report conducted a well search for a 1-mile radius surrounding the facility (**Appendix A**). Using additional online resources, such as state and local Geographic Information System databases, wells were researched to a 4-mile radius of the facility. Based on the USEPA Unregulated Contaminant Monitoring Rule 3 (UCMR3) data, it was indicated that no PFAS was detected in a public water system above the USEPA HAs within 20 miles of the facility. The HA is 70 parts per trillion for PFOS and PFOA, individually or combined. PFAS analyses performed in 2016 had method detection limits that were higher than currently achievable. Thus, it is possible that low concentrations of PFAS were not detected during the UCMR3 but might be detected if analyzed today.

1.5.3 Hydrology

Nome is approximately a quarter mile from open, navigable marine waters (**Figure 1-3**). These waters of the Norton Sound provide wave action which works the sediments of the shore into beach deposits. Despite its proximity to the shore, the AAOF is not within the 100-year flood plain (City of Nome, 2010).

The coastal plane on which Nome is built is classified as a freshwater palustrine wetland, seasonally saturated, and containing woody vegetation, both shrubby and arboreal. This landscape is dotted with freshwater lakes and ponds, tidal marine estuaries, and crosscut by a number of rivers. The lakes and ponds are prone to freezing through if shallower than 6 feet (Dorava, 1995).

The unconsolidated sediments of the plain are believed to be hydrologically connected to marine water in the water table where permafrost has not precluded access. This marine water renders local shallow wells unfit for producing potable water.

The Snake River flows from the west along the southern border of Nome Airport. Typical discharge for the river from the 1960s to 1991 was 5.3 cubic meters per second.

1.5.4 Climate

The climate in Nome is cool during the summer with temperatures in the 50's and extremely cold during the winter with sub-zero temperatures. The warmest month of the year is July with an average maximum temperature of 58.60 degrees Fahrenheit (°F), while the coldest month of the year is February with an average minimum temperature of -2.30 °F. The annual average precipitation at Nome is 16.56 Inches. Rainfall is evenly distributed throughout the year. The wettest month of the year is August with an average rainfall of 3.23 Inches (IDcide, 2018).

1.5.5 Current and Future Land Use

The property is currently under lease by the Alaska ARNG (AKARNG) and is operated as an AAOF which services aircraft for the AKARNG. The AKARNG has leased the property from the Alaska Department of Transportation until 2022. Reasonably anticipated future land use is not expected to change from the current land use described above.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Nome AAOF, AK			
REVISED	5/7/2020	GIS BY	MS	5/7/2020
SCALE	1:31,680	CHK BY	LC	5/7/2020
Base Map: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,		PM	RG	5/7/2020

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Facility Location

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Figure 1-1

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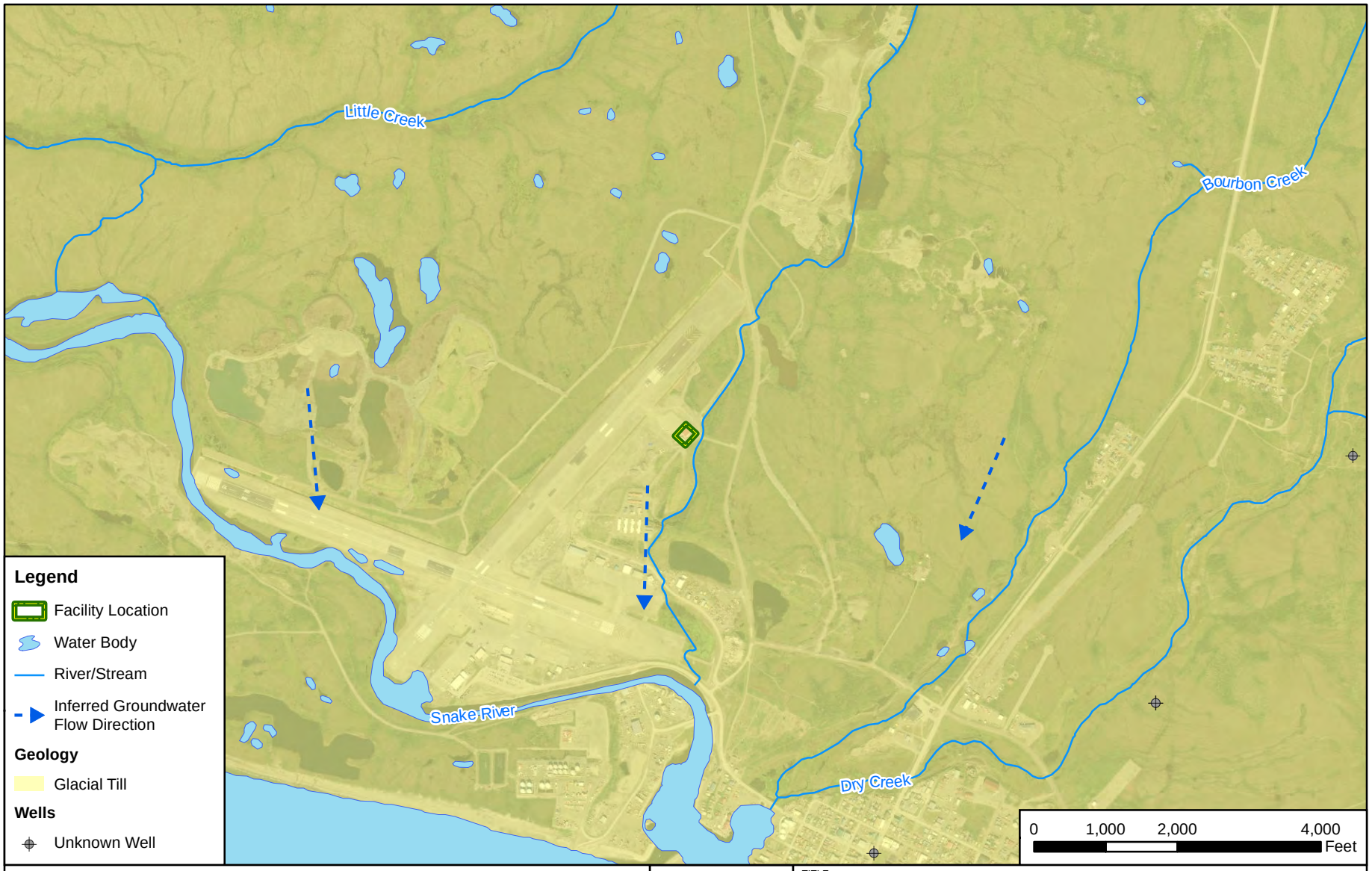

