Revised Final Preliminary Assessment Report for Perfluorinated Compounds at Peterson Air Force Base El Paso County, Colorado

November 2016

Submitted to:
Air Force Civil Engineer Center
3515 General McMullen Suite 155
San Antonio, Texas 78226-2018

Submitted by:
U.S. Army Corps of Engineers
Omaha District
1616 Capitol Avenue
Omaha, Nebraska 68102-4901

US Army Corps of Engineers®

Prepared by:
Aerostar SES LLC
1006 Floyd Culler Court
Oak Ridge, Tennessee 37830-8022
under
Contract No. W9128F-15-D-0051
Delivery Order No. 0003

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Acronyms and Abbreviations

AOC	area of concern
ASL	Aerostar SES LLC
AFFF	aqueous film forming foam
AFB	Air Force Base
bgs	below ground surface
CDPHE	Colorado Department of Public Health and Environment
CDWR	Colorado Department of Water Resources
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COS	Colorado Springs Airport
CSU	Colorado Springs Utilities
EPA	United States Environmental Protection Agency
FTA	fire training area
HEIR	Hangar Evaluation Installation Report
HI-EX	high expansion foam
IRP	Installation Restoration Program
NWIS	National Water Information System
OWS	oil water separator
PA	preliminary assessment
PAFB	Peterson Air Force Base
PFC	perfluorinated compound
PFCA	perfluorocarboxylic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PFSA	perfluorosulfonate
PWS	public water supply
RI	remedial investigation
RIV	Rapid Intervention Vehicle
TPH	total petroleum hydrocarbons
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound
WWSD	Widefield Water and Sanitation District

1. INTRODUCTION

Aerostar SES LLC (ASL) has been contracted by the U.S. Army Corps of Engineers (USACE) Omaha District (Contract No. W9128F-15-D0051, Delivery Order No. 0003) to perform preliminary assessment (PA) activities at Peterson Air Force Base (PAFB), a United States Air Force (USAF) installation, to determine locations of potential environmental release of perfluorinated compounds (PFCs). Specifically, the ASL team is completing PA activities consistent with the United States Environmental Protection Agency (EPA) guidance for preparing PAs under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (EPA, September 1991) to determine potential release locations of PFCs from fire training areas (FTAs) and other known or suspected PFC or aqueous film forming foam (AFFF) usage or storage areas.

ASL completed the PA activities at PAFB on March 23 and 24, 2016, in accordance with CERCLA and the Superfund Amendments and Reauthorization Act of 1986 PA processes. Initially opened as Colorado Springs Municipal Airport in 1926, PAFB officially opened as Colorado Springs Army Air Base in 1942. The facility was named Peterson Army Air Base in December 1942 and has been the home of various training and operational units through several base closures, reactivations, and name changes. Named Peterson Air Force Base in 1976, PAFB is home to the 21st Space Wing, which provides missile warning and space control to the North American Aerospace Defense Command and U.S. Strategic Command through a network of ground- and space-based sensors. (Global Security, 2016, and USAF, 2016).

1.1 BACKGROUND

PFCs are a large group of manmade chemicals that have been used in industry and consumer products worldwide since the 1950s. Products such as waterproof clothing, molded plastics, receipt paper, carpet stain preventers, Teflon cookware, and fast food wrappers are all examples of general industry products that may contain PFCs. In the United States, making and using these chemicals in consumer products has decreased during the past 10 years. The largest manufacturer of PFCs voluntarily stopped producing it in 2002. Studies have been conducted on how PFCs affect animals' health, but scientists are still trying to understand how exposure to PFCs affects human health. PFCs are resistant to heat, oil, grease, and water (Centers for Disease Control and Prevention [CDC], September 2015).

The two best known groups of this family of chemicals are the perfluorocarboxylic acids (PFCAs), which include perfluorooctanoic acid (PFOA, sometimes called C8), and the perfluorosulfonates (PFSAs), which include perfluorooctane sulfonate (PFOS). PFCAs and PFSAs do not break down easily in the environment. They also bioaccumulate, or build up, in the blood and organs of exposed humans and animals and remain there for extended periods of time (CDC, September 2015).

Other countries still produce PFCs, and they can be imported into the United States in limited quantities. In 2006, EPA and major companies in the PFC industry launched the 2010/2015 PFOA Stewardship Program. Companies participating in the program have been working to stop producing PFCs and related chemicals by 2015 (CDC, September 2015).

PFCs are used in the formulation of AFFF, which the USAF has used in fire training exercises, suppressing aircraft and other vehicle fires, and in aircraft hangar fire suppression systems. Although PFCs are not regulated under CERCLA or the Resource Conservation and Recovery Act, there is evidence that PFOS and PFOA, which can be found in the environment following an AFFF release, may present potential, noncarcinogenic risks to human health and the environment (Chang et al., 2014; Porter, March 2011; Rak et al., March 2009).

Several federal government documents confirm the initial use of AFFF by the USAF beginning in 1970:

- Military specification for AFFF (MIL-F-24385), formally issued in 1969;
- General Accounting Office determination on sole source award protest to provide AFFF to the Navy in December 1969; and
- *A History of Fire Protection Training at Chanute AFB, 1964-1976* (Coates, February 1977).

Based on USAF performance testing results on AFFF, M.G. Goddard, the USAF director of civil engineering, issued authorization for the USAF to procure AFFF in 1970 (Coates, February 1977). No usage of AFFF by the Air Force could have occurred prior to 1970.

