SITE ASSESSMENT REPORT

SPOKANE INTERNATIONAL AIRPORT
Spokane, WA
Facility Site ID: 6332493; Cleanup Site ID: 16774

Prepared for:

SPOKANE INTERNATIONAL AIRPORT
9000 W. Airport Drive, Suite 204
Spokane, Washington 99224

Prepared by:
GSI ENVIRONMENTAL INC.
1115 West Bay Drive NW, Ste. 202
Olympia, WA 98502
www.gsienv.com

Job No.: 6892
Issued: 13 August 2024

SITE ASSESSMENT REPORT
Spokane International Airport
Spokane, WA

TABLE OF CONTENTS

SITE ASSESSMENT REPORT
Spokane International Airport
Spokane, WA

TABLE OF CONTENTS

EXHIBITS

TABLES

FIGURES

APPENDICES

SITE ASSESSMENT REPORT
Spokane International Airport
Spokane, WA

LIST OF ABBREVIATIONS

ADF ..... aircraft deicing fluid
AFB ..... Airforce Base
AFFF ..... aqueous film-forming foam
Amsl ..... above mean sea level
AOA……Air Operations Area
ARFF..... Airport Rescue and Fire Fighting
bgs ..... below ground surface
BMPs ..... best management practices
CFR..... Code of Federal Regulations
COO..... Chief Operating Officer
CRBG..... Columbia River Basalt Group
DoD..... Department of Defense
Ecology ..... Washington State Department of Ecology
EO..... Enforcement order
ERIS..... Environmental Risk Information Services
FAA..... Federal Aviation Administration
FWS ..... United States Fish and Wildlife Service
GRV ..... glycol recovery vehicle
GSI..... GSI Environmental Inc.
HFPO-DA..... hexafluoropropylene oxide-dimer acid
IAC ..... International Aerospace Coatings
ITRC..... Interstate Technology and Regulatory Council
MCL ..... maximum contaminant level
MTCA..... Model Toxics Control Act
NTSB ..... National Transportation Safety Board
PFAS..... per- and polyfluoroalkyl substances
PFAS CAP ..... Per- and Polyfluoroalkyl Substances Chemical Action Plan
PFBA ..... perfluorobutanoic acid
PFBS ..... perfluorobutanesulfonic acid
PFDA ..... perfluorodecanoic acid
PFDoDA..... perfluorododecanoic acid
PFHxA..... perfluorohexanoic acid
PFHxS..... perfluorohexanesulfonic acid
PFNA ..... perfluorononanoic acid
PFOA ..... perfluorooctanoic acid

SITE ASSESSMENT REPORT
Spokane International Airport
Spokane, WA

LIST OF ABBREVIATIONS

PFODA	perfluorooctadecanoic acid
PFOS	perfluorooctane sulfonic acid
PFPeA	perfluoropentanoic acid
PFPrA	perfluoropropanoic acid
PFTetA	perfluorotetradecanoic acid
PFUDA	perfluoroundecanoic acid
POTW	Publicly owned Treatment Works
PWS	public water systems
SDWA	Safe Water Drinking Act
SIA	Spokane International Airport
SMaRT	Spokane Material and Recycling Technology
SRVP	Spokane Valley-Rathdrum Prairie Aquifer
SWGE	Synoptic well gauging event
UCMR	Fifth Unregulated Contaminant Monitoring Rule
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WA DoH	Washington State Department of Health

1.0 INTRODUCTION

GSI Environmental Inc. (GSI) prepared this Site Assessment Report on behalf of Spokane International Airport (SIA), also known by its International Air Transport Association code, GEG. The report addresses requirements detailed in Task 1A (Site Assessment Report for PFAS) of Enforcement Order No. DE22584 (the EO) as issued by the Washington State Department of Ecology (Ecology) on 29 March 2024. This report is meant as a preliminary review of information gathered to date and will serve to support additional work to be conducted in the Preliminary PFAS Investigation (Task 1B of the EO) and as part of the Remedial Investigation. The initial information and findings stated in this report may be subject to change following additional data collection and analyses conducted as part of the EO investigations. Table 1.1 states the required elements as outlined in the EO for the Site Assessment Report and the corresponding sections within this report. In addition, general background on environmental conditions at the site including the environmental setting and hydrogeology are provided.

The focus of this Site Assessment report is to provide preliminary information gathered to date regarding the potential and known usage of aqueous film-forming foams (AFFF) at SIA that contain per-and polyfluoroalkyl substances (PFAS) with an objective, "to identify potential source areas for further investigation and guide the collection and interpretation of soil and groundwater analytical data", as stated in the EO. The airport's usage of AFFF containing PFAS relates directly to the airport's compliance with federal regulations. Recognizing these federal mandates is important for understanding AFFF usage on airport property, including past military operations at the airport. The Federal Aviation Administration (FAA) requires airports certificated pursuant to 14 CFR Part 139, like SIA, to use AFFF that meets certain federally mandated standards, including those established by the Department of Defense since at least the late 1960s. Through its advisory circulars and separate published guidance called "CertAlerts," airports are provided the guidance needed to maintain their Part 139 certification which includes specification on the type of firefighting foam to use, amount of AFFF required on site, and testing protocols (see Section 4.1). Only in 2023 has a fluorine-free foam become an option and the transition to fluorine-free foam at Part 139 airports is likely to occur over the next several years. The new fluorine-free foams are not drop-in replacements for AFFF, as they may require modifications to equipment for application and discharge, cannot be mixed with AFFF products, and require new extensive training for firefighting personnel. The FAA and DoD are actively working on guidance for the proper and effective transition.

With this background and experience at other military and civilian airports, GSI conducted a review of documents, including publicly available sources and environmental and facility reports provided by SIA all with the goal of understanding AFFF usage at SIA under its FAA mandate. GSI staff also interviewed individuals from SIA with working knowledge of the SIA fire department and operations. This report serves as a compilation of SIA specific information, obtained to date, pertaining to the history and use of AFFF across the airport area. The report also identifies potential sources of PFAS that are not associated with airport operations. The findings from the historical and operational review, the interviews, and research from publicly available documents are summarized in this draft report and that information has helped to inform our initial focus on areas of potential concern for future investigation.

2.0 AIRPORT DESCRIPTION

SIA is located within Spokane County and is jointly owned by Spokane County (the County) and the City of Spokane (the City). The operating authority of Spokane Airports is the Spokane Airport

Board, consisting of seven appointees from the two governmental bodies. The airport property is comprised of multiple parcels with a range of property uses, the most common being vacant land (Table 2.1). The airport operates as a regional commercial service for the surrounding community and is the second largest airport in the State of Washington. The Airport offers service to destinations across the Western, Midwestern, and Central United States, and onward connections to the rest of the country and the world. The FAA recognizes SIA as a "small hub." As an airport serving passenger aircraft SIA is required by the FAA to be certified under 14 Code of Federal Regulations (CFR) Part 139, Certification of Airports (Part 139).[1] The Airport Operating Certificates specified in Part 139 are for compliance with safety and emergency response requirements, including the federal requirements for aircraft rescue and firefighting.

The term “Site” as used in this report refers to the main operational area within the SIA property boundary as shown in Exhibit A of the EO and presented in Figure 2.1 as the “Primary Airport Area” and is not meant to define the facility boundary as defined by WAC 173-340-200 as that spatial designation is the subject of this ongoing investigation. The fence line shown in Figure 2.1 surrounds the portions of the site that are considered part of the SIA secure operations, also called the “airside” or secure area, as discussed further in Section 2.1.

The sections below provide further information discovered to date regarding the airport operations and the environmental setting.

2.1 Current Operations

As mentioned above, the City and County of Spokane jointly own SIA and the Airport Business Park (Spokane Airports), which entails operational areas including the Airport Passenger Terminal and airfield. Existing buildings are leased for third-party use and real estate is available and designated for third-party development or built-to-suit. Combined, operations within the SIA property include airfield operations and supporting infrastructure, and several on-Site businesses.

Airport operations are divided into airside and landside areas, as shown in Figure 2.2**.** Airside operations are within the secure fenced Air Operations Area (AOA). The runway side of the passenger terminal, field maintenance, fuel station, and glycol storage area are all part of the AOA. Third party operators holding leases are also within the fenced area. The Aerospace center is a third party leased area where local businesses such as International Aerospace Coatings (IAC) and others operate.

Landside airport infrastructure, outside of the secure fenced AOA, includes the stormwater recovery area and land treatment area. Additional aviation-related support industries and non-aviation businesses are present outside the fence line. Several lease holders have operations concentrated in the Business Park area, including cargo/shipping facilities (Federal Express, United States Postal Service, United Parcel Service, Amazon Air), Spokane Waste to Energy, Spokane Materials and Recycling Technology Center (operated by Waste Management), and Geiger Corrections Center (operated by Spokane County).

2.2 Site History

The land upon which SIA is situated has been under the ownership and management of the City, County, Spokane Airport Board or a branch of the Department of Defense (DoD) since 1939. Prior to the formation of the Spokane Airport Board, it is unclear which roles the City and County assumed in the leasing and management of the property, but they will jointly be referred to as Spokane in this section. Construction of the initial airfield (called Sunset Field) began in 1939 after

[1] https://www.faa.gov/airports/airport_safety/part139_cert

Spokane leased the land upon which SIA sits to the DoD. Sunset Field was then purchased by DoD from Spokane in 1941 and was renamed Geiger Field in 1943.

During World War II Geiger Field served as a DoD base for training bomber crews. (USACE, n.d.) After World War II management of the airport was given to Spokane in 1948, though this was short lived as Air Force activities resumed in 1950 during the Cold War. Over the years, Geiger Field continued to serve as a DoD airfield hosting different units such as the US Air Force, Army National Guard, and the Air National Guard. In 1960 was then renamed Spokane International Airport retaining the International Air Transport Association code of GEG. Major training and air defense missions were maintained at the airport until 1963. At this time, control of main runways was transferred to the Spokane Airport Board while some areas that are currently part of SIA, such as family housing units and National Guard areas were owned, leased or otherwise occupied by a branch of the DoD. The Army National Guard leased a portion of SIA, currently Aerospace Park, until 2006 (USAF, 2006). It in unknown what year SIA acquired this property and the adjacent parcels that encompass the current Air National Guard property as it was designated as the pre-existing location Amy National Guard in the 1950s Geiger Field Master Plan (USAAC, 1956).

Due to the types of operations and use of the Site formerly owned by, leased to, possessed by or otherwise operated by the DoD prior to October 1986, the site was classified as a Formerly Used Defense Site (FUDS) (FUDS Installation ID WA09799F340300) (USACE, n.d.) under the Defense Environmental Restoration Program (DERP). Prior to the establishment of DERP, the DoD began assessing and cleaning contaminated sites across the US in 1975 under the Installation Restoration Program (IRP). IRP has a broader constituency of sites as it applies to FUDS in use before or after 1986, Base Realignment and Closure (BARC) sites, and active installations. Initial investigations of DERP FUDS occurred from 1984 to 1991 (Herrera, 2003) when PFAS, associated with AFFF or other products, would not have been a potential contaminate of concern for evaluation. Additional IRP investigations managed by the USACE took place during this time and did not evaluate potential PFAS contamination.

Details related to DoD and SIA joint fire training areas have been documented in relation to soil and groundwater contamination of petroleum hydrocarbons (ERM-West, Inc., 1996; OpTech, 1995). In-between the southeast end of runway 3-21 and the current Air National Guard property a portion of land was used as a landfill from 1961 to 1967. While these waste pits were periodically burned – it is uncertain whether these burning events were used as fire training events. During this period, it is known that the Air National Guard began training firefighting crews north of the landfill on unprotected ground in a burn pit. A clay lined pad was installed in 1986 and it is reported that fuel and water runoff was drained into an adjacent catchment pond (location unknown). It is unknown what year SIA began participating in fire training exercises with the Air National Guard and if the Army National Guard participated. Further details of SIA participation are detailed in section 4.2.3. Given the timeline of fire training events, the use of AFFF by the Air National Guard prior to 1986 qualifies this specific area as a formal DERP-FUDS. At this time, documents cited in IRP reports which may contain further information have been requested but not yet received.

Exhibit 2.1 SIA Ownership & Historical Operations

Year	Geiger Field Ownership & Operations History
1939	Spokane leases what is now GEG to the military for one dollar a year, banning civilian use. The Works Progress Administration and the Army jointly prepared the runways at Sunset Field.[a]
1941	The DoD purchased Sunset Field from Spokane for World War II B-17 and C-47 training facility.[a]
1943	Sunset Field is renamed Geiger (GEG) Field, and the Army Air Depot begins operations.[a]
1946	A portion of the airfield was designated a municipal airport, and commercial airline operations were moved from Felts Field to Geiger Field.[a]
1948	Post WWII, the management of Geiger Field returned to Spokane.[a]
1950	The management of Geiger Field is returned to the DoD as Air Force activities resumed during the Cold War. [a] Additional base infrastructure constructed in current Business Park.
1960	Geiger Field was renamed to Spokane International Airport.[a]
	Air Force 116th Observation Squadron and the 141st Division Air Service move to present location at SIA and are redesignated as the 116th Fighter Interceptor Squadron and the 142nd Air Defense Wing.[c]
1962	Spokane Airport Board is formed under the Airport Joint Operations Agreement [b]
1963	Air Force training and defense operations cease at Geiger Field. All but the National Guard and the Air Force family housing were transferred to the Spokane Airport Board.[b]
1976	The Air Force moves the Air National Guard 141st from GEG to Fairchild Air Force Base.[d]
	The 242nd Combat Communications Squadron (CCSQ) moved in as the host unit of the Spokane ANGS after the 116th and 142nd transferred from the site.[d]
1979	Geiger Corrections Center Constructed from former base housing.[e]
1996	DoD transfers remaining Air Force family housing to the Spokane Airport Board.[b]
2006	Army National Guard transfers helicopter operations from SIA (current Aerospace Park Area) to Fairchild Airforce Base.[e]
2010	Air National Guard 242nd Combat Communications Squadron completes move to Fairchild Airforce Base. [f]

References:

a) (Mead and Hunt, 2014)
b) (USACE, n.d.)
c) (Spokane County, 2019)
d) (ERM-West, Inc., 1996)
e) (GHD, 2018)
f) (USAF, 2006)
g) (USAF, 2009)

2.3 Current and Historical Land Use

Land use near SIA is mixed and includes commercial, industrial, residential, agricultural, and open space. Planning for land use around airports must address several fundamental compatibility issues including safety, operational expansion, and noise. In addition, the proximity to Fairchild Air Force Base (AFB) creates another layer of complexity in local land use planning.