CLIENT	ARNG			
PROJECT	Preliminary Assessment for PFAS at Nome AAOF, AK			
REVISED	7/20/2020	GIS BY	MS	7/20/2020
SCALE	1:24,000	CHK BY	LC	7/20/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	7/20/2020

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TITLE

Groundwater Features

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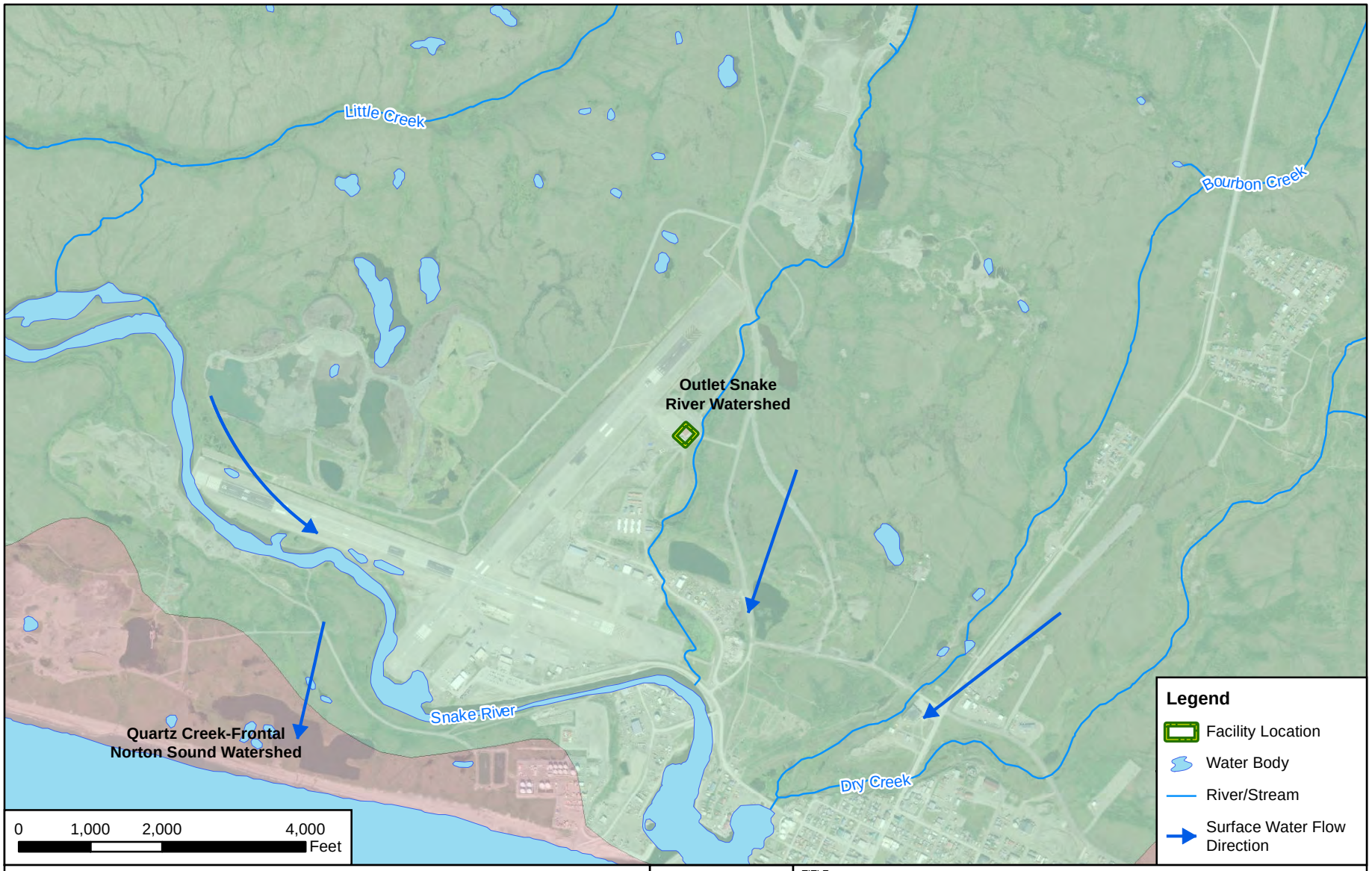
Figure 1-2