1.2 PURPOSE AND OBJECTIVES

The purpose and objective of this PA report is to identify locations at PAFB where AFFF may have been used resulting in a potential release of PFCs to the environment and to conduct an initial assessment of possible migration pathways and receptors of potential contamination.

This PA report documents the known FTAs as well as additional locations (non-FTAs) where AFFF has been used at PAFB. Table 1-1 provides a list of FTAs and non-FTAs at PAFB where AFFF has been stored, transferred, or used. There have been no emergency response events that used AFFF on PAFB. Locations that are considered non-FTAs include, but are not limited to, hangars, fire stations, emergency response, and any other location where the potential exists for AFFF to have been released into the environment. This PA report also differentiates locations that pose little or no potential threat to human health and the environment from locations that warrant further investigation. Figure 1-1 shows the location of PAFB and Figure 1-2 shows the location of all FTAs and non-FTA sites identified for potential AFFF releases.

Table 1-1 Fire Training Areas and Non-Fire Training Areas Identified for Potential Aqueous Film Forming Foam Releases for Peterson Air Force Base, Colorado

Fire Training Areas
Current Fire Training Area
Site 5
Site 8
Non-Fire Training Areas
Hangars
Hangar 119
Hangar 121
Hangar 133
Hangar 140
Hangar 210
Hangar 214
Fire Stations
Building 218 Fire Station #1
Building 2032 Fire Station #2
Emergency Response
None

Table 1-1 Fire Training Areas and Non-Fire Training Areas Identified for Potential Aqueous Film Forming Foam Releases for Peterson Air Force Base, Colorado (continued)

Other Spills and Releases
Detention Pond #3
Golf Course and Former Leach Field

1.3 BASEWIDE ENVIRONMENTAL SETTING

1.3.1 Geology

PAFB is in El Paso County, Colorado. Cities and towns immediately adjacent to PAFB are Cimarron Hills to the north, Colorado Springs to the west, and Fountain and Security-Widefield to the south. PAFB is in the Colorado Piedmont Section of the Great Plains Physiographic Province, an area dominated by gently to strongly rolling high plains. The general ground surface slopes to the southwest with elevations in the area ranging from 6,000 to 6,300 feet above mean sea level (USAF, September 1989).

PAFB is on a thick layer of alluvial sediment overlying bedrock. Three bedrock units are directly beneath PAFB: Pierre Shale, Fox Hills Sandstone, and the Laramie formation. Surficial deposits at the site consist of unconsolidated alluvium comprising three alluvial units, the Broadway Alluvium, Piney Creek Alluvium, and a windblown sand unit (eolian sand). These alluvial layers are characterized by varying amounts of poorly sorted gravel, well-stratified clays, silt, and sand lenses up to 20 feet thick. Most of the facility is covered by the Broadway Alluvium, which consists of poorly sorted, yellowish brown, pebbly, highly permeable, granitic gravel. This unit can be up to 20 feet thick. The more recent Piney Creek Alluvium occurs only along the East Fork Sand Creek and in its floodplain, which crosses the northwest corner of the base. The sediment of the Piney Creek formation is humic rich, firmly compacted, and can be up to 20 feet thick; it is distinguishable from the Broadway Alluvium by its greater silt and clay content and an associated low to moderate permeability. The eolian sand unit consists of a poorly sorted, fine to coarse-grained sand that varies widely in depth. The underlying bedrock units are primarily composed of sandstone, siltstone, and shale (USAF, 1989).

1.3.2 Hydrogeologic Setting

The Denver Basin aquifer system supplies water to rural and suburban residents of the plains area along the eastern front of the Rocky Mountains in northeastern Colorado. The aquifer system consists of four aquifers in five geologic formations. The geologic formations that compose the Denver Basin aquifer system are Cretaceous and Tertiary sandstone, conglomerate, and shale of the Fox Hills Sandstone, Laramie Formation, Arapahoe Formation, Denver Formation, and Dawson Arkose Formation. The Dawson Arkose Formation is the only formation not present as far south as PAFB.

These formations are separated from the deeper and less permeable Paleozoic and other Mesozoic rocks in the area by an approximately 6,000-foot-thick layer of nearly impermeable Cretaceous shale, predominantly the Pierre Shale. The five formations form a layered sequence of rock in an elongated, asymmetrical structural depression. The structure of the formations is asymmetrical because rocks near the western edge of the basin dip more steeply than rocks near the eastern edge of the basin. The differences in dip and the overall shape of the basin are the result of the uplift of the Rocky Mountains, which followed deposition of most of the Cretaceous formations in the Denver Basin. The aquifer system underlies an area of about 7,000 square miles that extends from Greeley south to near Colorado Springs and from the Front Range east to near Limon.

The Denver Basin aquifer system is not well connected to other major aquifers in the area. The surficial aquifer along the South Platte River Valley is the only other major aquifer near the Denver Basin. The surficial aquifer directly overlies the Denver Basin aquifer system only along the valley of the South Platte River from Denver to just east of Greeley, Colo. From east of Greeley, the alluvium along the South Platte River is in an ancestral valley eroded into Pierre Shale and, thus, is hydraulically isolated from the Denver Basin aquifer system.

Shallow, discontinuous surficial aquifers overlie parts of the Denver Basin aquifer system, primarily along small streams that extend south from the South Platte River. The surficial aquifers generally are thicker and more extensive in the northern half of the Denver Basin, where they supply water for irrigation, stock, and domestic use. The surficial aquifers are not important sources of water in most other areas of the basin.