Properties bordering SIA to the South are zoned as Light Industrial (LI), to the West are a mix of Rural Traditional (RT) and Light Industrial parcels. On the North side of SIA, properties in the city of Spokane are designated as LI and within the Airport Overlay Zone. East of SIA (East of S Geiger Blvd.), properties are zoned as a Rural Cluster (RC), LI, Low Density Residential (LDR), Medium Density Residential (MDR), and several small parcels of High Density Residential (HDR).

Parcels owned by the Spokane Airport Board are not zoned according to the county zoning codes as they are within the Airport Overlay Zone.(Board of Spokane County Commissioners, 2004) Property use descriptions indicate that the majority of parcels within SIA are labelled as vacant or used for aircraft transportation. Only five out of 67 parcels within the SIA area are not described

in either of these two ways. These properties are described with a mix of other services, governmental, or unclassified labels.

The Environmental Risk Information Services (ERIS) data package was obtained to assess changes in land use and topography over time. It includes historical aerial photos from United States Geological Survey (USGS) and the United States Department of Agriculture (USDA showing the airport area. Aerial imagery from five different years is shown in Figure 2.3 and summarized below:

- 1952 aerial imagery shows Geiger Field runways and associated infrastructure in the current Business Park area and the Army Air National Guard in the current Aerospace Park area, corresponding to the Geiger Filed Master Plan (USAAC, 1956). The Park Drive waste disposal area and excavation pits, recognized as a United States Army Core of Engineers (USACE) cleanup site (Ecology Facility/ Site No. 664, Cleanup Site ID 1233) are also visible. An excavated dumping area is also visible at the southern end of what is currently runway 3-21 on W Electric Ave, also a recognized USACE cleanup site (Ecology Facility/ Site No. 665, Cleanup Site ID 1149).
- 1962 aerial imagery shows further development of Geiger Field in the current Business Park area. Structures on the eastern side of the Army Air National Guard area are demolished and replaced by pavement. The Air National Guard infrastructure also appears in the location it currently occupies on W Electric Ave. Excavation pits of the Park Drive waste disposal area have expanded to the south and west. An additional series of buildings appear northwest of the Park Drive waste disposal area, adjacent to the current stormwater collection area.
- 1972 aerial imagery shows the beginning of current SIA infrastructure including the Terminal, expanded runways, and fuel area, parking lots, and construction of W Airport Dr. Between 1962 and 1972, some structures in the former Geiger Field area were demolished. The northeast portion of the densely vegetated topographic low area appears to have been infilled.
- 1991 aerial imagery shows the continued growth of SIA infrastructure to the northeast of the passenger terminal along with additional roadways. The areas north and northwest of the passenger terminal along U.S. Highway 2 underwent non-residential development. The Park Dr. waste disposal area is visibly infilled and the Spokane Waste to Energy facility was constructed adjacent to its southeastern extent. Some structures remain on the western portion of forger Geiger Field parallel to runway 3-21, though a majority in this area were demolished except for the buildings which are utilized as the Spokane County Correctional Facility. On W Electric Ave activity at the Remtech soil remediation area west of the Air National Guard property is visible. Adjacent to Remtech, the previous Geiger Field dumping area was infilled, and the land surface displays scarring in what is known to be the fire training area.
- 2017 aerial imagery shows further growth of SIA infrastructure, including the southward expansion of runway 3-21 and pavement of ramps on the western side of the Business Park area. Additional large structures in the business park areas include the Waste Management Recycling Center adjacent to the Waste to Energy facility and the USPS hub. Non-residential development has continued to expand in the areas north and northwest of the passenger terminal along U.S. Highway 2.

2.4 Geology and Hydrogeology

The regional geological and hydrogeological framework, as well as other information foundational toward building a conceptual site model, are detailed in Appendix A Geology & Hydrogeology (Haley & Aldrich, 2024) and generally summarized below. Due to the geological complexity of the area and limited Site-specific data, the information below presents a regional review of information to serve as a basis for future Site-specific work.

2.4.1 Regional Geology and Hydrogeology

SIA is situated within the West Plains area of Spokane County, a subregion of the larger Columbia Basin. The West Plains is bounded in the north by the Spokane River; bounded in the east by Marshall Creek, Latah Creek (formerly Hangman Creek), and the Spokane River; bounded to the south by upland buttes; and bounded in the west by the upland buttes and Spring Creek of eastern Lincoln County (McCollum and Pritchard, 2012).

The regional geology of the Columbia Basin consists of three major units: basement rock, the Columbia River Basalt Group (CRBG) with associated sedimentary interbeds, and overburden. The basement rock was subject to compression which formed faults creating rugged, high areas. During the Miocene era, lava flows filled the valleys between elevated basement rock, the exposed peaks are called buried hills or steptoes. During the Pleistocene, deposits from glacial floods formed a sedimentary layer over the lava deposits. The deposition of the lava flows generally creates a stratigraphic sequence with three distinct segments: flow bottom, flow interior, and flow top. Additional processes such as inflation (when hot lava pushes into an already cooled lava flow) disrupt the vertical superposition of the typical flow sequence. Based on hydrological resources, the West Plains region in the eastern Columbia Basin drains generally from southwest to northeast. The basement rock has low permeability, acting as the lower boundary of the West Plains aquifer system. As with the greater Columbia Basin, the West Plains aquifers are contained in units of the flood basalts, the CRBG, and the overlying unconfined sediment (Deobald and Buchanan, 1995). Understanding the CRBG stratigraphy and sedimentary deposits is a critical piece to characterizing the West Plains hydrogeologic system.

2.4.2 Site-Specific Geology and Hydrogeology

The topography of the airport area is a relatively flat plain gently sloping downward from an elevation of 2390 feet to 2290 feet above mean sea level heading from the southern end of the site to the northeast area (Derkey et al., 2004; Hamilton et al., 2004). The geology at the Site generally consists of sedimentary overburden deposits underlain by the CRBG at variable depths. Overburden thickness across the site ranges between 4 feet and 32 feet consisting of mostly of silt, silty sand to sand, and gravels. Fill materials are also present in some areas from previous remedial and waste disposal activities related to Former Geiger Field operations. The depth to basalt under the overburden tends to be deeper in the southwestern portion of the Site and shallower in the stormwater recovery area to the northeast. Depth to groundwater was observed to range from less than 2 feet to 27 feet below ground surface (bgs) in March of 2024. Within the Former Geiger Field area sits another cleanup site, Geiger Corrections Facility (Facility/ Site No. 663, VCP No. EA0263). Ongoing investigations and groundwater monitoring at the Geiger Corrections Facility indicate seasonal variation in groundwater flow direction depending on depth with flow directions reported between east and northwest. Proximity to paleochannels may also influence flow paths in some sections of the northern and western boundaries of the Site. The southeastern boundary of the paleochannel closest to Airway Heights parallels the western portion of the Site and is located approximately 1.5 miles west of SIA and the southern point of the paleochannel originating near the north side of SIA (GeoEngineers Inc., 2007; Northwest Land & Water, Inc., 2012).

In general, more information is needed to determine Site-specific groundwater flow paths; more data is needed to substantiate groundwater elevations, flow directions, and hydraulic gradients. These will be evaluated in future investigations.

2.4.3 Topography and Land Cover

The landscape within the West Plains consists of mixed semi-arid shrub steppe grasslands, sparse mixed conifer forest and shrub steppe, barren rock surfaces, agricultural land, and urban-semi urban uses (GSI Water Solutions Inc. et al., 2015).The landscape around the Site also includes some stormwater infrastructure, impermeable surfaces caused by shallow to surficial bedrock, and coarse-grained deposits that infilled paleochannels to the north-northwest, west, and southwest of the Site.

2.5 Groundwater

Groundwater is present at the Site in unconfined sediments, also known as the overburden aquifer, and the CRBG aquifer. Groundwater in the West Plains area generally flows northeast, towards the Spokane River. Drinking water for the City of Airway Heights (Water System ID No. 006502) comes from two interties with the City of Spokane, as well as the CRBG aquifer, and the paleochannel within the West Plains (WA DoH, 2023). In 2017, perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected in municipal wells and attributed to firefighting activities at Fairchild AFB (ATSDR, 2022). The City of Airway Heights has since been reliant on City of Spokane after emergency water supply connection was established in 2018 (City of Spokane, 2023). The alternative water supply identified for the City of Airway Heights is the Spokane Valley-Rathdrum Prairie Aquifer (SVRP) (GeoEngineers, 2021).

East of the West Plains, the SVRP is the only drinking water source for the City of Spokane; the U.S. Environmental Protection Agency (EPA) designated the aquifer as a sole source aquifer in 1978(USEPA, 1978).

According to the USGS, the SVRP aquifer in western Spokane consists of two relatively independent systems mostly separated by a buried basalt ridge. The basalt ridge extends approximately two miles south of Five Mile Prairie, a neighborhood located on the north side of Spokane. The main body of the aquifer is east of the basalt ridge. The two SVRP aquifer systems are presumably connected by the Trinity Trough that breaches the basalt ridge (USGS, 2005).

2.6 Surface Water

The Site is located within the Hangman Watershed (HUC 17010306) and the Lower Spokane Watershed (HUC 17010307). The United States Fish and Wildlife Service (FWS) has classified several streams within and surrounding the Site as perennial or intermittent in their database, as identified in Figure 2.4 and described below:

Unnamed Stream 1

This stream is comprised of a series of discontinuous perennial and intermittent streams along the northeastern portion of the Site. Segments east of the Perimeter Ditch located within the Primary Airport Area are classified as unknown perennial. The ‘unknown’ classification indicates uncertainty in consistency of water flow, underlying substrate, and dissolved oxygen concentrations. The flow direction of these stream segments is generally east, northeast. Outside of the Primary Airport Area segments are classified as intermittent seasonally flooded streams with unconsolidated beds. The flow path of the intermittent sections of this stream shifts to the northeast east of W. Allan Rd following S. Geiger Blvd. flowing towards Highway 2. Connectivity between segments is not known and requires further evaluation.

Unnamed Streams 2 & 3

There are two unnamed streams located within the southwestern portion of the Site boundary. The FWS classified both streams as intermittent seasonally flooded streams. The easternmost stream begins south of SIA and flows north, here referred to as Stream 2. Stream 2 begins as an outflow of the ponds located in The Plains Golf Course, then flows north toward W. Geiger Blvd, parallel to S. Thomas Mallen Rd. A waterbody located between the Caterpillar distribution center and the Keystone Automotive Operations drains into the stream prior to W. Geiger Blvd. Stream 3 begins as an outflow of a waterbody approximately 500m southwest of the Spokane County Sheriff's office. The stream flows though Spring Lake and Lake Eleanor before it continues northeast and converges with Stream 2, approximately 700 ft to the southwest of the current SIA Fire House. The combined flow is directed generally to the north towards the catchment basin of the perimeter ditch that runs along the western boundary of the airport.

Wetlands

In 1993 the Washington State Department of Ecology Wetlands Program conducted a site investigation to determine if on-Site areas were subject to wetland regulations. The investigation by Ecology concluded that the habitat and detention ponds at the mouth of the Stormwater Recovery Area did not exist prior to stormwater discharge and is part of the stormwater system. Therefore, the ephemeral ponds in the Stormwater Recovery Area are not subject to state regulation as wetlands (WA ECY: Nichols, 1993).

3.0 RECORDS REVIEW

Site-provided historical records, publicly available information, information purchased from a service provider of environmental due diligence data (ERIS), and interviews of onsite personnel were utilized in compiling this report. Details on the relevant reports and data sources are provided in this section and summarized in Exhibit 3.1.

Exhibit 3.1 Summary of Records Reviewed

Record Type	Reference	Description
Incident Records Review	National Transportation Safety Board (NTSB) Aviation Investigation Search	Aviation accident database contains civil aviation accidents and selected incidents that occurred from 1962 to present within the United States.
Site Environmental Records	Environmental Risk Information Services (ERIS)	Database report, Historical Aerials, Fire Insurance Maps.
Previous Investigations	Washington Department of Ecology – What's In My Neighborhood [a]	Previous and ongoing contamination cleanup site details.
Site Personnel Interviews	Former fire chief, current Chief Operating Officer (COO)	SIA Fire Chief from 1999-2022 SIA COO from 2008 to present

Notes:
a) https://apps.ecology.wa.gov/neighborhood/?lat=47.624284&lon=-117.528921&zoom=14&radius=false *accessed February 28, 2024.*

3.1 Interviews of Site Personnel

GSI conducted interviews with the former fire chief and COO at SIA. The former fire chief worked at SIA from March 1999 to January 2022. The former fire chief is well versed in the standard practices and procedures associated with aqueous film-forming foam (AFFF) use at the site and

provided insight into historical AFFF use at the site. He was present for the 2016 changeout from C8 to C6 foam at SIA and is familiar with the procedures followed in those scenarios.[2] A second follow up interview was conducted with the COO employed at SIA since 2008. He provided additional information on general site operations. Information provided during these interviews with GSI is provided primarily in Section 4.0**.**

3.2 Incident Record Review

Records available from the National Transportation Safety Board (NTSB) were reviewed to identify potential incidents *that may have* been responded to by SIA ARFF. Aviation final investigation reports associated with the GEG airport code were reviewed for details indicating incident locations and details indicating aircraft fires and or explosions. Incidents with reports indicating hard landings or fires were further explored by researching local news records. Articles from local newspapers and media sources were also used to identify significant fire events in the area *that may have* required emergency response with AFFF by SIA or emergency response mutual aid partners. The identified NTSB incidents where fire was mentioned, and any incidents identified in public news articles were reviewed during the interview with site personnel to obtain additional details regarding the emergency response methods.[3] The NTSB reports do not provide detailed information regarding specific response actions for recorded incidents.