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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community		PM	RG	7/20/2020

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TITLE

Surface Water Features

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Figure 1-3

2. Fire Training Areas

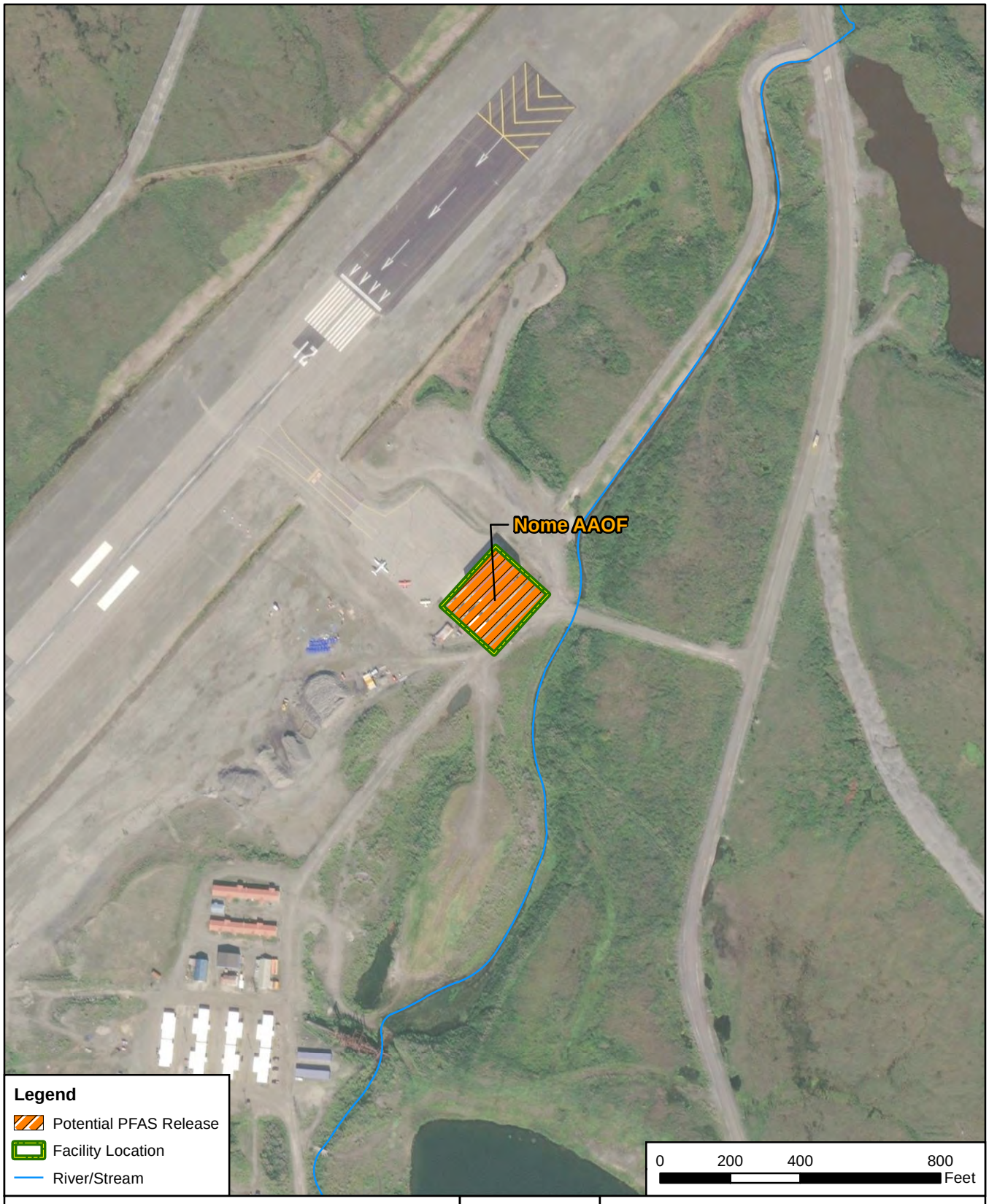
No FTAs were identified at Nome AAOF during personnel interviews or the site visit. FTAs are considered a primary potential release area for PFAS because of the common use of AFFF in training events. The Nome Airport Fire Department (NAFD) serves as the first responder to emergencies at Nome AAOF. FTAs associated with the NAFD are discussed in **Section 5**. The City of Nome Fire Department also responds to fires at the facility.