Some permeable sandstones in the thick series of rock below the Pierre Shale receive recharge from outcrops along the western margin of the basin. Some of these sandstones extend into Nebraska and Kansas, where they are shallower and are important aquifers. In Colorado, however, these sandstones generally are deeply buried, can contain poor-quality water, and are little utilized as sources of water.

The Denver Formation contains the Denver aquifer, which extends through an area of about 3,000 square miles and underlies Denver, Colorado. The Denver Formation is a 600- to 1,100-foot thick sequence of moderately consolidated, interbedded shale, claystone, siltstone, and sandstone, in which coal and fossilized plant remains are common. Water-yielding layers of sandstone and siltstone occur in poorly defined irregular beds that are dispersed within relatively thick sequences of claystone and shale. Individual sandstone and siltstone layers commonly are lens-shaped and range in thickness from a few inches to as much as 50 feet. Although the Denver aquifer yields usable quantities of water to wells, claystone and shale are prevalent in this unit and tend to form a leaky confining layer between the overlying Dawson aquifer and the underlying Arapahoe aquifer.

The Arapahoe Formation consists of a 400- to 700-foot thick sequence of interbedded conglomerate, sandstone, siltstone, and shale. It contains the Arapahoe aquifer, which extends over an area of about 4,300 square miles or about two-thirds the area of the Denver Basin aquifer system. The top of the Arapahoe aquifer is defined by the base of shale beds in the lower part of the overlying Denver Formation; the base of the Arapahoe aquifer is defined by the top of the shale, coal seams, and thin beds of sandstone and siltstone in the upper part of the underlying Laramie Formation. The upper part of the Laramie Formation forms a nearly impermeable confining layer 300 to 400 feet thick and impedes water movement between the Arapahoe aquifer and the underlying Laramie-Fox Hills aquifer.

In some areas the Arapahoe aquifer can be divided into an upper, somewhat shalier part and a lower, somewhat sandier part. Individual conglomerate and sandstone beds in the aquifer commonly are lens-shaped, moderately consolidated, and range in thickness from a few inches to 30 or 40 feet. The beds are so closely spaced that they form a single hydrologic unit that is 200 to 300 feet thick in some areas.

The Fox Hills Sandstone and sandstones in the lower part of the Laramie Formation form the Laramie-Fox Hills aquifer. The Laramie-Fox Hills aquifer underlies all of the approximately 7,000-square-mile Denver Basin. The aquifer is underlain by the nearly impermeable Pierre Shale, which forms the base of the aquifer system. The thickness of the Laramie-Fox Hills aquifer ranges from 0 to about 300 feet.

The Laramie-Fox Hills aquifer generally consists of beds of fine- to very fine-grained sandstone or siltstone interbedded with shale. Deeply buried beds of sandstone and siltstone generally are friable and light to medium gray. In outcrops, sandstone and siltstone range from friable to very hard, depending on the presence of iron mineralization (Robson and Banta, 1995).

In the area of PAFB, municipal and irrigation water wells are screened in three of the four aquifer systems: the alluvial aquifer, the Arapahoe aquifer and the Laramie-Fox Hills aquifer. Colorado Springs and PAFB are at the far south western edge of the Denver aquifer basin, allowing the local municipalities to screen their water supply wells in multiple aquifers at relatively shallow depths with ease (Robson, 1989).

The alluvial aquifer is commonly referred to as the Widefield aquifer or the Windmill Gulch aquifer depending on which region is being described. The alluvial aquifer is generally shallow sand and gravel deposits that contain loose unlayered silt, clay sand, and gravel deposited by running water in and around rivers. The alluvial aquifer ranges in thickness from 0 to 100 feet. The deepest portions of the Widefield aquifer occur below Security-Widefield in a former stream channel formed by Fountain Creek. (Edelmann, 1985, WWSD, 2016).

1.3.3 Hydrologic Setting

1.3.3.1 Fountain Creek Drainage Basin

PAFB is in the Fountain Creek Drainage Basin, which helps comprise the Arkansas River drainage basin. Monument Creek and Fountain Creek drain the majority of the Fountain Creek basin. Fountain Creek is a perennial stream that originates 7 miles northwest of Pikes Peak and flows southeast through the city of Colorado Springs. Monument Creek merges with Fountain Creek near downtown Colorado Springs. Intermittent tributaries to Fountain Creek that are on or near PAFB include Sand Creek, East Fork Sand Creek, and Jimmy Camp Creek. These creeks provide local surface drainage for PAFB and its surrounding areas (USAF, September 1989).

1.3.3.2 East Fork Sand Creek

East Fork Sand Creek crosses the boundaries of PAFB in the northwest corner of the base. East Fork Sand Creek is the largest stream at PAFB, and all drainage from the northwest corner of the facility flows into this creek. Some portions of the airfield also drain into East Fork Sand Creek through unnamed intermittent tributaries. Drainage from the remainder of the unindustrialized portions of the facility flows through surface ditches on base to the golf course ponds, where it is used for irrigation. Surface water drainage from the industrialized portions of the facility is routed through the storm water management system to Pond #3, where it is used for irrigation. Water used for industrial applications is routed to a 146,000-gallon underground storage tank (UST) and an oil water separator (OWS) near Hangar 210. Effluent from this OWS is discharged into the sanitary sewer system; the sanitary sewer is then routed across the Colorado Springs Airport (COS) and ultimately connects to the City of Colorado Springs sanitary sewer system.