3.3 Site Environmental Record Review (ERIS)

The information received from ERIS that was used in this Site Assessment included aerial photographs and fire insurance maps. A summary analysis of historical aerial images is provided in Section 2.3; however, no fire insurance maps were found in the ERIS search for the Site.

3.4 Data Gaps

The review and compilation of SIA operations and PFAS usage provides a foundation for building the Preliminary PFAS Investigation and Remedial Investigation Workplans to evaluate the possible existence and extent of PFAS contamination on the Site. However, some information was either not available or could not be located at the time this report was prepared. In addition to the uncertainties in Site-specific hydrogeology already detailed in Section 2.4, additional specific data gaps include:

- Depth to groundwater and direction of groundwater flow across the site including seasonal variation.
- Connectivity between different groundwater bearing units across the site.
- Flow and connectivity of surface water features.
- Confirm current (2024) stormwater infrastructure.
- Purchase records for AFFF prior to 2017.
- Documentation of any soil work that has been conducted in the potential areas of concern (Section 8).

If additional information becomes available over the course of further investigation, it will be included in subsequent reports, such as the Remedial Investigation Report.

[2] Legacy AFFF is often called "C8" due to presence of long-chain PFAS, including perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Beginning in 2016, re-formulated AFFF without long-chain PFAS became commercially available, often designated as "C6" indicating that all PFAS in the AFFF have six or fewer fluorinated carbons. See further detail in Section 4.1.

[3] NTSB Incident Numbers SEA96FA040 and SEA94FA085 (https://carol.ntsb.gov/)

4.0 HISTORICAL AND CURRENT FIRE EMERGENCY RESPONSE SYSTEM

SIA is recognized by the FAA as a small hub with a Class I Part 139 classification. The FAA also prescribes an ARFF Index value for the purposes of aircraft rescue and firefighting, determined by the length of the aircraft serving the airport. The ARFF index then dictates the number of ARFF vehicles, quantity of AFFF to be stored, and several other emergency response related requirements needed to provide for the safety of passengers and airport staff.[4] SIA has been assigned an ARFF Index of "C", which means that the mobile units at the site must include 1) one vehicle with a dry chemical extinguishing agent in addition to AFFF and 2) one or two vehicles carrying sufficient AFFF and water to produce at least 3,000 gallons from all vehicles, as specified in 14 CFR 139.317.

The SIA Fire Department currently consists of 22 career firefighters working out of the current SIA Fire House, which is equipped to respond to emergencies involving ARFF and structural firefighting for the airport. ("Spokane International Airport Fire Department," 2024a) The ARFF division of SIA responds to all reportable hazardous material and/or chemical spills. (CES, 2015).

4.1 Fire Fighting Foam Background Information

Many airports began using AFFF in the 1970s, and in 2004, the FAA mandated the use of foam meeting DoD military specifications (Mil-Spec) at FAA-regulated Part 139 airports (HRP, 2024). The FAA has required that any Part 139 airport must use firefighting foam that met this military specification, as documented through the agency's advisory circulars and "CertAlerts," guidance (FAA, 2004). For example, the 2006 CertAlert stated that "[a]ny [aqueous film forming foam] purchased after July 1, 2006 by an airport operator certificated under Part 139 must meet the Mil Spec as mentioned above." (FAA, 2006). The 2016 CertAlert further instructed airports to "check the [Department of Defense] [Qualified Product Database] web site before each AFFF purchase," to ensure they were using the firefighting foam that met military specifications (FAA, 2016, p. 2). This 2016 guidance superseded CertAlerts from 2006 and 2011, each of which also required using AFFF that met military specifications (FAA, 2011, 2006).

As to FAA oversight, the FAA directly supervised the use of this firefighting foam, including discharges of the foam at the airport. As explained in the 2019 CertAlert, airports operating under Part 139 must maintain and test their firefighting systems, "must maintain proper successful documentation of the testing" of their aircraft rescue and firefighting vehicles and must "have [the documentation] available during the [airport's] periodic [safety] inspection." (FAA, 2019a, p. 1). The FAA guidance further stated that "[i]f the airport operator does not conduct testing within these intervals, *the FAA will require the airport operator to discharge AFFF during the airport's periodic inspection*, for those vehicles identified to meet the ARFF [Aircraft Rescue and Firefighting] Index." (emphasis added) (FAA, 2019b, p. 1). According to the FAA, "[t]esting the system is an integral part of maintaining [aircraft rescue and firefighting] vehicles in optimal condition for an emergency response." (FAA, 2019b, pp. 1–2).

Before the 2019 CertAlerts, the FAA had not approved a method for testing the ability to discharge the firefighting foam other than by dispensing it onto the ground. But in the 2019 CertAlert the FAA began allowing airports to conduct their testing by using "AFFF testing equipment that do not require foam to be dispensed onto the ground." (FAA, 2019b, p. 2). The reason for this shift was that the FAA recognized "growing concern over the use and discharge of AFFF at airports" because "[t]he molecular composition of specification MIL-PRF-24385 contains a chemical

[4] https://nap.nationalacademies.org/read/23035/chapter/1

compound"—i.e., PFAS—"found to potentially contaminate drinking water." (FAA, 2019b, p. 2). Until 2023, the FAA did not allow using fluorine-free foams, because "the fluorine-free foams on the market do not match the performance of their fluorinated counterparts" and "are not able to provide the same level of fire suppression, flexibility, and scope of usage as MIL-PRF-24385 AFFF firefighting foam" (FAA, 2019b, p. 2).

In 2018, Congress directed the FAA to remove the requirement to use PFAS to meet the performance specifications of Mil-Spec foams, and in 2022, Congress further directed the FAA to develop a transition plan to replace all AFFF with fluorine free alternatives. In January 2023, the DoD issued Military Specification MIL-PRF-32725, which is a fluorine-free foam certification; fluorine-free alternatives were added to the Quality Product Database later that year (FAA, 2023).

The types of firefighting foams used to satisfy FAA regulations both historically and currently at SIA are discussed below and in Section 4.2.3.

4.1.1 Historical Foam System Transitions

During the interview with the former SIA fire chief, a historical review of foam types present at the site and typical changeout procedures were discussed. Prior to the development of PFAS-based AFFF, the primary fire response agent at SIA was protein foam. Between the 1970s and 1999, the first Mil-Spec C8 foams, including 3M Lightwater, were brought onsite, according to interviews with site personnel. As additional C8 formulations received Mil-Spec approval, other Mil-Spec foams were purchased as needed, but 3M Lightwater was the primary AFFF used at SIA and across most civilian and military airfields. Within the Mil-spec guidance, mixing of different Mil-Spec AFFF was permitted, and was also a historical practice at SIA. In the early 2000s, EPA negotiated an agreement with AFFF manufacturers to prohibit C8 foams by 2015, due to information it had obtained about the environmental and/or health impacts of those foams (EPA Docket ID: EPA-HQ-OPPT-2006-0621). Neither EPA nor foam manufacturers ever shared related information with SIA. After the C8 foam was banned, SIA transitioned to a C6 AFFF formulation in 2016.

During the 2016 foam changeout, two (2) 500-gallon single-wall plastic tanks storing C8 foam concentrate were emptied and refilled with the C6 AFFF concentrate. The legacy C8 foam concentrate was donated to an ARFF training facility outside of Spokane County. The concentrate-containing tanks on SIA crash response trucks were rinsed and washed out to remove debris from the tank bottoms. Rinse water was sent to the drains at the current SIA Fire House, which flow to an oil water separator, then to the sanitary sewer system and the City of Spokane publicly owned treatment works (POTW). During the interview with the former SIA fire chief, it was mentioned that the empty foam concentrate tanks on the airport's crash trucks may have been washed out outside of the current SIA Fire House (on the concrete pad on the south side of the building) prior to the filling the tanks with C6 foam concentrate, in which case rinse water may have flowed into the nearby grassy area or penetrated the concrete pad. In 2016 there was no guidance or established procedures related to rinsing of equipment or crash response trucks or management of the rinsate. No further information is currently available regarding this specific changeout event.

The SIA purchased fluorine-free foam to replace all PFAS-containing AFFF in September 2023, when approved to do so by the FAA. (SIA, n.d.) The SIA is waiting for guidance from regulators on best practices for removal of C6 foam concentrate and cleaning of mobile foam unit tanks and fixed foam concentrate storage tanks prior to replacing with fluorine-free foam. SIA must also retrain its firefighters to use the new F3 foams.

Exhibit 4.1 Types of Foam Used Over Time at SIA

Year	Event
Between 1970s and 1999	Mil-Spec 3%: 3% concentrate C8 foams (3M Lightwater, Ansulite, etc) installed in mobile units, fixed units, and stored at the SIA Fire House
2016	Mil-Spec 3%: 3% concentrate C6 foams (Ansulite, Chemguard, Tyco) installed in mobile units, fixed units, and stored at the SIA Fire House
2023	Fluorine-Free Foam purchased and stored at the SIA, n.d.). According to the COO, the SIA is waiting for guidance from regulators before changeouts from C6 to fluorine-free foams, particularly regarding rinsing procedures and handling of rinsate.

Only 3% concentrate foam was used at SIA and the types of foam used over time are presented in Exhibit 4.1. In the early 2000s (2002 or 2003), over 1,000 gallons of C8 3M Lightwater (Mil-Spec) foam was purchased from an aircraft carrier as military surplus. Typical foam purchases were primarily small quantity packaging such as 5-gallon pails and 55-gallon drums. While C8 was used at the site, a variety of Mil-Spec approved brands were mixed for use. The 3M Lightwater brand was primarily used with some Ansulite and National Foam mixed in. According to the former fire chief, foam restock purchases were budgeted every year, but actual purchases were not less frequent than every 5 years. In accordance with FAA regulations, foam supply at SIA was kept at roughly 1,300 to 1,600 gallons (depending on the truck inventory) to account for about 300 gallons more than the volume required to load the foam-containing trucks twice. During interviews with the former SIA fire chief, Ansulite was identified as the main C6 foam used at SIA after the 2016 transition. Based on purchase records from 2017 provided by SIA, Chemguard and Tyco were also C6 AFFF brands used at the site.

4.2 Fire Suppression System Information

The SIA fire suppression system consists of fixed and mobile foam systems. Fixed foam systems include foam concentrate storage and permanent infrastructure for foam application such as piping and nozzles. Mobile units typically include fire or crash trucks fitted with tanks for foam concentrate storage. In response scenarios, mobile units will connect hosing to hydrants or other water sources to be mixed with foam concentrate to deliver finished foam.

4.2.1 Fixed Foam Systems

Based on information provided during the SIA fire chief interview, foam is currently stored onsite at the SIA Fire House, the field maintenance warehouse, and Hangar 725 (Exhibit 4.2). The historical SIA Fire House, which was located directly northeast of the terminal as shown in Figure 4.1, was used from about the mid-1970s until 2014. During this time, a supply of C8 foam was stored in three 300-gallon plastic tanks joined together with a manifold and fitted with a pumping system used for resupplying mobile foam units. After 2014, the C8 foam concentrate was transferred into two 500-gallon poly tanks at the current SIA Fire House, located southwest of the terminal as shown in Figure 4.1. The three 300-gallon poly tanks and pumping system were left onsite and repurposed for refilling pavement (not aircraft) deicing trucks with deicing fluid. The two 500-gallon tanks at the current SIA Fire House are used for refilling the crash trucks. Spill containment is in place for storage tanks and floor drains in the SIA Fire House flow to the sanitary sewer (CES, 2015). SIA Fire House drains flow to the oil water separator, then to the unlined perimeter ditch. The former fire chief noted one incident of a leaking valve in the foam storage tank at the SIA Fire House. The leaking valve was repaired, and foam was cleaned from the area using absorbent pads.

The fixed foam system installed at Hangar 725, located in the General Aviation area on the east side of the airport property, consists of two 1,000-gallon tanks of AFFF concentrate. The system was installed in 2016 and contains ChemGuard (C301MS). The system is regularly maintained, in good condition. All historical testing was performed using only water with no usage or mixing of the stored AFFF concentrate (the concentrate is held in tanks and valved off from the system). There are no known incidents related to the discharge of AFFF in the hangar manifold system.

A dry manifold fire suppression system is installed at the fueling station that does not rely on the use of foam or foam concentrates. Historically, a supply of about 1,000 gallons of C8 foam concentrate was stored at the field maintenance building and could be connected to the manifold at the fueling station in case of a fire. When the tank was removed from the field maintenance building, the C8 foam was added to the storage capacity at the SIA Fire House. The former fire chief was unsure of the year this took place.

Prior to the former fire chief's time at SIA, the fuel farm was in the easternmost parking lot, near the Field Maintenance Area (near the intersection of West Aviation Avenue and Flint Road) until 1993. No evidence was found indicating the former fuel farm was fitted with a fixed foam manifold and storage tank or had any AFFF stored there.

Exhibit 4.2 Foam Storage Locations

Foam Type	Year(s)	Total (gallons)	Storage Equipment and Location
C8 foam [1]	(1990s)-2014	900	Stored outdoors at the historical SIA Fire House: • 3 x 300-gallon Poly Tanks (CES, 2015)
	Unknown years	1,000	Field maintenance building: • 1 x 1,000-gallon tank (based on interview)
	Current (unknown start year)	2,000	Stored at Hangar 725: • 2 x 1,000-gallon tanks of foam concentrate (based on interview)
	2014-2016	1,000	Stored at the current SIA Fire House: • 2 x 500-gallon Poly Tanks (CES, 2018)
C6 foam [2]	2016-current	1,000	Stored at the current SIA Fire House: • 2 x 500-gallon Poly Tanks (CES, 2018)
Fluorine-Free foam	2023-current	1,280	Stored at the current SIA Fire House: • 5 x 256-gallon totes (interview with COO)

Notes:
1. A variety of Mil-Spec C8 foams were mixed for use, including primarily 3M Lightwater with some Ansulite and National Foam mixed in.
2. In the interviews with the former fire chief, Ansulite was identified as the main C6 foam used at SIA. Based on purchase records from 2017 provided by SIA, Chemguard and Tyco were also foam brands used at the site.