3. Non-Fire Training Areas

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

3.1 AAOF Hangar

The AAOF was constructed in 1992, and comprises a hangar, concrete pad, asphalt apron, boiler room, closed-loop wash water recycling system, and several 100-gallon above-ground storage tanks. The geographic coordinates are 64°30'58.25"N and 165°25'33.46"W. There are floor drains within the hangar that drain to a 500-gallon below ground storage tank. The concrete pad outside has several above and below ground storage tanks ranging from 2,000- to 30,000-gallons which store sewage, water, and jet fuel. The hangar is not equipped with an AFFF fire suppression system. Five 5-gallon buckets of Chemguard 3% AFFF concentrate are stored in the hangar. No AFFF solution has been mixed or sprayed within the hangar. A single Tri-Max™ 30 emergency response cart is onsite at the AAOF. The AKARNG interviewees do not recall the Tri-Max™ cart being used or discharged at the facility. The cart is sent to Anchorage for hydrostatic testing and replaced with an upgraded model every few years. Based on the storage of AFFF in 5-gallon buckets and the Tri-Max™ cart, the AAOF Hangar is considered a potential PFAS release area.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Nome AAOF, AK			
REVISED	7/20/2020	GIS BY	MS	7/20/2020
SCALE	1:4,800	CHK BY	LC	7/20/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	7/20/2020

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Non-Fire Training Area

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Figure 3-1

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4. Emergency Response Areas

No instances of emergency response were identified at Nome AAOF during the PA based on interviews, online research, and the EDR™ report (**Appendix A**). The primary emergency response unit for the AAOF is the NAFD, with supplementary support provided by the City of Nome Fire Department. There has been no need for emergency responses at the AAOF based on the PA interviews. Interviewees highlighted their history of zero incidents at the facility (**Appendix B**).

5. Adjacent Sources

Three potential off-site PFAS sources were identified adjacent to the Nome AAOF during the PA interviews (**Appendix B**) and the EDR™ report (**Appendix A**). **Figure 5-1** shows the location of the NAFD, NAFD AFFF Spray Area, and the nearby Nome Wastewater Treatment Plant (WWTP).

5.1 Nome Airport Fire Department

The NAFD (64°30'42.11"N, 165°26'7.20"W) is the primary first responder to the AAOF with supplemental assistance provided by the City of Nome Fire Department. Historically, the NAFD trained with AFFF twice a year on the sand patch in front of the station. The NAFD personnel also train at the city of Kenai periodically. The NAFD emergency trucks contain AFFF and the type, amount, and concentration of AFFF is unknown.

5.2 Nome Airport Fire Department AFFF Spray Area

According to interviews with the Assistant Fire Chief, the NAFD trains twice a year with AFFF in the adjacent gravel patch to the north (64°30'46.16"N, 165°26'7.54"W). The type, amount, and concentration of AFFF used by the NAFD during its training sessions are unknown.

5.3 Nome WWTP

The Nome WWTP is located 1 mile south of the AAOF (64°30'12.12"N, 165°26'34.24"W) on Submarine Beach Road, outside the airport boundary. The WWTP is currently active, but is downgradient of the site and therefore poses no risk of cross contamination. Although no use of AFFF has been identified here, WWTPs can often be sources of PFAS.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Nome AAOF, AK			
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SCALE	1:8,400	CHK BY	LC	7/20/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	7/20/2020

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Adjacent Sources

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Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, one non-FTA was identified where PFAS may have been incidentally spilled or discharged to the ground surface: AOI 1 AAOF Hangar. As such, this area is determined to be an AOI and may be a potential PFAS source area. The AOI location is shown in **Figure 6-1**.

The following section describes the CSM components and the specific preliminary CSM developed for AOI 1. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete. The preliminary CSM for AOI 1 is shown in **Figure 6-2**.

Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological study (National Ground Water Association, 2018). Receptors for the facility include site workers, construction workers, and recreational users. The preliminary CSM for the facility indicates which specific receptors could potentially be exposed to PFAS.

6.1 AOI 1: AAOF Hangar

AOI 1 is the AAOF Hangar, which contains the storage of five 5-gallon buckets of Chemguard 3% AFFF concentrate and a single Tri-Max™ 30 emergency response cart. Although AFFF solution is not mixed or sprayed within the hangar, it is possible that leakages may have occurred from the storage of AFFF.