1.3.4 Ecological Receptors

Ecological receptors include living organisms other than humans, the habitat that supports such organisms, or natural resources that could be adversely affected by environmental contaminants from a release or migration from an identified location.

The primary surface water features at PAFB are the East Fork Sand Creek and unnamed intermittent drainage channels that flow to it. These in turn drain to the Fountain Creek Drainage basin. These tributaries are considered primary ecological receptors for PAFB, including associated plant and animal species.

No nature preserves are along the route that the East Fork Sand Creek and its tributaries take to the Fountain Creek Drainage Basin. Table 1-2 lists endangered species that have the potential to exist within the boundaries of PAFB.

In addition to the listed species, multiple wetlands exist within PAFB and the surrounding area. Two state-designated wetlands are within the boundaries of the golf course. Detention Pond #3 and its unlined overflow pond are also designated as state wetlands (EDR, May 2016a).

1.4 PRELIMINARY ASSESSMENT METHODS

The performance of this PA included

- reviewing information and reports in the Air Force Administrative Record;
- reviewing documents related to USAF's use of AFFF;
- conducting a PA site visit to PAFB;
- conducting interviews with base environmental management personnel, the PAFB Fire Department's current and former personnel, and aircraft hangar maintenance and operations personnel;
- visiting and photographing locations where AFFF has been used, stored, or transferred between containers; and
- performing environmental data records searches to document nearby populations, water supply well information, and wetlands.

If the operational history of an identified location indicates that AFFF was not used, then no exposure pathway could exist, and the pathway and environmental hazards assessments within the PA will not be applicable.

1.5 REPORT ORGANIZATION

This PA report is organized as follows:

- Section 1, Introduction, provides a project overview, provides a basewide environmental setting, and describes the methods used to conduct the PA;
- Section 2, Fire Training Areas, describes the FTAs identified during the PA visit;
- Section 3, Non-Fire Training Areas, describes the non-FTAs identified during the PA visit;
- Section 4, Summary and Conclusions, summarizes and provides conclusions for FTAs and non-FTAs;
- Section 5, References, provides references consulted during the preparation of this PA report;
- Appendix A, Peterson Air Force Base Communication Logs, provides records of all communications during the PA visit;
- Appendix B, Peterson Air Force Base Photo Record Log and Field Photographs, provides photos taken during the PA visit;
- Appendix C Peterson Air Force Base Preliminary Assessment Forms; and
- Appendix D Aerostar SES LLC March 2016 Site Visit Notes.

Table 1-2 Endangered Species of Peterson Air Force Base

Mammals
Prebles Meadow Jumping Mouse
Spotted Bat
Pale Townsends Big Eared Bat
Colorado Hog Nosed Skunk
Allens Big Eared Bat
Southwestern Otter
Little Brown Bat
Birds
Mexican Spotted Owl
White Faced Ibis
Western Burrowing Owl
Least Tern
Black Tern
Piping Plover
Long Eared Myotis
Long Legged Myotis
Amphibians and Reptiles
Eastern Horned Lizard
Texas Horned Lizard
Eastern Short Horned Lizard
Plants
Ute Ladies Tresses
Milk Vetch
Slender Spider Flower
Tiger Beardtongue
Gunnison Mil Vetch
Cliff Palace Milk Vetch
Mesa Verde Stickleaf
Kleins Evening Primrose
Park Rock Cress
Ripley Milk Vetch
Engelmann's Goldenrod
Cronquist Milk Vetch
Front Range Cinquefoil
Sandhill Goosefoot
Clay Blazing Star
Pale Blue Eyed Grass
Kachina Daisy
Harrington Beardtongue
Brandegee Wild Buckwheat
Bell's Twinpod
Arkansas River Feverfew
Adobe desert Parsley
Fish
Greenback Cutthroat Trout
Arkansas River Speckled Chub
Flathead Chub
Plains Minnow