No additional fixed foam systems are known to be located currently or historically at SIA.

4.2.2 Mobile Foam Systems

The current SIA Fire House was constructed in 2014. Before construction, mobile equipment was stored at the previous SIA Fire House, located northeast of the A and B concourses from 1978 to

2014 (*Spokane International Airport Fire Department*, 2024b).[5] Both current and historical SIA Fire Houses and current foam storage locations are shown in Figure 4.1.

Prior to 2020 there were three mobile foam systems in use, two trucks with 1,500-gallon water tanks and 200-gallon foam concentrate supply and one more truck that held 3,000-gallon water tank and a concentrate supply of 400-gallons. It is not currently known when these trucks came into service the number of active trucks in service (three) has been the same since 1999. One 1,500-gallon truck is inactive but still currently stored on the Site (see below), ownership of the two remaining two trucks was transferred to other firefighting training facilities.

Mobile foam systems currently stored at the current SIA Fire House (9000 West Airport Drive) include the following mobile units and foam concentrate capacities:

- 2 crash response trucks with 3000-gallon water tanks and 400-gallon foam concentrate capacity.
- 1 crash response truck with 1,500-gallon water tanks and 200-gallon foam concentrate capacity.
- As mentioned above, an additional 1,500-gallon water capacity truck is inactive and stored onsite. There are no additional trailers or response vehicles with foam onsite.

4.2.3 Fire Training Information

Every three years, a crash training exercise is required by the FAA for SIA to maintain its Part 139 Certification and remain operational as a commercial passenger airport. The most recent training exercise in 2016 was staged at the Postal Service processing and distribution center on the southeast side of the main runway where an old 737 obtained from Federal Express was parked for use in required training exercises. Known as the Triangle Ramp, location C in Figure 4.1, this location has been used as the primary training area since 2000. Based on information reviewed and discussion with SIA's former fire chief, it appears that only water (no foam) was used during this training.

In addition to the FAA required training exercises, joint training sessions between SIA, Air National Guard, and Army National Guard took place historically on the south side of the airport, Location B in Figure 4.1, but was discontinued before 1999 due to hydrocarbon use without a recovery system in-place. From the 1950s through the 1980s various oils and solvents were provided by the Air National Guard for use in fire-training exercises (OpTech, 1995). Per the former SIA Fire Chief, these fire trainings were led by the Air National Guard and SIA ARFF equipment was not used. It is possible that AFFF was sprayed from Air National Guard equipment during these trainings. Training at this location and any possible usage of foam was discontinued after 1999.

4.2.4 Required Foam Testing and Calibration Events

FAA required flow foam testing to pass inspections. In 2016, testing with foam was no longer required, but it was still common practice for water to be sprayed through the foam systems for testing. At SIA, no rinsing of the fixed or mobile systems took place between flowing foam and water through the nozzles, hoses, pipes, etc. Some residual amount of AFFF may have been entrained during these water-only exercises. In 2016 due to environmental concerns, SIA ceased spray testing with foam. No testing occurred at SIA from 2016 to 2019. In 2019 the FAA no longer

[5] Please note that this information is sourced from a publicly editable wiki. While efforts were made to ensure accuracy, the content may be changed by users. The citation provides the date the information was accessed.

required foam to be sprayed during inspections. As of 2019, SIA has used a specialized NoFoam System apparatus to allow for the FAA-required testing of fire vehicle foam distribution mechanisms without discharge of AFFF (SIA, n.d.).

Annual inspections and maintenance of the fixed foam system at Hangar 725 is performed by Western States Fire Protection (Liberty Lake, WA). Testing is performed using water only with no co-mingling of the stored AFFF concentrate. During freezing temperatures, the system would occasionally be triggered and release water into the hangar however, the valve on the AFFF storage tank remained closed. There are no known incidents of foam being sprayed through the system or the system being deployed.

During mobile unit certifications and associated testing, which took place once or twice per year prior to 2016, foam was mixed outside of the SIA Fire House and would be sprayed onto the grassy area. This took place at both the old and new SIA Fire House, as indicated in Figure 4.1. A minimum of approximately 200 gallons of water per truck would be sprayed. If a truck did not pass certification in the first test, it would be sent to the Field Maintenance area for repairs before another attempt at certification near the SIA Fire House. Any testing performed at the maintenance area during equipment maintenance or repairs likely only involved spraying of water through the trucks, as indicated on Figure 4.1.

4.2.5 Local Firefighting Networks

The SIA Fire Department has mutual aid agreements with several local emergency response teams, listed below ("Spokane International Airport Fire Department," 2024b).

- City of Spokane Fire Department, Fire Station 6
- Spokane County Fire District 10 (North of the SIA)
- Spokane County Fire District 3 (South of the SIA)
- Fairchild Fire Emergency Services

These fire teams would be prepared to respond to emergency events in the other fire teams' jurisdictions if necessary, including bringing equipment onsite and utilizing their equipment and foam inventory to aid in the onsite fire team's response. According to the former SIA fire chief, in general, the SIA fire team did not respond to incidents outside of the airport. The SIA property was originally in the jurisdiction of Spokane County Fire Departments 10 and 3. Although the SIA now has its own fire department, the City of Spokane Fire Department is still required to respond to aircraft emergency incidents within or near SIA in a support capacity. Based on the interview with SIA's former fire chief, the City of Spokane Fire Department maintains a stock of 500 gallons of AFFF, comprised of 5-gallon pails, which would be brought onsite as needed. Additionally, trucks brought onsite from the City of Spokane or Spokane County would be used for foam mixing and dispensing.

As an example of the mutual aid operations, while the Fairchild AFB runway underwent a closure in 2011, some DoD emergency response operations were relocated to SIA (DVIDS, 2011).

4.3 Potential and Known Use of Firefighting Foam

AFFF can be deployed in the case of an emergency response (i.e., airplane crash), fuel spill, or fire. Foam can also be deployed during training exercises, equipment testing and calibration, or accidental spill. According to the 2023 Stormwater Pollution Prevention Plan (SWPPP), fire suppression systems are permitted for use if flammable liquid or hazardous substances are spilled at the site (Valley, 2023a).

The events discussed in Table 4.1 are also displayed in Figure 4.1. In 2019, the SIA acquired a "NoFoam" system to allow for testing of ARFF equipment without the need to create or spray foam. Between 2016 and 2019, no testing was performed at the site due to concerns with AFFF.

5.0 WASTE STREAMS

Information related to wastewater, stormwater, and solid waste associated with airport operations is provided in this section. Figure 5.1 provides an overview of the key locations discussed in this report, including the land treatment area, stormwater collection and outfall areas, along with outlines to denote which of these components are located within the site boundaries versus the property boundaries. Semiannual groundwater sampling in the stormwater recovery and land treatment area is performed in accordance with the permit specifications as outlined in State Waste Discharge Permit No. ST0045499 (Valley, 2023a).

5.1 Stormwater

Stormwater at SIA is collected from three drainage areas, which all discharge to a stormwater recovery area northeast of the runway. The three drainage areas are summarized in Exhibit 5.1 and Figure 5.1 provides a map of the stormwater infrastructure.

Exhibit 5.1 Stormwater Management

Collection Area	Discharge Water	Stormwater Infrastructure
Alpha	Stormwater collected from the western portion of Runway 3-21 and the northwestern portion of the airport, including the Terminal, fire department, parking structures. Operations in this area involve deicing fluid application and collection for land application.	Trench drains, pipelines, inflatable pipe plugs, outfall to unpaved channel
3-21	Stormwater collected from the eastern portion of Runway 3-21, including the landside Business Park operations extending to S Geiger Blvd. Stormwater from this area could be characterized as light industrial runoff associated with general aviation facilities and aircraft maintenance buildings.	Trench drains, pipelines, inflatable pipe plugs, outfall to unpaved channel
Perimeter Ditch	Stormwater collected from the south and southwest portion of airport and a portion of the Air National Guard property, along W Electric Ave to S Geiger Blvd. In addition to Air National Guard operations, other third-party industrial activities taking place in Aerospace Park would contribute to this stormwater collection area.	Drainage around airport to recovery area via the Perimeter Drainage outfall

The majority of stormwater at SIA is collected in drains and a series of swales/ditches and is conveyed to the stormwater recovery area. SIA implements a variety of stormwater best management practices (BMPs) before discharging to the stormwater recovery area, including an oil water separator for the vehicle parking areas, an oil water separator with a sand filter at the fuel storage area, and grass swales throughout the site to aid in detention and natural attenuation. A portion of the stormwater infiltrates to the subsurface through the swales, but the remainder reaches the main collection system and is discharged through the three permitted stormwater outfalls (Valley, 2023a). Part of the waste discharge permit associated with stormwater outfalls requires monthly discharge monitoring reports be submitted, reporting the flow of stormwater. Flow is measured via continuous meters installed at the Alpha and 3-21 outfalls, the Perimeter Ditch outfall flows periodically and is not required to be monitored for flow rates.

Paved areas around the airline refueler parking area and ground support equipment shop flow to a storm drain inlet and an oil water separator for pretreatment prior to entering a dry well located on the south side of the building. The floor drains and drain for the wash rack in the area flow to oil water separator that is connected to the sanitary sewer (Valley, 2023).

Based on Table 3 in the 2023 SWPPP, stormwater from the area where fuel storage and transferring, and storage of materials (including AFFF), take place would drain to the Alpha Outfall (Valley, 2023a). The stormwater recovery area includes two shallow channels; the Alpha outfall discharges to the north channel and the 3-21 outfall discharges to the south channel. The outfall for the Perimeter Drainage area discharges into the stormwater recovery area at a location north of the Alpha outfall. The north and south channels convey stormwater to three detention areas which are noted in the SWPPP. From early winter to spring the ponds fill as a result of precipitation and snowmelt that results in saturated soil conditions and a continuous baseflow through the outfalls. Between summer and late fall, the surface flows in the channels disappear due to lack of rainfall, evaporation, and infiltration resulting in the ponds becoming dry. There are no permanent receiving waters in the stormwater recovery area (Valley, 2023a). Groundwater monitoring is currently conducted twice per year in April and October in the stormwater recovery area, per the requirements of the permit. Previous quarterly groundwater monitoring has indicated little to no variation in groundwater flow direction between seasons, with groundwater flowing to the east, east-southeast (CES, 2019).

During the winter months, SIA applies surface deicers, consisting of sodium formate, sodium acetate, and potassium acetate, to control ice-buildup on paved surfaces. SIA airline operators spray aircraft deicing fluids (ADF), liquids consisting primarily of propylene glycol, onto aircraft to control ice-buildup and ensure safe operations of their aircraft pursuant to FAA mandates. ADF itself is not a source of PFAS (ITRC, 2023). SIA implemented BMPs in 2013 to recover as much aircraft deicing fluid (ADF) as feasible to minimize potential groundwater contamination. SIA operators currently use glycol recovery vehicles (GRV) to collect ADF-impacted stormwater before it reaches the stormwater collection system. GRVs are vacuum trucks used after each deicer application and the amount recovered is measured by the load when discharging from the GRVs to the storage tank. The ADF-impacted stormwater is stored in a covered holding tank at SIA during the deicing season until it is treated in the land treatment area in early spring.

During storm events, a “plug and pump” system is used to recover ADF that may reach the stormwater collection system. The application areas are isolated with inflatable pipe plugs and a 3,500-gallon suction truck removes the stormwater from those drains. With multiple GRVs operating and the “plug and pump” system, the recent glycol recovery in 2023 was 56% of the applied ADF (Valley, 2023b). SIA is authorized to discharge residual stormwater impacted with ADF to the recovery area. Stormwater discharge is measured at each of the three outfalls. During the deicing season, the Alpha and 3-21 outfalls are visually inspected for color and sheen daily and sampled for 5-day Biological Oxygen Demand weekly pursuant to the Department of Ecology permit (Valley, 2023a).

The land treatment area, as shown in Figure 2.2, is an approved natural management system to receive ADF-impacted stormwater for treatment by soil micro-organisms. ADF-impacted stormwater is land-applied to bare soil at a controlled rate that allows the soil profile to retain and treat it with little or no discharge to groundwater. The application rate is calculated for each tank load depending on the concentration of glycol in the recovered water and calibrated to truck equipment. The land treatment season begins in April or May and typically lasts 8-12 weeks. A grass or grain cover crop is planted after application and turned over the following fall to restore nutrient balance to the soil for the next application season. Soil samples are collected prior to application across the area where application occurs to monitor soil chemistry and fertility to

support the desired treatment process. Groundwater monitoring has been conducted in the land treatment area since 2013 and groundwater flow has been observed to be the north-northeast (CES, 2020).

5.2 Wastewater

It is unknown, but possible, for industrial wastewater at SIA or at any industrial or commercial location to contain trace levels of PFAS if AFFF or other PFAS-containing materials were washed into the system. Some industrial wastewater from the current SIA Fire House may have collected in floor drains and flowed through an oil water separator to the sanitary sewer. Sewer water is piped to the City of Spokane River Park Water Reclamation Facility for treatment (Valley, 2023a)

Authorized non-stormwater discharges from passenger airlines and air cargo operators at SIA may include discharges from hydrant flushing, aircraft potable water tanks, and air conditioner or air compressor condensate from airport gates. These discharges occur on the ramp and during the summer months, the water typically evaporates before reaching a storm drain inlet (Valley, 2023a).