Potential AFFF releases within the hangar are most likely directed to the floor drains within the hangar. The floor drains lead to a 500-gallon below ground storage tank, and the hangar has a closed-loop wash water recycling system. Thus, receptors are unlikely exposed to PFAS through this exposure pathway. However, potential AFFF releases outside the hangar may have occurred on paved and unpaved surfaces. PFAS are water soluble and can migrate readily from soil to groundwater via leaching. Drinking water for Nome AAOF is provided by the municipal Moonlight Springs, located less than 3 miles to the north at the base of Anvil Mountain. Static water levels in three of the spring wells measured 25 to 30 feet below ground surface (Bristol, 2005). Based on the inferred southern groundwater flow direction, the spring wells are located upgradient of the facility and are unlikely to be impacted by PFAS attributable to the facility. The shallow groundwater ingestion pathway is incomplete for site workers and residents that receive drinking water from the spring wells. Based on the static water levels of the three spring wells, construction workers at the facility are unlikely to encounter shallow groundwater even under trenching scenarios (typically up to 15 feet below ground surface); therefore, the shallow groundwater ingestion pathway is incomplete for construction workers.

If AFFF releases occurred outside the hangar on either paved or unpaved surfaces, ground-disturbing activities in these areas may result in potential exposure to surface soils via ingestion and inhalation of dust particles for site workers and construction workers. Potential AFFF releases to unpaved surface soils could have migrated to the subsurface soil via leaching. Potential AFFF releases to the paved surfaces could have also infiltrated the subsurface via cracks in the pavement or joints between areas that are paved with different materials. Ground-disturbing activities in the subsurface soil may result in potential exposure via ingestion for construction workers working under trenching or other subsurface conditions.

Nome AAOF is approximately a quarter mile from open, navigable marine waters and a tributary of Snake River flows adjacent to the western border of the facility. It is possible that PFAS migrated

to the nearby surface waters. Recreational users of these surface waters may be potentially exposed to PFAS via the ingestion of PFAS-impacted surface water and/or sediment. Additionally, the unconsolidated sediments of the plain are believed to be hydrologically connected to marine water in the water table where permafrost has not precluded access. Therefore, the shallow groundwater ingestion pathway for recreational users is considered potentially complete. The preliminary CSM for AOI 1 is shown on **Figure 6-2**.

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Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	7/20/2020

Area of Interest

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Figure 6-1

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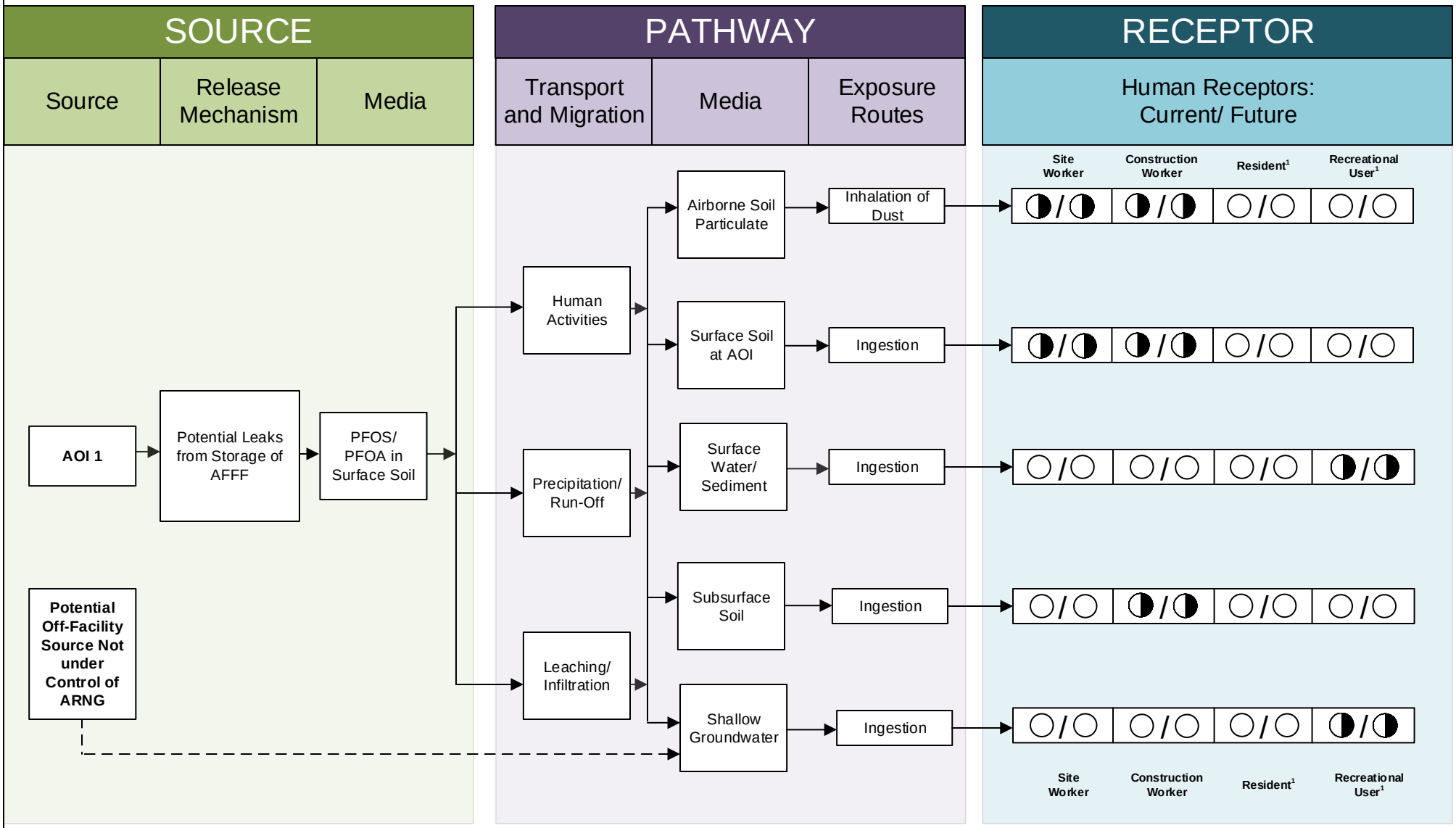