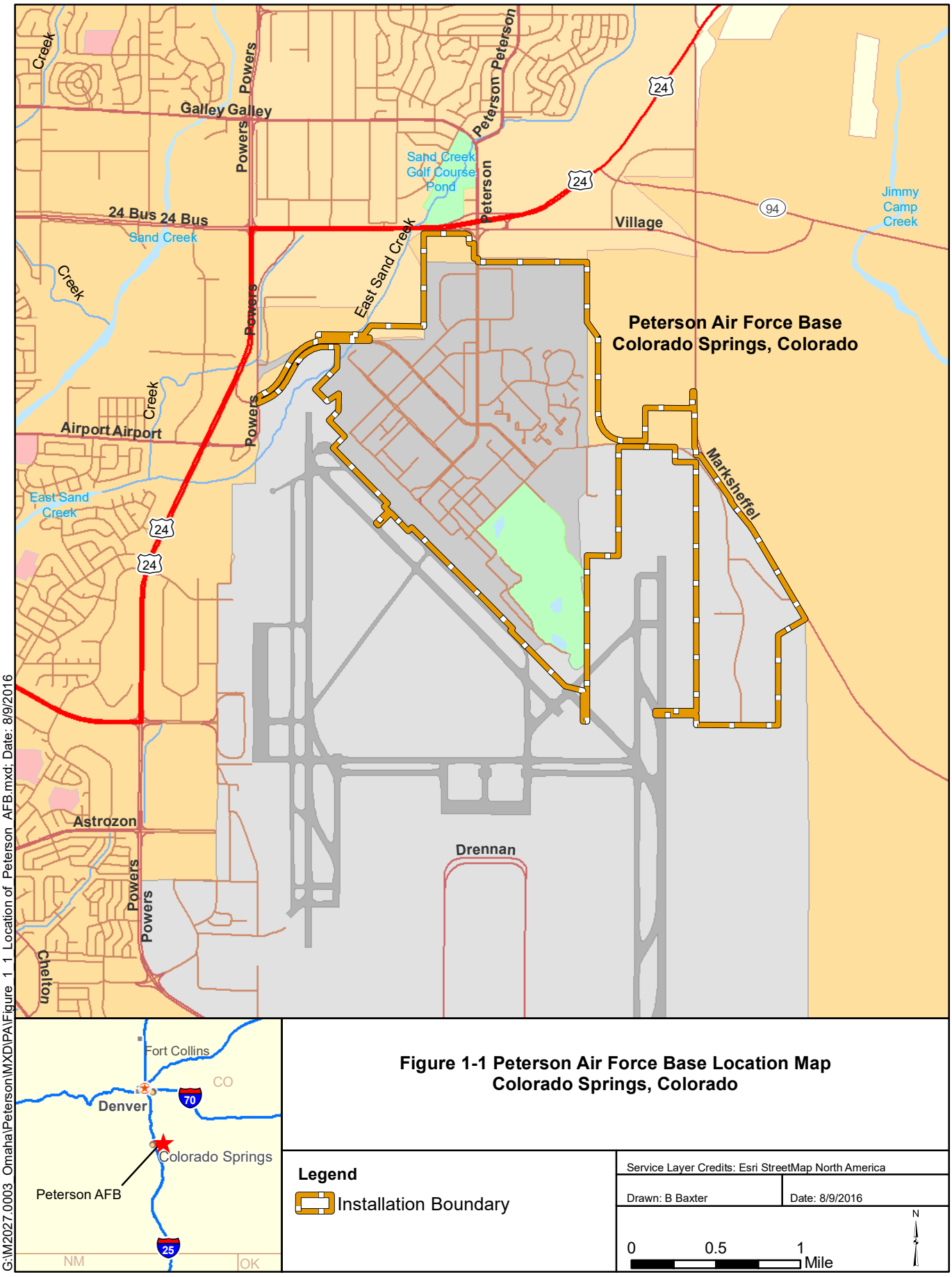

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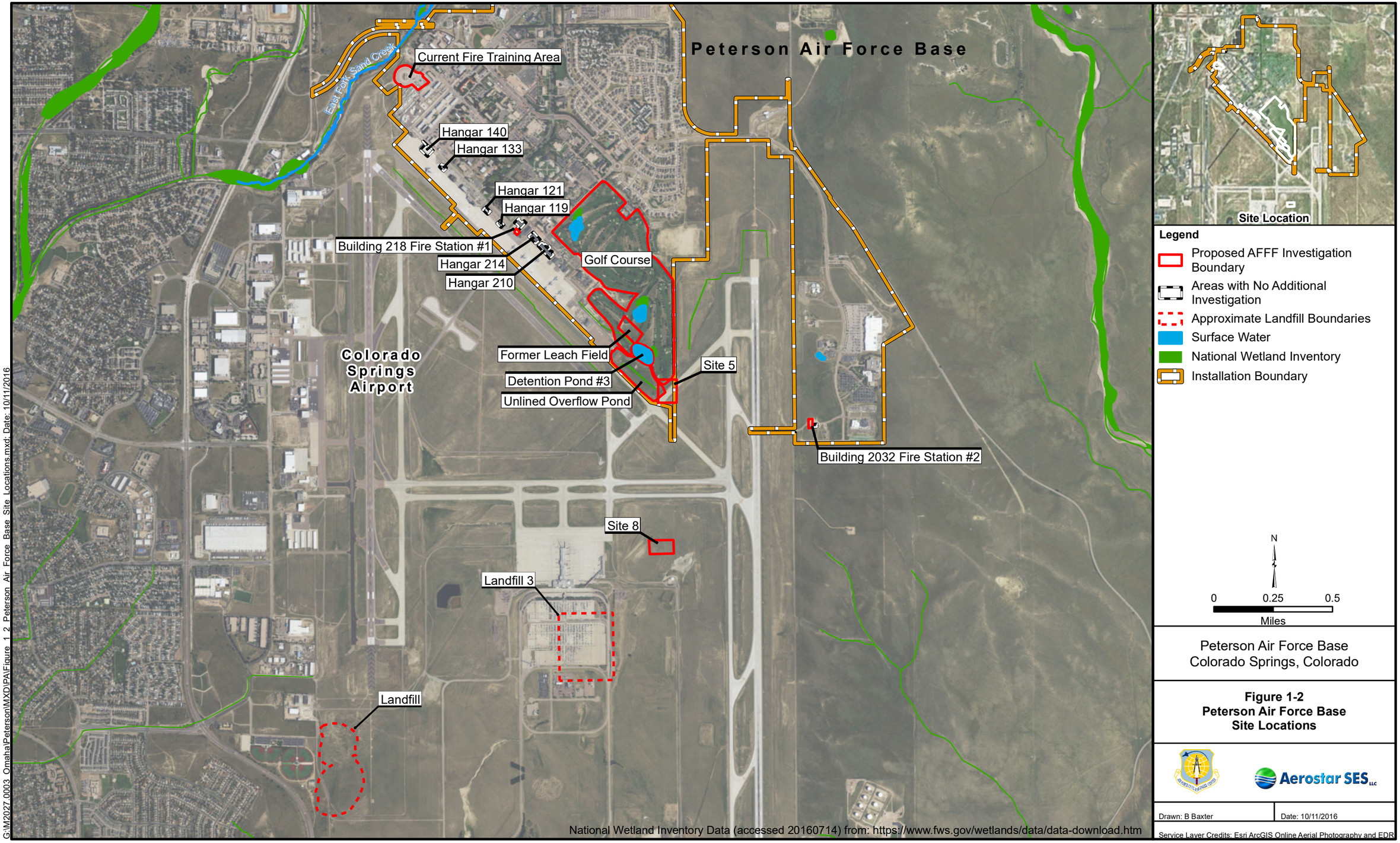
Figure 1-1 Peterson Air Force Base Location Map
Colorado Springs, Colorado