5.3 Solid Waste

Solid waste landfills may be a source of PFAS to the environment (ITRC, 2023). There are no current solid waste landfills located on the site; however, historically, four areas on or adjacent to the property have been used as waste dumps or treatment areas as shown in Figure 5.2. The Park Dr. waste disposal area, formerly Shamrock Paving and also known as cleanup site "USAAC GEIGER FIELD GF004," was used as a dump area by the US Army during early operations at Geiger Field in the 1940s (Herrera, 2003). After dumping ceased in the area, asphalt and gravel operations started in the 1950's and lasted until Spokane County constructed the Waste-to-Energy facility. At the southwestern end of runway 3-21 on W Electric Ave, the joint fire training area served as a landfill for Geiger Field operations from 1961-1967 (OpTech, 1995). A portion of Air National Guard property adjacent to the site to the east, was used as a dump from 1960-1976. Commonly known as the Swamp Dump, this area contained oils, solvents, paints, and construction debris. In-between the two sites on SIA property, a soil remediation area was operated by Remtech, which maintained ownership of the parcel from 1991-2000. Details of Remtech operations are unknown though historical aerial imagery indicates large volumes of displaced soil.

6.0 OTHER POTENTIAL SOURCES OF PFAS

Typical processes and materials associated with airport operations and onsite businesses unrelated to airport operation or emergency response were identified and researched to determine where potential PFAS-related products may have been in use.

6.1 On-Property Third Party Leased Facilities

Businesses are present within the site boundary that are unrelated to the airport activities. Among these onsite businesses, some were identified with potential to contribute to PFAS releases at the site. While the use or release of PFAS from these sites has not been confirmed, these sites will be considered, and potentially further investigated, as the SIA's site investigation progresses.

- Waste to Energy Incineration Facility (2900 S Geiger Blvd): The Waste to Energy Facility located west of the SIA runway of SIA processes up to 800 tons per day of municipal solid waste through incineration at 2,500 degrees Fahrenheit to generate electricity (City of Spokane, 2024). Based on a statewide waste characterization study, 253,000 tons of

municipal solid waste, including plastic, construction materials, metal and consumer products, were received in 2021 from across Spokane County (WA ECY, 2024). These waste types have the potential to contain PFAS (ITRC, 2023 which could persist in the incineration residues (i.e., sludge, flue gas, ash, process water)(Björklund et al., 2023). Ash from the incineration process was sent offsite to Klickitat County for disposal (City of Spokane, 2024) and is now disposed of at the Finley-Buttes Landfill in Oregon. The facility is also listed in the NPDES permit (WA0093317) for the Spokane County Regional Water Reclamation Facility (SCRWRF) as a receptor of solid waste derived from water treatment (WA ECY, 2022a).

- Waste Management (WM) Spokane Material and Recycling Technology (SMaRT) Center (2902 S Geiger Blvd): The SMaRT center collects about 25 tons per hour of mixed recyclables, including metal and plastic containers from businesses and residences in Washington, Idaho and British Columbia (Waste Management, 2024).

6.2 Potential or Known PFAS Sources Adjacent to SIA

This section discusses historical onsite land uses to identify potential historical sources outside of the scope of current airfield operations at the site. Also discussed in this section are nearby property land use and potential PFAS sources from operations based offsite and off property based off a preliminary review. None of the identified offsite properties or activities are confirmed to be additional PFAS environmental sources, yet the immediate proximity to the SIA site and potential for PFAS use are important considerations for future data interpretation. Further evaluations of PFAS sources will be conducted as more information regarding Site-specific groundwater flows is obtained to better define the relevant upgradient spatial extent.

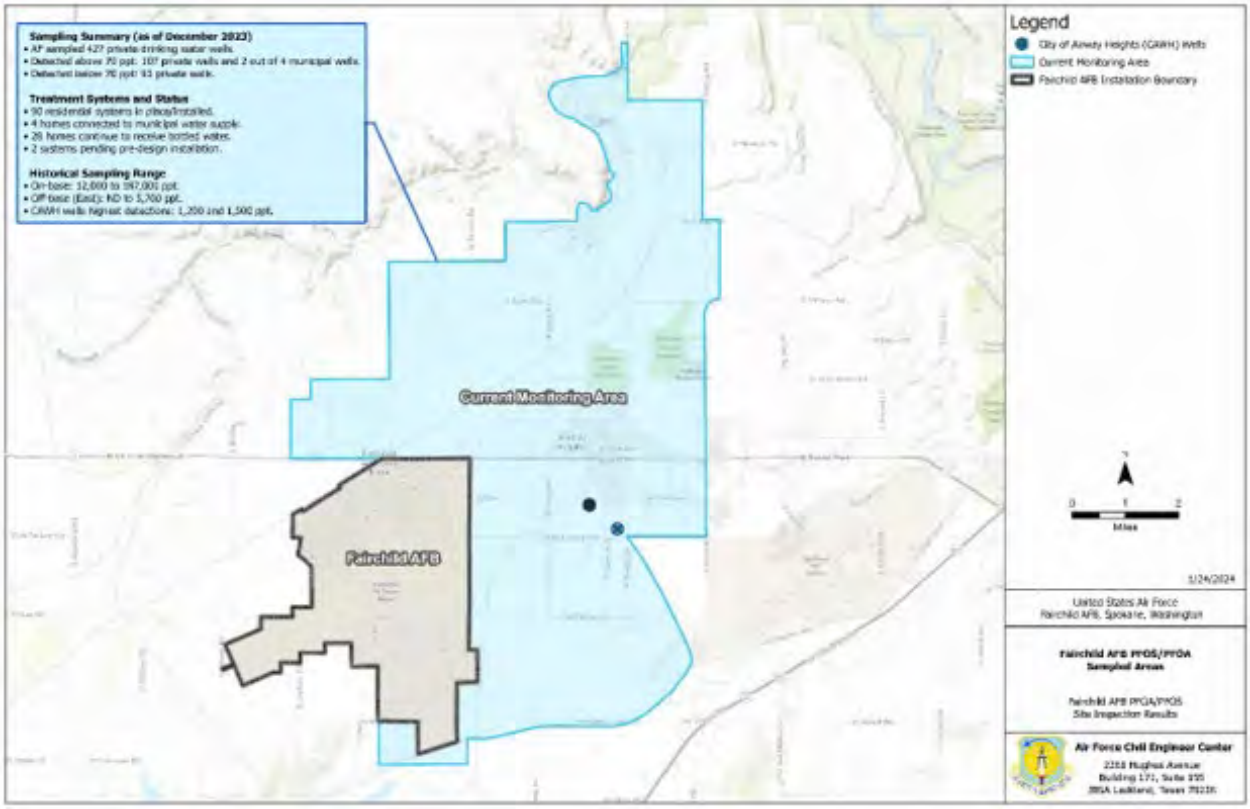
The GEG property is neighbored by industrial properties to the northwest, south, and southeast. The nearest National Priority List (NPL) site is the Fairchild Air Force Base, located approximately 3.2 miles west of the SIA boundary. Based on an initial inventory of all properties in proximity to the site (within 1 mile) by ERIS, several businesses were identified which could work with PFAS-containing material, according to ITRC's guide on PFAS. The 1-mile radius was selected as it represents potential PFAS sources directly adjacent to the Site. The properties summarized in Table 6.1 are located directly adjacent to or in the vicinity of SIA and are depicted on Figure 6.1.

6.2.1 Investigations or Confirmed PFAS Contamination Near the Site

Fairchild AFB began using AFFF in the 1970s as a firefighting agent. AFFF continued to be used extensively at Fairchild AFB from the 1970s until 2016 to fight petroleum fires. In 2015, more environmentally responsible AFFF formulas were added to the DoD's qualified products list for firefighting agents. The Air Force began replacing both C8 with a C6 formula in August 2016. Delivery of the new foam was completed in 2017, the same year PFAS was discovered in drinking water at the base and in Airway Heights.[6]

[6] Information provided by the Fairchild AFB Advisory Board (https://www.fairchild.af.mil/Information/Restoration-Advisory-Board/).

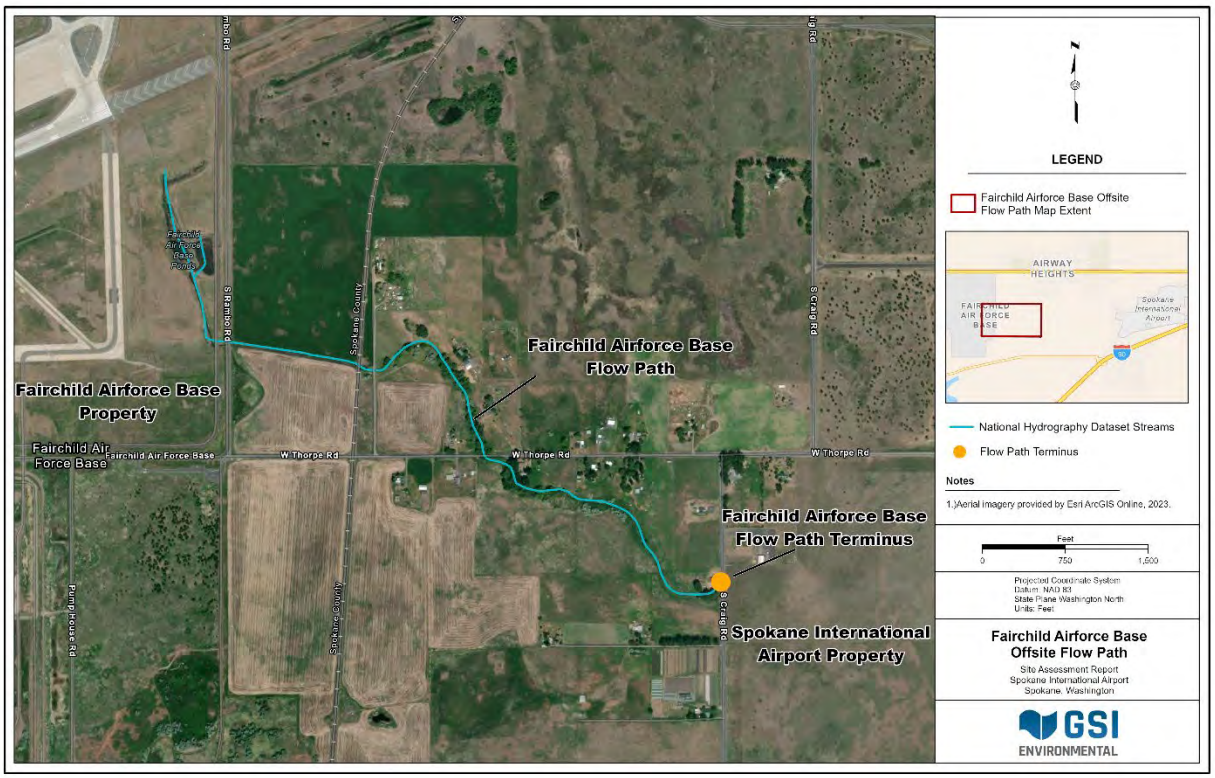
Exhibit 6.1 Map of 2024 monitoring area for Fairchild AFB[7]



Numerous studies have focused on determining the extent of PFAS contamination in groundwater on- and off-Base to support plume delineation. Initial groundwater investigations used South Hayford Road as the eastern boundary for sampling. Multiple studies have been conducted to both understand the groundwater flow directions both on- and off-Base. A recent synoptic well gauging event (SWGE) for two of the hydrostratigraphic units was conducted to support determination of highly localized groundwater flow directions and builds upon previously collected SWGE data (Tehama, LLC, 2019). Current efforts announced for the 2024 sampling campaign now extend the PFAS investigation further east towards SIA (Exhibit 6.1). In addition, documentation shows stormwater conveyance from the west side of the base flowing into Willow Creek (also identified by Wurtsmith AFB as “No Name Creek”) which proceeds eastward toward South Craig Road and onto SIA property near Parcels 14022.0601 and 14022.0501 (see document provided on 12 June 2024 by Fairchild AFB in Appendix B.1 and Exhibit 6.2). The results from the investigation to be completed this summer will be critical in providing information regarding the potential for PFAS contaminated groundwater from Fairchild AFB migrating toward or onto SIA property.

[7] Image source: https://www.fairchild.af.mil/Portals/23/Capture_1.PNG

Exhibit 6.2 Stormwater Flow Path from Fairchild AFB Toward SIA



7.0 HISTORICAL ONSITE PFAS DATA

PFAS investigations were conducted on SIA property from 2017 to 2019. The sampling in 2017 was conducted by AECOM, and the follow-on data were conducted by Spokane Environmental Solutions (SES).

Samples collected between 2017 and 2019 were analyzed by ALS Global Laboratories (ALS) in Kelso, Washington by USEPA Method 537M. However, as shown in Exhibit 7.1, ALS was initially not certified by Ecology for this PFAS analytical method and has evolving certifications. Importantly, ALS was not certified for PFOA and PFOS analysis until the third PFAS sampling event in August of 2018.

Exhibit 7.1 Analyte Certification Status for Historical Data

SDG	Analysis Date	Monitoring Wells Samples Analyzed	Analyte Specific Certification for PFAS from WA DOE[1]
K1705255	6/26/2017	Stormwater recovery area MW-3, MW-1, MW-5, and land treatment area MW-8	Not certified for any PFAS analyte.
K1712199	11/30/2017	Stormwater recovery area MW-5, MW-13, MW-14	Certified for the following analytes: 10:2 FTS, 4:2 FTS, HFPO-DA, N-Ethylperfluorooctane Sulfonamido acetic acid (N-EtFOSAA) and N-Methylperfluorooctane Sulfonamido acetic acid (NMeFOSAA)
K1807404	8/31/2018	Western peripheral MW-15, MW-16, MW-17 and Business Park MW-18	10:2 FTS, 4:2 FTS, 6:2 FTS, 8:2 FTS, HFPODA, N-Ethylperfluorooctane Sulfonamido acetic acid, EtFOSA, EtFOSE, MeFoSA, N-Methylperfluorooctane Sulfonamido acetic acid, MeFOSE, PFBS, PFBA, PFDS, PFDA, PFDOA, PFHpS, PFHPA, PFHxS, PFHxA, PFNA, PFOSA, **PFOS, PFOA**, PFPeA, PFTDA, PFTRIA, and PFUDA
K1901784	3/20/2019	Park Dr. Waste disposal area	
K1902735	4/18/2019	Electric Ave. burn pit area MW-13A, MW-13B, MW-14B	

Notes:

1.) ALS analyte certification for PFAS compounds at time of analysis; information provided by ALS via email on 1 May 2024.