LEGEND

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

NOTES

1. The resident and recreational users refer to off-site receptors.

Figure 6-2
Preliminary Conceptual Site Model
AOI 1 AAOF Hangar

7. Conclusions

This report presents a summary of available information gathered during the PA on PFAS-related activities at Nome AAOF. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

One AOI related to a potential PFAS release was identified at Nome AAOF during the PA. The AOI is shown on **Figure 7-1** and described in **Table 7-1** below:

Table 7-1: AOIs at Nome AAOF

Area of Interest	Name	Used by	Potential Release Date
AOI 1	AAOF Hangar	AKARNG	1992 to present

Based on potential PFAS releases at AOI 1, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for AOI 1 is shown on **Figure 6-2**, which presents the potential receptors and media impacted.

7.2 Uncertainties

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

The conclusions of this PA are based on all available information, including: previous environmental reports, EDRs™, observations made during the VSI, and interviews. Interviews of personnel with direct knowledge of a facility generally provided the most useful insights regarding a facility's historical and current PFAS-containing materials. Sometimes the provided information is vague or conflicts with other sources. Gathered information has a degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS was first used (early 1970s), 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 potential 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 potential storage of PFAS were reviewed, retired and current personnel were interviewed, multiple persons were interviewed for the same potential source area, and the facility was visually inspected. **Table 7-2** summarizes the uncertainties associated with the PA.

Table 7-2: Summary of Uncertainties

Location	Source of Uncertainty
AOI 1: AAOF Hangar	There is uncertainty and a lack of documentation regarding the use, leakage, and/ or nozzle testing of the Tri-Max™ carts. It is also unknown if the stored AFFF concentrate may have leaked.
NAFD	The amount of AFFF stored in firetruck tanks and as concentrate in 5-gallon buckets is unknown. No or limited information was available on the type, amount, and concentration of AFFF used during the semiannual fire training at the NAFD.