Legend

- Proposed AFFF Investigation Boundary
- Areas with No Additional Investigation
- Approximate Landfill Boundaries
- Surface Water
- National Wetland Inventory
- Installation Boundary

N

0 0.25 0.5

Miles

Peterson Air Force Base
Colorado Springs, Colorado

Figure 1-2
Peterson Air Force Base
Site Locations

Aerostar SES LLC

Drawn: B Baxter

Date: 10/11/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography and EDR

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2. FIRE TRAINING AREAS

2.1 CURRENT FIRE TRAINING AREA

2.1.1 Description and Operational History

The current FTA is in the northern portion of the facility near the intersection of Ent Avenue and Goodfellow Street. The location is bordered by grassy areas associated with the airfield. To the east and southeast are paved developed areas. Figure 2-1 shows the current FTA. The geographic coordinates for this location are 39°49'42.71" N latitude, 104°42'46.49" W longitude.

This is the only currently operating FTA at PAFB. It has a burn pit that that is lined and contains a mock aircraft. The current FTA was designed with a two-liner system that has a water-filled, 2-inch gap between the two liners. This liner system has a monitoring port that is checked monthly to ensure there is no leakage from the liner. There were four groundwater monitoring wells installed in 1997 around the FTA because they thought there was a leak in the liner; after dye testing, they did not find any leaks and have not had any reason to suspect leakage based on the monthly monitoring. The OWS was removed after the FTA was converted to propane. The current FTA has been operational since 1989 and now uses propane as a fuel source. Jeff Bohn, a former assistant fire chief at PAFB, has stated that the current FTA did not become fully operational until 1991/1992. Site 8 (discussed in Section 2.3) remained active until the current FTA was fully operational. The current FTA was originally a hydrocarbon based training area, meaning that flammable fuels were ignited for training fires. In 1999 it was converted to a propane fueled training area. During the time that it was a hydrocarbon pit firefighting foams were used quite often, but because foam made fires hard to relight it was not used for every training evolution. A record of Mr. Bohn's statements can be found in Appendix D.

All current fire training activities use water only. This is generally true for historical training events within the past 17 years at this location. However, during the PA site visit in March 2016, Assistant Fire Chief Craig Powell reported that he only knows of two instances since the beginning of his tenure in 2005 that AFFF has been used at this location. He did state that all dispensed foam was contained within the lined burn pit. A record of this interview can be found in Appendix A.

Water generated from training activities is pumped into an enclosed holding tank on the southern side of the training area. The holding tank previously had an OWS associated with it, but it has been removed. The holding tank is occasionally drained into the sanitary sewer system, but such events are rare. Several empty ANSUL AFFF drums were being stored on site. Mr. Powell stated that these drums were triple-rinsed before being moved to this location for storage. The location that these drums were cleaned at is unknown. Currently these drums are used for training purposes.

The FTA was originally constructed with a liner, and all training activities have been conducted within the lined burn pit. Further, all water used at the training area is collected and routed to the enclosed holding tank, which is then drained into the sanitary sewer. No releases of AFFF to the environment could have occurred at this location due to the water management practices.

2.1.2 Waste Characteristics

This is not applicable.

2.1.3 Pathway and Environmental Hazard Assessment

2.1.3.1 Groundwater pathway

This is not applicable.

2.1.3.2 Surface water pathway

This is not applicable.

2.1.3.3 Soil exposure and air pathways

This is not applicable.

2.2 SITE 5

2.2.1 Description and Operational History

Site 5 (FT002) is a former FTA near the end of Runway 31 and the golf course. Site 5 is on what is now Colorado Springs Municipal Airport property. The FTA was active from the 1960s through 1977 and consisted of a shallow unlined burn pit. Originally at the same elevation as the golf course, the area has been filled in some areas to provide for the installation of the new taxiways. The FTA followed standard operating procedures of the time by having a shallow burn pit excavated and burning JP-4, waste oils, and solvents for training fires (Earth Tech, July 2006). Figure 2-2 shows Site 5. The geographic coordinates of the site are 38°48'31.83" N latitude and 104°41'31.17" W longitude.

Site 5 was investigated under the Installation Restoration Program (IRP). According to the *Final Supplemental Site Investigation Report Site 5 (FT002) – Former Firefighter Training Area (FTA-1) Peterson Air Force Base, Colorado*, a recommendation of no further action was made and accepted by the Colorado Department of Public Health and Environment (CDPHE) in 2006 because there was no apparent migration of contaminants to groundwater in the area (CDPHE, 2006). Previous investigations at Site 5 did not assess possible PFC contamination.