The locations of sampled wells are shown in Figure 7.2 along with their respective concentrations for PFOS and PFOA.

Exhibit 7.2 Previous On-Property PFAS Results

Reference	Sampling Date	Activities	Monitoring Well ID	Well Depth (ft bgs)	Results (ng/L)[1]	
					PFOA	PFOS
(AECOM, 2017a)	5/23/2017	Shallow groundwater samples: three collected from the stormwater recovery area and one, MW-8, collected from the land treatment area.	MW-1	15	130	130
			MW-3	8.5	330	93
			MW-5	20	110	140
			MW-8	25	1.4 U	9.5
(AECOM, 2017b)	11/8/2017	Shallow groundwater samples: two collected from newly installed monitoring wells constructed east-northeast of the stormwater recovery and one from the stormwater recovery area.	MW-5	20	66	120
			MW-13	11.5	85	72
			MW-14	16.5	350	50
(SES, 2018)	8/6/2018	Four new groundwater monitoring wells were installed near the airport fence line on the land side. Three west of the runway and one in the Business Park area.	MW-15	12	1.6	3.8
			MW-16	8.5	Dry	Dry
			MW-17	25	3.9	6.2
			MW-18	13	22	72
(SES, 2019a)	2/28/2019	Park Drive Waste Disposal Area sampling, two samples were collected from previously installed wells.	MW-1A	83	5.9	10
			MW-1B	65	12	27
(SES, 2019b)	3/27/2019	Electric Ave. Fire Pit Training Area sampling, three samples were collected and analyzed from previously installed wells.	MW-13A	42	60	480
			MW-13B	20	1,100	5,200
			MW-14B	20.5	230	860

Notes:
1) Non-detects are indicated with a “U” flag next to the reported concentration.

Appendix B.2 provides the reports for each of these sampling events along with associated laboratory reports.

8.0 AREAS OF POTENTIAL OR KNOWN CONCERN

Given historical use of PFAS on the site and results from groundwater sampling conducted in 2017-2019, PFAS concentrations have been identified or suspected at several locations. PFAS found in the environment onsite thus far are likely due to the FAA mandated storage, handling, and testing of AFFF as part of SIA’s federal mandate to maintain their Part 139 Certification and remain operational as a commercial airport.

Areas of potential or known concern were identified based on having a potential or known historical use or, as in the case of the Stormwater Recovery Area, the Park Drive Waste Disposal Area, and the southeastern portion of the Business Park, historical groundwater data where PFAS were detected. The potential and/or known PFAS areas of concern are listed below in Exhibit 8.1 and shown on Figure 8.1. Note that the map presentation of these areas is to highlight the general area and does not provide conclusive indication of known or suspected PFAS environmental contamination or a confirmed source; these spatial designations will be refined in the work plan for the Preliminary PFAS Investigation and once the initial round of soil and groundwater testing has been conducted. The extent covered on the map is not meant to reflect the exact sampling area nor that the potential release occurred over the entire space.

Exhibit 8.1 Potential or Known PFAS Areas of Concern - Summary

Area	Activity	Historical GW Data [a]
Air National Guard Operations Area	Training	No
Hanger 725	AFFF storage	No
Field Maintenance Area	AFFF storage	No
Current SIA Fire House	Storage and equipment washing	No
FAA Inspection and Testing	Equipment testing for compliance	No
Historical SIA Fire House	Storage and equipment washing	No
Park Drive Waste Disposal Area / Waste To Energy Plant Borrow Pit (SES, 2019a)	Waste incineration	Yes
Stormwater Recovery Area (AECOM, 2017b)	Stormwater collection and infiltration	Yes
South east area of Business Park (SES, 2018)	None identified	Yes
Joint Fire Training Area / Military Burn Pit (SES, 2019b)	Joint training with Air National Guard and Army National Guard	Yes

[a] Indicates if historical groundwater data was collected in the vicinity.

9.0 REGULATORY FRAMEWORK AND PRELIMINARY CONCEPTUAL SITE MODEL

Washington State Legislature passed the Model Toxics Control Act (MTCA) which gives Ecology broad authority to investigate and cleanup sites where a release or potential release of a hazardous substances may pose a risk to human health or the environment.

PFAS were added to the hazardous substance list in WA state in 2021 and Ecology's Hazardous Waste and Toxics Reduction Program published a revised Per- and Polyfluoroalkyl Substances Chemical Action Plan (PFAS CAP) in September 2022. The PFAS CAP does not contain regulatory statutes and is advisory in nature. Instead, it establishes PFAS CAP recommendations and requirements as set forth in WAC 173-333-420 and identifies requirements enacted and signed into law by the Washington State Legislature regarding management of certain PFAS (WA ECY, 2022b). No known releases of PFAS have occurred at SIA since at least 2016.

A guidance document has been provided by Ecology to support remedial investigations of PFAS sites (WA ECY, 2023). Action levels protective of human health and ecological receptors are available for all environmental media (soil, groundwater, sediment, and surface water). Ecology provided levels for eight PFAS for the protection of human health and ten PFAS for ecological assessments. The EPA recently finalized National Primary Drinking Water Regulations establishing maximum contaminant levels (MCLs) for six PFAS: 4.0 parts per trillion for PFOA and PFOS and 10 parts per trillion for PFNA, PFHxS, and HFPO-DA (GenX). In addition, EPA set an MCL for any mixture of the four PFAS (PFHxS, PFNA, HFPO-DA, and PFBS) through establishing a MCL hazard index of 1. Washington is likely to adopt these MCLs for both public water systems and as action levels for groundwater. As the science and level of information regarding compound-specific toxicity, fate and transport are rapidly evolving, incorporating newly published scientific research with that presented in the PFAS Guidance document will be critical.

9.1 Potential Contaminant Sources, Exposure Pathways and Receptors

The development of a conceptual site model (CSM) provides a framework for evaluating the fate and transport of chemicals of potential concern (COPCs) across a site and supports further investigations and ultimately identifying an appropriate remedial action. The CSM is developed in an iterative manner to describe physical processes, chemical fate and transport, biological systems, and potential exposure pathways, based on review of relevant literature and ongoing site-specific findings. The CSM also serves to direct and focus the strategic design of the field studies and subsequent analyses. This section presents some preliminary information used to develop the CSM for the SIA site.

Review of site related information has culminated in the identification of potential and known release areas for PFAS on the airport, as discussed above in Section 8. Potential exposure pathways, exposure points, and exposure routes for contamination within the airport generally include:

- Contact with AFFF as concentrate or foam – mainly applies to the remaining location where an AFFF-based suppression system is still in use (Hangar 725), and storage of current C6 AFFF in the mobile foam unit tanks and fixed foam concentrate storage tanks
- Direct contact with soil that has been contaminated by PFAS from a release
- Direct contact and/or ingestion of groundwater and/or surface water impacted due to a PFAS release

Further work is needed to determine if these exposure pathways are complete and their importance to the site will be determined during the Remedial Investigation.

From the limited groundwater data collected between 2017 and 2019, elevated PFAS concentrations were observed in shallow groundwater. Therefore, determining the site-specific connectivity of the different groundwater levels will be important for assessing the potential for any possible transport off site and whether there may have been any exposure to downstream receptors. In addition, there is no data for PFAS in soil at the airport.

Potential receptors are discussed below for both human health and ecological.

9.1.1 Human Health Receptors

Receptors with potentially complete exposure pathways include:

- any individuals with water sources that have direct connectivity to the underlying groundwater unit where PFAS are present on the airport grounds,
- any airport personnel or on-site workers engaged in construction or activities that bring them in contact with soil or groundwater on the site.

Drinking Water

GSI reviewed the WA DoH, Division of Environmental Health, Office of Drinking Water Sentry Internet Database (WA DoH, 2024) to identify water systems within a one-mile radius of the site.[8] Limitations on interpretation of available data include well status, indicating if the well is currently in use, and well locations which are expressed by quarter-quarter sections. From the available DoH data, no active public water system wells for drinking water use were identified within the Site. The search results within a one-mile radius of the Site were compared against the Spokane

[8] https://doh.wa.gov/data-statistical-reports/environmental-health/drinking-water-system-data

County Southwest Area Water Districts map (Spokane County, 2024), identifying nine potentially active wells serving motels, mobile home parks, apartments, and subdivisions.

According to the WA DoH Washington Tracking Network for PFAS[9] the two public water systems with publicly available results nearest the Site, Patterson Addition and Sleepy Hollow Apartments, did not report detections of PFAS from September 2023 sampling. Patterson Addition (Water System ID 66565) is approximately one-half mile south of the Site at Highway 90 and S Fan Rd with one reported active well. Sleepy Hollow Apartments (Water System ID 803458) are approximately one-half mile east-northeast of the Site on S. Geiger Blvd. north of Highway 2 with one reported active well.

GSI reviewed the Fifth Unregulated Contaminant Monitoring Rule (UCMR 5) Data Finder for occurrences of PFAS detections in public water systems (PWS) located within, and surrounding, the site. UCMR 5 requires monitoring by certain PWSs for 29 PFAS in drinking water between 2023 and 2025. All community water systems and non-transient non-community water systems serving more than 10,000 people, all those serving between 3,300 and 10,000 people, and a representative sample of those serving fewer than 3,300 are required to monitor during a single 12-month timeframe in the three years of monitoring. The UCMR 5 did not indicate that there were any PFAS detected above the minimum reporting level for the following PWS:

- City of Airway heights
- Spokane County Water District 3 System 2
- Spokane County Water District 3 System 4

The searched PWS' had no detections of PFOS, PFOA, PFNA, PFHxS, PFHpA, or PFBS (USEPA, 2024). Three deep water wells used for drinking water at the Fairchild AFB are near the Spokane River. These wells have been tested for PFOA and PFOS with no detections as of March 2022 (AFCEC, Fairchild AFB, 2022).

PFAS in groundwater will continue to be evaluated in the Preliminary PFAS Investigation the residential use of groundwater as "tap" water will be considered a hypothetically complete exposure pathway for the purposes of conservatively evaluating potential human health risks.

Soil

No soil PFAS data has been collected to date within the site. Therefore, a field investigation and sampling will be required to confirm if PFAS in soil represents a complete exposure pathway. An initial soil survey in the identified areas of concern will be included in the Preliminary PFAS Investigation.

9.1.2 Ecological Receptors

Given the unique site setting and the size of the site, dividing the airport area into different ecological areas for evaluation may be appropriate. For example, there is a fence line that encloses the airside area and wildlife deterrents in place for airport security and passenger safety. Minimal animal activity is expected, and plant growth is also managed and minimized to maintain visibility. Therefore, wildlife exposure is unlikely within the fenced airside area of the airport (i.e., the airside space). Outside of the fenced area the potential receptors of concern may include:

- vegetation (e.g., shrubs and grasses),
- soil invertebrates,

[9] https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/pfas/dashboard

- terrestrial birds,
- terrestrial small mammals,
- terrestrial small mammal predators, and
- herbivorous small mammals.

Other species that may occur at the Site but would likely be less exposed due to their greater home ranges, including resident predatory bird species. As discussed in Section 2.6, further evaluation of site associated water features is needed to determine any associated aquatic receptors. The extent to which a receptor for larger mammals is needed will be further evaluated and presented in the work plan for the remedial investigation.

10.0 SUMMARY AND CONCLUSION

The review of available information has resulted in the identification of ten potential or known PFAS areas of concern within SIA's main operational area (See also Exhibit 8.1 and Figure 8.1). These areas are listed due to storage of AFFF, potential or known usage of AFFF, and/or locations with historical PFAS data (Figure 8.1).

A. Hanger 725, due to the presence of a foam-based fire suppression system and AFFF storage (no documentation was found of the system being deployed).

B. Field Maintenance Area, due to AFFF storage and equipment maintenance.

C. Current SIA Fire House, due to AFFF storage and usage as mandated by FAA to remain operational.

D. Areas used for FAA inspections and testing as mandated to maintain Part 139 certification with the FAA.

E. Historical SIA Fire House, due to historical AFFF storage and usage as mandated to maintain Part 139 certification with the FAA.

F. Park Drive Waste Disposal Area / Waste to Energy Plant Borrow Pit, unknown source.

G. Stormwater Recovery Area, due to potential PFAS-impacted stormwater collection and infiltration.

H. Southeast area of Business Park, however there are no known AFFF activities in the immediate area, hence further investigation is needed.

I. Air National Guard Operations Area, due to historical AFFF usage for firefighting training activities when under DoD control and mandates.

J. Joint Fire Training Area / Military Burn Pit, due to joint training activities with AFFF, by the Airforce, SIA and the Air National Guard as mandated by federal authorities and regulations.

These areas have either confirmed PFAS in the local groundwater or have the potential to have PFAS present in the local environment due to the storage, handling, and testing of AFFF as part of SIA's federal mandate to maintain their Part 139 Certification.

These areas will be further evaluated for PFAS in groundwater and soil as part of the Preliminary PFAS Investigation stated in the EO issued by Ecology (Task 1B).

11.0 REFERENCES

AECOM, 2017a. DRAFT -Groundwater Monitoring for Perfluorinated Chemicals.

AECOM, 2017b. 2017 Monitoring Well Installation and Groundwater Monitoring for Perfluorinated Chemicals.

AFCEC, FAFB, 2022. Fairchild AFB Restoration Advisory Board (RAB) Meeting.

ATSDR, 2022. Airway Heights Spokane County Washington PFAS Exposure Assessment.