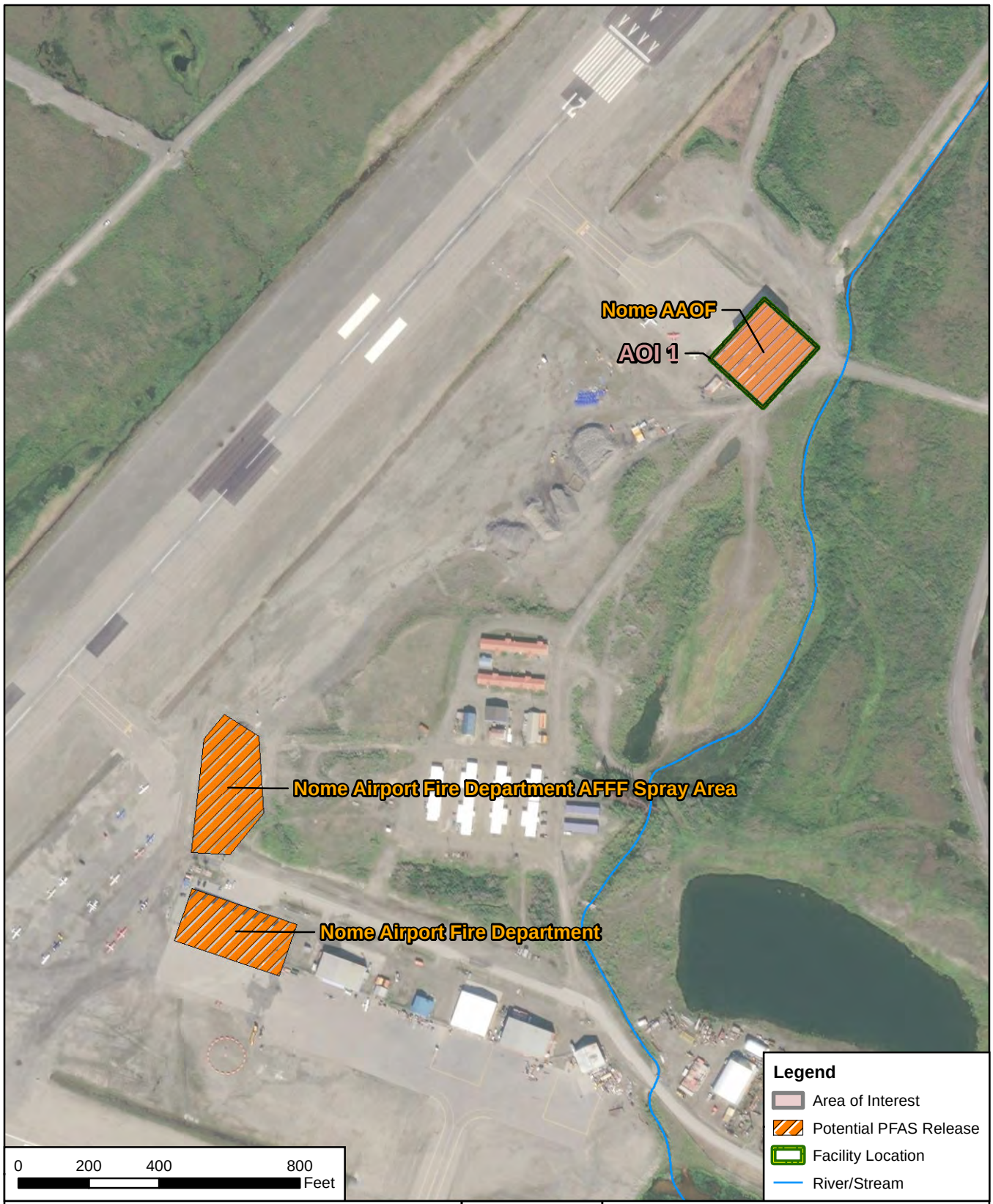
7.3 Potential Future Actions

Interviews and records (covering 1980s to present) indicate that ARNG activities may have resulted in a potential PFAS release at the one AOI identified during the PA. Based on the preliminary CSM developed for the AOI, there is potential for receptors to be exposed to PFAS contamination in media at or near the facility. **Table 7-3** summarizes the rationale used to determine if the AOI should be considered for further investigation under the CERCLA process and undergo an SI.

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

Table 7-3: PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1: AAOF Hangar	64°30'58.25"N 165°25'33.46"W	Storage of AFFF in five 5-gallon buckets and a single Tri-Max™ 30 cart	Proceed to an SI, focus on soil, groundwater, surface water, sediment



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Nome AAOF, AK			
REVISED	7/20/2020	GIS BY	MS	7/20/2020
SCALE	1:4,800	CHK BY	LC	7/20/2020
Base Map: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	7/20/2020

N

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

C:\Users\stankevichm\OneDrive - AECOM Directory\ARNG_PFAS_GIS_60552172\MXDs\AK\Nome_Figures\Nome_PFAS_PA_Figures\Fig_7-1_Nome_Summary.mxd

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Appendix A
Data Resources

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

2018 EDR™ Report

- 2018 The EDR Radius Map™ Report with GeoCheck®; Aerial Photo Decade Package; & Certified Sanborn Map Report; Target Property Nome AAOF, 227 Airport Road, Nome, Alaska 99762. Inquiry Number: 5509593.2s

Final Site SPCC

- 2008 Nome AAOF Final Site Spill Prevention, Control, and Countermeasure Plan

Lease

- 1988 Nome AAOF Lease Agreement ADA-70299. Alaska Department of Transportation

Appendix B

Preliminary Assessment Documentation

Appendix B.1
Interview Records

PA Interview Questionnaire - Other

Facility: NOME AFFF
Interviewer: [redacted]
Date/Time: 8/31/2018

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

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

- 2006 - present -
- 1996 - 2001 - maintenance / safety officer

2007 - present - facility commander

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

- No AFARNG crashes / fires

- No memory of crashes / fires @ airport

- AST - have super cub
  - no fire fighting foam

- If Blackhawk fire - 1st responders are Airport Fire Department — they have nice equipment
  - Then City of Nome

On 2nd Trimax - 1st one sent back to Anchorage & got an upgraded one.

- [redacted] - would know when it was shipped out to

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

PA Interview Questionnaire - Other

Facility: Nome AFFF
Interviewer: [redacted]
Date/Time: 8/31/2018 12:00

- AAOF is on city water
- Trimax has been in same location since it arrived
- 3% AFFF has been in the same location since it arrived
- ANG will land occassionally; but doesn't bring fire fighting foam

PA Interview Questionnaire - Other

Facility: Nome
Interviewer: [redacted]
Date/Time: 8/31/18

Interviewee: [redacted] **Title:** Fire Chief @ Nome Airport **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 ADOT **Facility:**

10 yrs as Fire Chief – Volunteer Fireman for 16 years

- Does have fire fighting foam on site – Trying to get rid of it
- Not sure what the replacement will be
- Train by sand – 2X/year – go to Kenai for training
- Each fire fighter gets a chance

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
- City trucks use foam as well	Use
- In past 10 years no airport crashes that they need to use it.	Procurement
	Disposition
	Storage (Mixed)
- Run off flows into ditch (see pictures) – most stays in sand	Storage (Solution)
	Inventory, Off-Spec
	Containment
- Supply of AFFF has been the same as since before he arrived	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: CW4 [redacted]