The Fiscal Year 2008 Environmental Restoration Program Management Action Plan (PAFB, February 2008) indicated that during construction of the PAFB golf course, excavated soil from the former FTA was placed in Landfill 3, situated approximately 1 mile south-southwest of the site. In addition, information provided by CDPHE indicates that material placed in Landfill 3 was subsequently excavated in 1989 during COS expansion and placed in a landfill south of Runway 17R-35L.

2.2.2 Waste Characteristics

AFFF was potentially used during fire training events until 1977, when the FTA was closed. The total volume of AFFF released at this location is unknown.

2.2.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes

- a source of contamination (an environmental medium contaminated at the source or a release mechanism by which chemicals are released from a source medium and transported),
- an exposure medium by which a receptor comes into contact, and
- a route of intake for the contaminant into the receptor's body at the exposure point.

If any of these elements are missing, the pathway is incomplete. Other release mechanisms resulting in exposure media for receptors may include the uptake of soil contaminants by plants and animals and the emission of soil contaminants into the air in association with dust particles (EPA, December 1989).

Database research (EDR, May 2016b) shows one daycare facility, one school, no hospitals, and four colleges within the potential migration area of 4 miles from any given potential release location of PFCs. No elementary schools and two child development centers are on base. The closest child development center is approximately 0.75 miles hydrologically upgradient (northeast) of the location. The closest elementary school is approximately 2.6 miles cross gradient (west) of the location.

2.2.3.1 Groundwater pathway

The basewide geologic and hydrogeologic settings are provided in Section 1. Groundwater use in the area of PAFB is industrial and domestic in nature. Several public and private water wells are within 4 miles of this location, according to the Colorado Division of Water Resources (CDWR) water well locator, EDR database research, and the United States Geological Survey (USGS) National Water Information System (NWIS) (EDR, May 2016a; EDR, May 2016b; and EDR, May 2016c). The human population both on and off base primarily relies on the public water supply (PWS) provided by the Colorado Springs Utilities (CSU), Widefield Water and Sanitation District (WWSD), and the Fountain Water Department. Drinking water for the city of Colorado Springs and the surrounding areas of El Paso County is primarily obtained from mountain springs in Aspen, Leadville, and Breckinridge with supplemental water being provided by local wells screened in the Widefield, Windmill Gulch, Arapahoe, and Laramie-Fox Hills aquifers. The Rampart Reservoir and the Catamount Reservoir are northwest (upgradient) of the area of concern (AOC) and are primarily fed by mountain runoff and previously mentioned springs (Realtyscoop, 2007).

The overburden in the area is approximately 50 feet thick. The presence of groundwater in this area may be attributable to irrigation from the golf course and not East Fork Sand Creek. During the field investigation phase of the 1989 remedial investigation (RI), groundwater was located at approximately 60 feet below ground surface (bgs). It is anticipated that groundwater will be encountered between 60 and 85 feet bgs just above the Pierre Shale. Groundwater flow is to the southwest (USAF, September 1989b). Groundwater was not identified during a follow-on investigation, according to the *Supplemental Investigation Report for Site 5 (FT002) Former Firefighter Training Area (FTA-1)* (Earth Tech, Inc., July 2006). Drilling during the 2006 Supplemental Investigation stopped at 30 feet bgs based on previous investigations showing that contamination for total petroleum hydrocarbons was limited to the upper 10 feet. The soils throughout PAFB are well-drained and consist of loose, yellowish to yellowish dark brown, dry to slightly moist, poorly sorted sands with varying amounts of silt, fine- to coarse-grained sand, and fine gravel (Earth Tech, July 2006).

The population both on and off base within a 4-mile radius of the site relies on drinking water provided by the Pueblo, Rampart, and Catamount Reservoirs and local wells.

2.2.3.2 Surface water pathway

Surface drainage originating from the northwest corner of the facility flows into the channel of East Fork Sand Creek, which is the largest surface drainage feature on base. Drainage from the airfield also contributes to East Fork Sand Creek. Drainage from the developed portions of the facility and the portions of the airfield that do not contribute to East Fork Sand Creek flows through surface ditches throughout the facility to the golf course ponds where the water is stored and used for irrigation (USAF, 1989b).

2.2.3.3 Soil exposure and air pathways

This former FTA has been inactive since 1977 and is not in use. An airfield taxiway has been built over the original site. The surrounding paved and well-vegetated areas would preclude any fugitive dust emissions and potential exposures. Current land use does not involve any human health exposures, and future land use is likely to remain unchanged. The potential exists for exposure to burrowing animals.

Workers at the site include airfield maintenance personnel. The nearest residential area is approximately 4,000 feet north of the site. Population details of the residential areas within a 4-mile radius are discussed in Section 2.2.3.

No schools or daycare facilities are within a 200-foot radius of the site. The nearest school is Wildflower Elementary School, approximately 2.60 miles northwest of PAFB in a residential area.

2.3 SITE 8

2.3.1 Description and Operational History

Site 8 is a former FTA south of PAFB on the property of Colorado Springs Municipal Airport. The area in and surrounding Site 8 is maintained and well-vegetated. The site is approximately 2,000 feet east of the airport terminal and 1,100 feet south of the nearest taxiway. All structures associated with the FTA have been removed but included a collection pit, an OWS, and associated piping. Water/liquids collected in the pit drained to the OWS and water was ultimately allowed to discharge to the ground surface to a drainage area east of the site. The original size of the pit is unknown and is now filled with soil and covered with grass. The training area was active from 1977 to late 1991 or early 1992 based on information provided by Jeff Bohn, a former assistant fire chief at PAFB. Figure 2-3 shows Site 8. The geographic coordinates of the site are 38°47’58.96” N latitude and 104°41’35.96” W longitude.