Björklund, S., Weidemann, E., Jansson, S., 2023. Emission of Per- and Polyfluoroalkyl Substances from a Waste-to-Energy Plant—Occurrence in Ashes, Treated Process Water, and First Observation in Flue Gas. Environ Sci Technol 57, 10089–10095. https://doi.org/10.1021/acs.est.2c08960

Board of Spokane County Commissioners, 2004. Spokane County Zoning Code - Department of Building and Planning 2022 Printing (Appendix B). Appendix B Supporting Inventory Maps.

CES, 2020. Spokane International Airport Project Spring 2020 Land Application Site Activity Report.

CES, 2019. Application for a State Waste Discharge Permit to Discharge Industrial Wastewater to Groundwater by Land Treatment or Application - Permit Renewal - Response to Comments.

CES, 2018. 2018 Stormwater Pollution Prevention Plan.

CES, 2015. 2015 Stormwater Pollution Prevention Plan.

City of Spokane, 2024. Waste to Energy Plant [WWW Document]. URL https://my.spokanecity.org/solidwaste/waste-to-energy/ (accessed 4.18.24).

City of Spokane, 2023. City of Spokane Water System Plan 2023.

Deobald, W., Buchanan, J.P., 1995. Hydrogeology of the West Plains area of Spokane County, Washington. Spokane County Water Quality Management Program.

DVIDS, 2011. Fire department -- split three ways -- protects Fairchild assets. Defense Visual Information Distribution Service.

ERM-West, Inc., 1996. Installation Restoration Program (IRP) Final Remedial Investigation/ Feasibility Study Work Plan. 242nd Combat Communications Squadron Spokane Air National Guard Station Washington Air National Guard Spokane, Washington.

FAA, 2023. New Military Specification for Performance-Based Standards for Fluorine-Free Aircraft Fire Fighting Foam.

FAA, 2019a. Aqueous Film Forming Foam (AFFF) Testing at Certificated Part 139 Airports No. 19-02.

FAA, 2019b. Aqueous Film Forming Foam (AFFF) Testing at Certificated Part 139 Airports No. 19-01.

FAA, 2016. Federal Aviation Administration National Part 139 CertAlert No. 16-05.

FAA, 2011. Airport Operators, FAA Airport Certification Safety Inspectors, ARFF Departments and Mutual Aid Units No. 11-02.

FAA, 2006. Airport Operators, FAA Airport Certification Safety Inspectors.

FAA, 2004. Advisory Circular: Aircraft Fire Extinguishing Agents.

GeoEngineers, 2021. Alternative Groundwater Supply Assessment.

GeoEngineers Inc., 2007. Hydrogeologic Evaluation, Proposed Eater Reclamation Plant, City of Airway Heights, Report for City of Airway Heights, WA.

GHD, 2023. Site Investigation Report Phillips 66 Facility No. 6880 Geiger Corrections Facility.

GHD, 2018. Remedial Investigation Report.

GSI Water Solutions Inc., INTERA Inc., GeoEngineers Inc., Carlstad Consulting, 2015. Hydrogeologic Framework and Conceptual Groundwater Flow Model, Review of Groundwater Conditions in the West Plains Area, Spokane County.

Herrera, 2003. DERP-FUDS Site Closure Summary-Geiger Field.

HRP Associate, 2024. Aqueous Film Forming Foam (AFFF) Fact Sheet [WWW Document]. HRP Associates. URL https://hrpassociates.com/uploads/files/AFFF_Fact_Sheet-Email.pdf?v=1621007441966 (accessed 4.15.24).

ITRC, 2023. PFAS Technical and Regulatory Guidance Document and Fact Sheet.

McCollum, M.B., Pritchard, C.J., 2012. Technical Memorandum to Accompany the Structural Geology Map of the West Plains Region. Eastern Washington University: Geology Dept.

Mead, Hunt, 2014. Spokane International Airport Master Plan Chapter 7 - Airport Land Use Compatibility.

Northwest Land & Water, Inc., 2012. West Plains (WRIA 54) & Lower Hangman Creek Watershed (WRIA 56) Hydrogeologic Characterization & Monitoring Well Drilling Final Report.

OpTech, 1995. Installation Restoration Program Preliminary Assessment Site Inspection Report Volume I.

Pritchard, C.J., Gaylord, D.R., Adams, D.B., Ernst, S., Hermanson, M., 2020. Role of Quaternary glacial-outburst megaflood paleochannel deposits in a basalt-dominated aquifer system in the West Plains area of eastern Washington, USA. Hydrogeology Journal 28, 921–939. https://doi.org/10.1007/s10040-019-02100-1

SES, 2019a. Limited Groundwater Assessment Park Drive Disposal Area.

SES, 2019b. Limited Assessment of Electric Avenue Waste Disposal/Fire Pit Training Area.

SES, 2018. 2018 Monitoring Well Installation and Groundwater Monitoring for Perfluorinated Chemicals.

SIA, n.d. Spokane Intl Airport > Environmental Overview [WWW Document]. URL https://spokaneairports.net/ENVIRONMENTAL-OVERVIEW (accessed 4.19.24).

Spokane County, 2024. Spokane County Southwest Area Water Districts with 2024 Precincts.

Spokane County, 2019. In the Matter of Amending the Airport Joint Operation Agreement Between Spokane County and this City of Spokane.

Spokane International Airport Fire Department [WWW Document], 2024a. . Firefighting Wiki. URL https://fire.fandom.com/wiki/Spokane_International_Airport_Fire_Department (accessed 4.19.24).

Spokane International Airport Fire Department [WWW Document], 2024b. . Firefighting Wiki. URL https://fire.fandom.com/wiki/Spokane_International_Airport_Fire_Department (accessed 4.19.24).

Tehama, LLC, 2019. Fairchild Air Force Base: On-Base Groundwater Flow Directions Evaluation.

USAAC, 1956. Geiger Field Preliminary Master Plan.

USACE, n.d. Geiger Field FUDS Property Eligibility [WWW Document]. USACE.

USAF, 2009. 256 CBCS moves to Fairchild.

USAF, 2006. Army National Guard unit to move helos to Fairchild. USAF News, 92nd ARW Public Affairs.

USEPA, 2024. Fifth Unregulated Contaminant Monitoring Rule Data Finder.

USEPA, 2012. Environmental Impact and Benefit Assessment for the Final Effluent Limitation Guidelines and Standards for the Airport Deicing Category. Office of Water.

USEPA, 1978. SPOKANE VALLEY-RATHDRUM PRAIRIE AQUIFER Determination. F.R. 43.

Valley, 2023a. 2023 Stormwater Pollution Prevention Plan – Spokane International Airport.

Valley, 2023b. 2023 Glycol Recovery Best Management Practices Plan.

WA DoH, 2024. Sentry Internet.

WA DoH, 2023. City of Airway Heights Water Quality Report - 2022 Cosumer Confidence Report.

WA ECY, 2023. Guidance for Investigating and Remediating PFAS Contamination in Washington State (No. 22- 09–058).

WA ECY, 2022a. Fact Sheet for NPDES Permit WA0093317 Spokane County Regional Water Reclamation Facility (SCRWRF).

WA ECY, 2022b. Per- and Polyfluoroalkyl Substances Chemical Action Plan.

WA ECY: Nichols, 1993. Spokane Airport Stormwater System.

WA ECY, S.W.M.-W.D. of, 2024. Waste in Washington [WWW Document]. ArcGIS StoryMaps. URL https://storymaps.arcgis.com/stories/81f7dfd33e204263b2a8cd3014b14ed4 (accessed 4.18.24).

Waste Management, 2024. SMaRT Recycling Center - Waste Management Northwest - Washington, Oregon, Idaho [WWW Document]. URL https://www.wmnorthwest.com/smartrecycling/ (accessed 4.18.24).

SITE ASSESSMENT REPORT
Spokane International Airport
Spokane, WA

TABLES

Table 1.1. Ecology Enforcement Order (EO) Task 1A Requirements
Spokane International Airport
Spokane, WA

EO Subtask	Subtask Description	Section in Report
1. General Facility Information	Legal description of the facility,	2.0 Airport Description
	Present owner and/or operator including chronological listing of past owners and/or operators,	2.1 Current Operations 2.2 Site History 2.3 Current and Historical Land Use
	Adjacent property owners,	6.2 PFAS Sources Adjacent to SIA
	Zoning designations of property and adjacent properties, and other pertinent information.	2.0 Airport Description 2.3 Current and Historical Land Use 6.0 Other Potential Sources of PFAS
2. Site History	Providing descriptions of historical, current, and future Site activities/operations	2.1 Current Operations 2.2 Site History 2.3 Current and Historical Land Use
	Historical use of Aqueous Film Forming Foam (AFFF) and their location.	4.3 Potential and Known Uses of Firefighting Foam
3. Purchase History	Purchase history of AFFF relating the brand, quantity, and date.	4.1.1 Historical Foam Transitions
4. Suspected Source Areas (or known)	4.1 Firefighting training areas (historical and current).	4.2.3 Fire Training Information
	4.2 Firefighting equipment testing and maintenance areas.	4.2.4 Foam Testing and Calibration
	4.3 Disposal areas.	5.3 Solid Waste
	4.4 Stormwater drainage infrastructure and management areas receiving flows from suspected source areas.	5.1 Stormwater
	4.5 Wastewater systems used to contain discharged fire-extinguishing materials.	5.2 Wastewater
	4.6 Historic and current storage areas for AFFF.	4.2.1 Fixed Foam Systems
	4.7 Tanks, vehicles, equipment, and distribution systems that were used to store or apply AFFF.	4.2.2 Mobile Foam Systems
	4.8 Hangars that contain AFFF fire suppression systems (historical and current).	4.2.1 Fixed Foam Systems
	4.9 Spills.	4.3 Potential and Known Uses of Firefighting Foam
	4.10 Incident response(s) that used AFFF.	4.3 Potential and Known Uses of Firefighting Foam
	4.11 Historical grading/construction projects at the Site associated with suspected source areas.	7.0 Historical Onsite PFAS Data
5. Review Data Reports	Review Data Reports from previous analysis of PFAS in soils, groundwater, surface water, and sediments along with	7.0 Historical Onsite PFAS Data
	Documentation of any remedial activities if undertaken.	7.0 Historical Onsite PFAS Data
Conceptual Site Model (CSM)	Develop and present a preliminary Conceptual Site Model (CSM) that describes the current understanding of contaminant release,	8.0 Areas of Potential or Known Concern
	Fate and transport (including migration pathways in all environmental media and identifying potential receptors), and	2.4 Geology and Hydrogeology 8.0 Areas of Potential or Known Concern 9.0 Regulatory Framework and Preliminary Conceptual Site Model
	Site-specific concerns such as identification of natural resources and ecological receptors.	2.0 Airport Description 9.0 Regulatory Framework and Preliminary Conceptual Site Model

TABLE 2.1: Listing of Parcels that Comprise the SIA Property.
Spokane International Airport
Spokane, WA

Pacel Number	Property Use	Street Address	City	Zip Code	Land Size (acres)
15344.0105	Transportation - Railroad	Unassigned Address	Medical Lake	99022	9.98
24062.0206	Vacant Land	Unassigned Address	Spokane	99224	0.66
14013.9007	Vacant Land	Unassigned Address	Spokane	99224	37.6
15341.9001	Vacant Land	14100 W MCFARLANE RD	Spokane		9.09
14011.143	Vacant Land	11205 W ELECTRIC AVE	Spokane		18.5
25272.9099	Vacant Land	Unassigned Address	Spokane	99224	7.79
25333.6001	Vacant Land	Unassigned Address	Spokane	99224	3.09
14022.0601	Vacant Land	Unassigned Address	Spokane	99224	10.2
25333.0208	Vacant Land	4119 S GEIGER BLV	Spokane	99201	2.09
15344.0102	Transportation - Aircraft	Unassigned Address	Medical Lake	99022	9.5
14012.9001	Transportation - Aircraft	0 UNKNOWN	Spokane		0.95
15341.9009	Transportation - Aircraft	0 .VACANT LAND	Spokane		104.37
24062.901	Vacant Land	Unassigned Address	Spokane	99224	1.07
25333.0227	Vacant Land	4007 S GEIGER BLVD	Spokane		2.61
15365.1202	Transportation - Aircraft	0 UNASSIGNED ADDRESS	Spokane		534.91
24062.0143	Vacant Land	Unassigned Address	Spokane	99224	1.24
25335.0502	Vacant Land	3520 S GEIGER BLVD	Spokane		19.98
24062.0425	Vacant Land	5611 S HAYFORD RD	Spokane	99204	2.95
14012.9004	Vacant Land	Unassigned Address	Spokane	99224	35.59
24052.905	Vacant Land	Unassigned Address	Spokane	99224	0.57
25335.0503	Transportation - Aircraft	8125 W PILOT DR	Spokane		281.88
24062.0144	Vacant Land	Unassigned Address	Spokane	99224	1
15344.0108	Vacant Land	Unassigned Address	Medical Lake	99022	9.54
24062.0302	Vacant Land	Unassigned Address	Spokane	99224	2.15
14013.9008	Vacant Land	Unassigned Address	Spokane	99224	37.6
25286.1201	Transportation - Aircraft	2920 S SPOTTED RD	Spokane		918.26
15344.0111	Transportation - Aircraft	Unassigned Address	Medical Lake	99022	4.84
25333.0223	Vacant Land	Unassigned Address	Spokane	99224	1.44
14022.0101	Vacant Land	Unassigned Address	Spokane	99224	27.6
25335.0206	Vacant Land	6801 W FLIGHTLINE BLVD	Spokane	99224	11.95
24066.9046	Transportation - Aircraft	10900 W ELECTRIC AVE	Spokane	99224	334.82
14022.0701	Vacant Land	Unassigned Address	Spokane	99224	10.1
25310.9021	Transportation - Aircraft	9000 W AIRPORT DR GAR2	Spokane	0	629.22
15344.0103	Transportation - Aircraft	Unassigned Address	Medical Lake	99022	9.5
15342.9004	Service - Governmental	14811 W MCFARLANE RD	Spokane	99022	151.84
24062.9011	Vacant Land	Unassigned Address	Spokane	99224	0.15
15344.0113	Transportation - Aircraft	Unassigned Address	Medical Lake	99022	9.92
24062.0142	Vacant Land	Unassigned Address	Spokane	99224	1.24
24052.9071	Transportation - Aircraft	8520 W ELECTRIC AVE	Spokane		10.24
15344.0106	Transportation - Aircraft	Unassigned Address	Medical Lake	99022	9.69
25335.0207	Transportation - Aircraft	7109 W WILL D ALTON LN	Spokane	99224	3.15
15355.9007	Transportation - Aircraft	3911 S CRAIG RD	Spokane		550.84
15341.9007	Transportation - Aircraft	0 .UNKNOWN	Spokane		3.04
24062.0145	Vacant Land	Unassigned Address	Spokane	99224	1.14
14025.9004	Vacant Land	0 UNKNOWN CRAIG ST	Spokane		648.74
24062.0429	Vacant Land	Unassigned Address	Spokane	99224	42.86
25333.0229	Vacant Land	Unassigned Address	Spokane	99224	1.17
24063.0504	Vacant Land	0 .UNKNOWN	Spokane		5.53
15344.0109	Vacant Land	Unassigned Address	Medical Lake	99022	9.54