Date and Time: 8/31/2018 - 1200

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

Source/Release Information

Site Name / Area Name / Unique ID: None AAOF

Site / Area Acreage:

Historic Site Use (Brief Description): - AKARNG Hangar built in 1992 is

Current Site Use (Brief Description):

Physical barriers or access restrictions: ~~Fen~~ not a secure airfield @ this side

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):

2. Has usage been documented? Y / N

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

N/A

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

3a. Indicate what businesses are located near the site

Airports

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

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

AK Air / Ravn / Bering Air / passenger & cargo

Visual Survey Inspection Log

Other Significant Site Features: Trinax

1. Does the facility have a fire suppression system? Y / N

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

3% AFFF - CHEMGUARD

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

New, recharged one comes from Bryant

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?

yes - drains RFG (maintained by ADOT) & in to holding tank (500 gal)

Transport / Pathway Information

Migration Potential:

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

1a. If so, note observation and location:

west - across airfield

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

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

drainage ditch comes around to runway area

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

3a. If so, please note the location: - Home use - up road by jail - whole subdivision has wells ~1 mi to N

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.

~~Fire~~ Airport Fire Department

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

Drive by take pictures

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: Mostly concrete around hangar w/ tundra s/ southeast across the street

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:

some in parking lot

Receptor Information

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

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

nothing around runway on this side

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:

~1 mile to North - near jail

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

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

1.5 mi to North - Bowne High School - past jail - likely on City Water

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

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

yes w/in 0.5 mi

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Nome AAOF

Why has this location been identified as a site?

Historically held TRI-MAX 30 AFFF crash carts

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

There is a fire department that trains with AFFF half a mile to the south.

Training Events

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

If so, how often?

How much material was used? Is it documented?

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? South into Norton Sound, an embayment of the Bering Sea.

Average rainfall? 16.56 inches

Any flooding during rainy season? Coastal floodplain sometimes floods

Direct or indirect pathway to ditches? Yes

Direct or indirect pathway to larger bodies of water? Indirect pathway to Norton Sound.

Does surface water pond any place on site? No

Any impoundment areas or retention ponds? There are natural lakes nearby.

Any NPDES location points near the site? N/A

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

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? South

Depth to groundwater? Approx. 30 Feet. (Coastal tides and permafrost affect the depth)

Uses (agricultural, drinking water, irrigation)?

Any groundwater treatment systems? No

Any groundwater monitoring well locations near the site? Maybe

Is groundwater used for drinking water? No

Are there drinking water supply wells on installation? No

Do they serve off-post populations? No

Are there off-post drinking water wells downgradient . No

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? No, but there is one south of the site.

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

Do we understand the fate of sludge waste?

Is surface water from potential contaminated sites treated?

Equipment Rinse Water

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

Only the airport has fire fighting equipment that is tested.

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?

TRI-MAX carts are not tested here.

3. Other?

Identify Potential Receptors:

Site Worker

Construction Worker

Recreational User

Residential

Child

Preliminary Assessment – Conceptual Site Model Information

Ecological

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

Documentation

Ask for Engineering drawings (if applicable).

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

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Nome AAOF	Nome, Alaska

Photograph No. 1

Description:

TRI-MAX stored at the Nome AAOF, located in the west corner of the hangar.

Date Taken:

31 August 2018

Photograph No. 2

Description:

Five 5-gallon buckets of AFFF stored next to the flame cabinet in the Nome AAOF, near the south corner of the hangar.

Date Taken:

31 August 2018

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Nome AAOF	Nome, Alaska

Photograph No. 3

Description:

Outside front of the Nome AAOF, looking east.

Date Taken:

31 August 2018

Photograph No. 4

Description:

Outside front of the Nome AAOF, looking southeast.

Date Taken:

31 August 2018

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Nome AAOF	Nome, Alaska

Photograph No. 5

Description:

Fire hydrant and well near the Nome Airport Fire Department, about 200 yards south of the Fire Department's AFFF training area, looking west northwest.

Date Taken:

31 August 2018

Photograph No. 6

Description:

Noma Airport Fire Department (about 200 -300 yards from the Fire Department's AFFF training area), looking south.

Date Taken:

31 August 2018

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Nome AAOF	Nome, Alaska

Photograph No. 7

Description:

Complete view of the Nome Airport Fire Department, looking south southwest. AFFF training area is out of frame 90 degrees to the right.

Date Taken:

31 August 2018

Photograph No. 8

Description:

Nome Airport Fire Departmnet AFFF training area (piles of sand/gravel on the other side of the fence), looking north from the fire station.

Date Taken:

31 August 2018

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Nome AAOF	Nome, Alaska

Photograph No. 9

Description:

Nome Airport Fire Department's AFFF training area (piles of sand/gravel on the other side of the fence), looking west from a hilltop north of the fire station.

Date Taken:

31 August 2018