TABLE 2.1: Listing of Parcels the Comprise the SIA Property.
Spokane International Airport
Spokane, WA

Pacel Number	Property Use	Street Address	City	Zip Code	Land Size (acres)
24051.9059	Transportation - Aircraft	8314 W ELECTRIC AVE	Spokane		8.32
25333.0205	Vacant Land	Unassigned Address	Spokane	99224	0.37
24062.0303	Vacant Land	Unassigned Address	Spokane	99224	0.46
25305.9047	Transportation - Aircraft	0 ADDRESS UNKNOWN S	UNKNOWN		242.17
24052.9013	Transportation - Aircraft	9108 W ELECTRIC AVE	Spokane		18.61
14022.0501	Vacant Land	Unassigned Address	Spokane	99224	33.7
15341.9008	Vacant Land	0 .VACANT LAND	Spokane		39.89
24062.043	Vacant Land	5522 S CENTER RD	Spokane		10
15344.011	Vacant Land	Unassigned Address	Medical Lake	99022	9.69
24062.0426	Vacant Land	10903 W ELECTRIC AVE	Spokane		0.67
14022.9002	Vacant Land	Unassigned Address	Spokane	99224	39.09
15344.0104	Transportation - Aircraft	Unassigned Address	Medical Lake	99022	9.84
25320.1101	Transportation - Aircraft	8520 W ELECTRIC AVE	Spokane		646.44
14013.9006	Agricultural Not Classified	Unassigned Address	Spokane	99224	34.25
24062.9019	Single Unit	10220 W ELECTRIC AVE	Spokane	99224	0.46
15342.9011	Utilities	14811 W Mcfarlane Rd	Medical Lake	99022	1.03
15344.0107	Vacant Land	Unassigned Address	Medical Lake	99022	9.69
14015.0001	Vacant Land	0 UNKNOWN	Spokane		315.39

Notes: parcel information was obtained from Spokane County Assessor's Office and Treasurer's Office (https://cp.Spokanecounty.org/scout/scoutdashboard/Default.aspx)

Table 4.1. Summary of Potential or Known Firefighting Foam Usage Areas
Spokane International Airport
Spokane, WA

Location Key[1]	Year	Event Description	Potential or Known Usage[2]	Receiving Collection Area
A	3/18/1994	**Southwest of the runway:** Airplane crash with fire ("NTSB Report 1994," 1994; "Victims Identified In Spokane Plane Crash -- Dc-3 Pilot Had Reported Trouble," 1994)	**Potential** – AFFF use in emergency response incident	Outside of Collection Areas
B	Before 1999	**West of Air National Guard Property:** Joint training with National Guard took place prior to 1999 in the area directly west of the Air National Guard property. Foam was sprayed during these trainings from National Guard equipment.	**Known** – AFFF usage over several years	3-12
C	Prior to 2016	**Triangle ramp training area northeast of the runway:** Water was sprayed through system components that had been previously exposed to foam to satisfy mandated FAA testing.	**Potential** – AFFF usage over several years	3-21
D	Prior to 2014	**Southwest of the historical SIA Fire House:** FAA mandated testing took place in the grassy area southwest of the previous ARFF building. During testing, limited amounts of foam were sprayed through mobile unit components to satisfy FAA requirements.	**Known** – AFFF usage over several years	Alpha
E	Prior to 2014	**Northeast of the historical SIA Fire House:** It is likely that testing of mobile units took place in the grassy area northeast of the previous ARFF building. During testing, limited amounts of foam were sprayed through mobile unit components.	**Potential** – AFFF usage over several years	Alpha
F	2014-2016	**North of the current SIA Fire House:** It is likely that testing of mobile units took place in the grassy area northeast of the current ARFF building. During FAA mandated testing, limited amounts of foam were sprayed through mobile unit components.	**Known** – AFFF usage over several years	Alpha, Perimeter Drainage
G	2014-2016	**Southeast of the current SIA Fire House:** FAA mandated testing took place in the grassy area southwest of the current ARFF building. During testing, limited amounts of foam were sprayed through mobile unit components to satisfy FAA requirements.	**Known** – AFFF usage over several years	Alpha, Perimeter Drainage
H	Prior to 2016	**Northwest of the Control Tower (Taxiway K):** Several FAA mandated inspections requiring foam to be dispersed through mobile units took place at one location within view of the control tower, east of the runway.	**Known** – AFFF usage over several years	3-21 and Perimeter Drainage

Notes:
1. Location Key corresponds to inset table in Figure 4.1 Locations of Potential or Known Usage of Firefighting Foam.
2. All events involved the usage of C8 foam.

TABLE 6.1: Potential On- and Offsite Third-Party Sources of PFAS
Spokane International Airport
Spokane, WA

Location Key[1]	Company	Address	Description	Potential Uses of PFAS (ITRC, 2023)
A	Waste to Energy Incineration Facility	2900 S Geiger Blvd	Solid waste incineration	Polymers - Fluoropolymer films (such as FEP, PVDF) to cover solar panel collectors, electrolyte fuel cells, PTFE expansion joint materials for power plants, filtration of fly ash from stack emissions
				Nonpolymers - Fuel cell and battery electrolyte (such as the lithium salt of PFAAs)
B	Waste Management (WM) Spokane Material and Recycling Technology (SMaRT) Center	2902 S Geiger Blvd	Recycling facility	Nonpolymers - Fluorosurfactants are used to recover metals, including rare earth metals, and n-hexane from waste gases
C	International Aerospace Coatings[2]	8510 W Electric Ave	Coatings application	Polymers - Mechanical components made of fluoropolymers (such as PTFE and PFA tubing, piping, seals, gaskets, cables, and insulators)
				Nonpolymers - Hydraulic fluid additives made from PFSA salts (such as PFOS at about 0.1%) to prevent evaporation, fires, and corrosion
D	Extreme Industrial Coatings	11319 Willow Ave W, Airway Heights, WA 99001	Metals coating	Nonpolymers - Wetting agent, mist suppression for harmful vapors, and surfactants (may include potassium, lithium, diethanolamine and ammonium salts of PFOS or 6:2 FTS)
E	Performance Pro Supply	9616 W Harlan Ln Bldg 12, Spokane, WA 99224	Insulation Materials, "Fire Block" foams	Polymer - Fluoropolymer membranes and coatings (such as PTFE, PVDF, and/or side-chain fluorinated polymers) in architectural materials (like fabrics, roofing membranes, metals, stone, tiles, concrete, radomes); adhesives, seals, caulks; additives in paints (for example, low- and no-VOC latex paints), varnishes, dyes, stains, sealants; surface treatment agent and laminates for conserving landmarks
				Nonpolymers - Additives in paints, coatings, and surface treatments (PASF- and fluorotelomer-based compounds, ammonium salt of PFHxA)
F	Conoco Phillips Gieger Pipeline	4404 S Geiger Blvd, Spokane, WA 99224	Pipeline terminal, above ground storage	Polymer- Lining of gas pipes and insulation of cable and wire during drilling, and membranes for filtration
				Nonpolymers- Marketed for and potential instances of use in oil well production to change the permeability of the target formation, reduce viscosity for transport, prevent evaporative loss during storage, tracers
				Polymer- Fluoropolymers used in firefighting equipment and protective clothing (such as those woven with PTFE). Other polymer coatings using side-chain fluorinated polymers)
				Nonpolymers- Coatings and materials used as water repellents and some Class B foam (may contain PFCAs, PFSAs, and fluorotelomer-based derivatives), vapor suppression for flammable liquids (for example, gasoline storage)
G	Fisher Construction	4510 S Dowdy Rd, Spokane, WA 99224	Construction	Polymer- Fluoropolymer membranes and coatings (such as PTFE, PVDF, and/or side-chain fluorinated polymers) in architectural materials (like fabrics, roofing membranes, metals, stone, tiles, concrete, radomes); adhesives, seals, caulks; additives in paints (for example, low- and no-VOC latex paints), varnishes, dyes, stains, sealants; surface treatment agent and laminates for conserving landmarks
				Nonpolymers- Additives in paints, coatings, and surface treatments (PASF- and fluorotelomer-based compounds, ammonium salt of PFHxA)
H	Papé Machinery Construction & Forestry	6210 W Rowand Rd, Spokane, WA 99224	Construction and forestry	Polymer- Fluoropolymer membranes and coatings (such as PTFE, PVDF, and/or side-chain fluorinated polymers) in architectural materials (like fabrics, roofing membranes, metals, stone, tiles, concrete, radomes); adhesives, seals, caulks; additives in paints (for example, low- and no-VOC latex paints), varnishes, dyes, stains, sealants; surface treatment agent and laminates for conserving landmarks
				Nonpolymers- Additives in paints, coatings, and surface treatments (PASF- and fluorotelomer-based compounds, ammonium salt of PFHxA)

TABLE 6.1: Potential On- and Offsite Third-Party Sources of PFAS
Spokane International Airport
Spokane, WA

Location Key[1]	Company	Address	Description	Potential Uses of PFAS (ITRC, 2023)
I	Metals Fabrication Co.	2524 S Hayford Rd, Spokane, WA 99001	Metal fabrication	Nonpolymers- Wetting agent, mist suppression for harmful vapors, and surfactants (may include potassium, lithium, diethanolamine and ammonium salts of PFOS or 6:2 FTS)
J	Seaport Steel Building	2634 S Hayden Rd, Airway Heights, WA 99001	Metal fabrication	Nonpolymers- Wetting agent, mist suppression for harmful vapors, and surfactants (may include potassium, lithium, diethanolamine and ammonium salts of PFOS or 6:2 FTS)
K	Spokane Metals LLC	11315 Willow Ave W, Airway Heights, WA 99001	Metal fabrication	Nonpolymers- Wetting agent, mist suppression for harmful vapors, and surfactants (may include potassium, lithium, diethanolamine and ammonium salts of PFOS or 6:2 FTS)
L	Wilson Construction	4510 S Ben Franklin Ln, Spokane, WA 99224	Construction	Polymer- Fluoropolymer membranes and coatings (such as PTFE, PVDF, and/or side-chain fluorinated polymers) in architectural materials (like fabrics, roofing membranes, metals, stone, tiles, concrete, radomes); adhesives, seals, caulks; additives in paints (for example, low- and no-VOC latex paints), varnishes, dyes, stains, sealants; surface treatment agent and laminates for conserving landmarks
				Nonpolymers- Additives in paints, coatings, and surface treatments (PASF- and fluorotelomer-based compounds, ammonium salt of PFHxA)
M	Silgan Unicep	4122 S Grove Rd, Spokane, WA 99224	Single use plastic packaging manufacturer	Polymer - Fluoropolymers (such as PTFE) are used as processing aids, as a raw material in plastics and rubber production, and as an intermediate material. Used in molded material production to enable easy release and reduce imperfections, polymer processing aids
				Nonpolymers - Surface tension reduction for foams, etching of plastic, and production of rubber
N	Alloy Trailers, Inc.	S 3025 Geiger Blvd, Spokane, WA 99224	Former trailer manufacturing	Nonpolymers - Wetting agent, mist suppression for harmful vapors, and surfactants (may include potassium, lithium, diethanolamine and ammonium salts of PFOS or 6:2 FTS)
O	Wear Tech	8021 W Sunset Hwy, Spokane, WA 99224	Water and heat resistant metals casting	Nonpolymers - Wetting agent, mist suppression for harmful vapors, and surfactants (may include potassium, lithium, diethanolamine and ammonium salts of PFOS or 6:2 FTS)
P	Spokane Fire Department Station #6	1615 S Spotted Rd, Spokane, WA 99224	Fire department	Polymer- Fluoropolymers used in firefighting equipment and protective clothing (such as those woven with PTFE). Other polymer coatings using side-chain fluorinated polymers)
				Nonpolymers- Coatings and materials used as water repellents and some Class B foam (may contain PFCAs, PFSAs, and fluorotelomer-based derivatives), vapor suppression for flammable liquids (for example, gasoline storage)
Q	Reliance Trailer company	3025 South Geiger Blvd, Spokane, Washington 99224	Trailer manufacturing	Polymer - Fluoropolymer membranes and coatings (such as PTFE, PVDF, and/or side-chain fluorinated polymers) in architectural materials (like fabrics, roofing membranes, metals, stone, tiles, concrete, radomes); adhesives, seals, caulks; additives in paints (for example, low- and no-VOC latex paints), varnishes, dyes, stains, sealants; surface treatment agent and laminates for conserving landmarks
				Nonpolymers - Additives in paints, coatings, and surface treatments (PASF- and fluorotelomer-based compounds, ammonium salt of PFHxA)

Notes:

1. Location Key corresponds to inset table in Figure 6.1 Potential Third-Party PFAS Sources
2. In addition to the potential PFAS uses listed in ITRC, application of coatings to the external surface of airplanes is expected to take place at this location and would be an additional potential source of PFAS.

SITE ASSESSMENT REPORT
Spokane International Airport
Spokane, WA

FIGURES