The site was initially investigated in 1988 under the IRP, and soil samples were analyzed for chlorinated pesticides, polychlorinated biphenyls, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), methylene chloride, and lead. One boring was analyzed for metals. No results of significance were found. In 1996 further investigations were conducted with additional surface and subsurface soil samples being collected. The 1996 analytes included VOCs; semivolatile organic compounds; benzene, toluene, ethylbenzene, and xylenes; TPH; and priority pollutant metals. A baseline risk assessment was conducted using the results of these analyses, and it indicated that Site 8 did not pose a significant hazard to human receptors. No groundwater investigations have been conducted at this site (Earth Tech, June 2008).

2.3.2 Waste Characteristics

Ending use in 1989, AFFF was potentially used during fire training events. The total volume of AFFF released at this location is unknown.

2.3.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes

- a source of contamination (an environmental medium contaminated at the source or a release mechanism by which chemicals are released from a source medium and transported),
- an exposure medium by which a receptor comes into contact, and
- a route of intake for the contaminant into the receptor's body at the exposure point.

If any of these elements are missing, the pathway is incomplete. Other release mechanisms resulting in exposure media for receptors may include the uptake of soil contaminants by plants and animals and the emission of soil contaminants into the air in association with dust particles (EPA, December 1989).

Database research (EDR, May 2016b) shows one daycare facility, one school, no hospitals, and four colleges within the potential migration area of 4 miles from any given potential release location of PFCs. No elementary schools and two child development centers are on base. The closest child development center is approximately 1.25 miles hydrologically upgradient (northeast) of the location. The closest elementary school is approximately 2.7 miles crossgradient (northwest) of the location.

2.3.3.1 Groundwater pathway

The basewide geologic and hydrogeologic settings are provided in Section 1. Groundwater use in the area of PAFB is both industrial and domestic in nature. Several public and private water wells are within 4 miles of this location, according to the CDWR water well locator, EDR database research, and the USGS NWIS (EDR, May 2016a; EDR, May 2016b; EDR, May 2016c). The human population both on and off base primarily relies on the PWS provided by the CSU, WWSD, and the Fountain Water Department. Drinking water for the city of Colorado Springs and the surrounding areas of El Paso County is primarily obtained from mountain springs in Aspen, Leadville, and Breckinridge, with supplemental water being provided by local wells screened in the Widefield, Windmill Gulch, Arapahoe, and Laramie-Fox Hills aquifers. The Rampart Reservoir and the Catamount Reservoir are both northwest (upgradient) of the AOC and are primarily fed by mountain runoff and previously mentioned springs (Realtyscoop, 2007).

The overburden in the area is approximately 50 feet thick. The presence of groundwater in this area is attributable to irrigation from the golf course and not East Fork Sand Creek. During the field investigation phase of the 1989 RI, groundwater was located at approximately 60 feet bgs. It is anticipated that groundwater will be encountered between 60 and 85 feet bgs just above the Pierre Shale. Groundwater flow is generally to the southwest throughout PAFB (USAF, September 1989). The soils throughout PAFB are well-drained and consist of loose, yellowish to yellowish dark brown, dry to slightly moist, poorly sorted sands with varying amounts of silt, fine to coarse-grained sand, and fine gravel (Earth Tech, 2006).

The population both on and off base within a 4-mile radius of the site relies on drinking water provided by the Pueblo, Rampart, and Catamount Reservoirs and local wells.

2.3.3.2 Surface water pathway

Surface drainage originating from the northwest corner of the facility flows into the channel of East Fork Sand Creek, which is the largest surface drainage feature on base. Drainage from the airfield also contributes to East Fork Sand Creek. Drainage from the developed portions of the facility and the portions of the airfield that do not contribute to East Fork Sand Creek flows through surface ditches throughout the facility to the golf course ponds where the water is stored and used for irrigation (USAF, 1989b). Surface water at Site 8 currently appears to drain into surrounding grassed areas where it percolates into the subsurface. Historical drainage paths are uncertain but, based on topographic maps that predated COS expansion, surface water may have drained to a topographically low area to the southeast and ultimately to Jimmy Camp creek. Further evaluation of current and historical surface drainage patterns may be required if it is determined that AFFF use has impacted Site 8.

2.3.3.3 Soil exposure and air pathways

The site is a former FTA that has been inactive since 1989. The surrounding areas are well-vegetated precluding any fugitive dust emissions and potential exposures. Current land use does not involve any human health exposures, and future land use is likely to remain unchanged. The potential exists for exposure to burrowing animals.

Workers at the site include airfield maintenance personnel. The nearest residential area is approximately 1.4 miles north of the site. Population details of the residential areas within a 4-mile radius are discussed in Section 2.3.3.

No schools or daycare facilities are within a 200-foot radius of the site. The nearest school is Wildflower Elementary School, approximately 2.70 miles northwest of PAFB in a residential area.

Legend

- Decommissioned Oil/Water Separator
- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Fire Training Area Boundary
- Installation Boundary

N

0 50 100 150

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 2-1
Current Fire Training Area

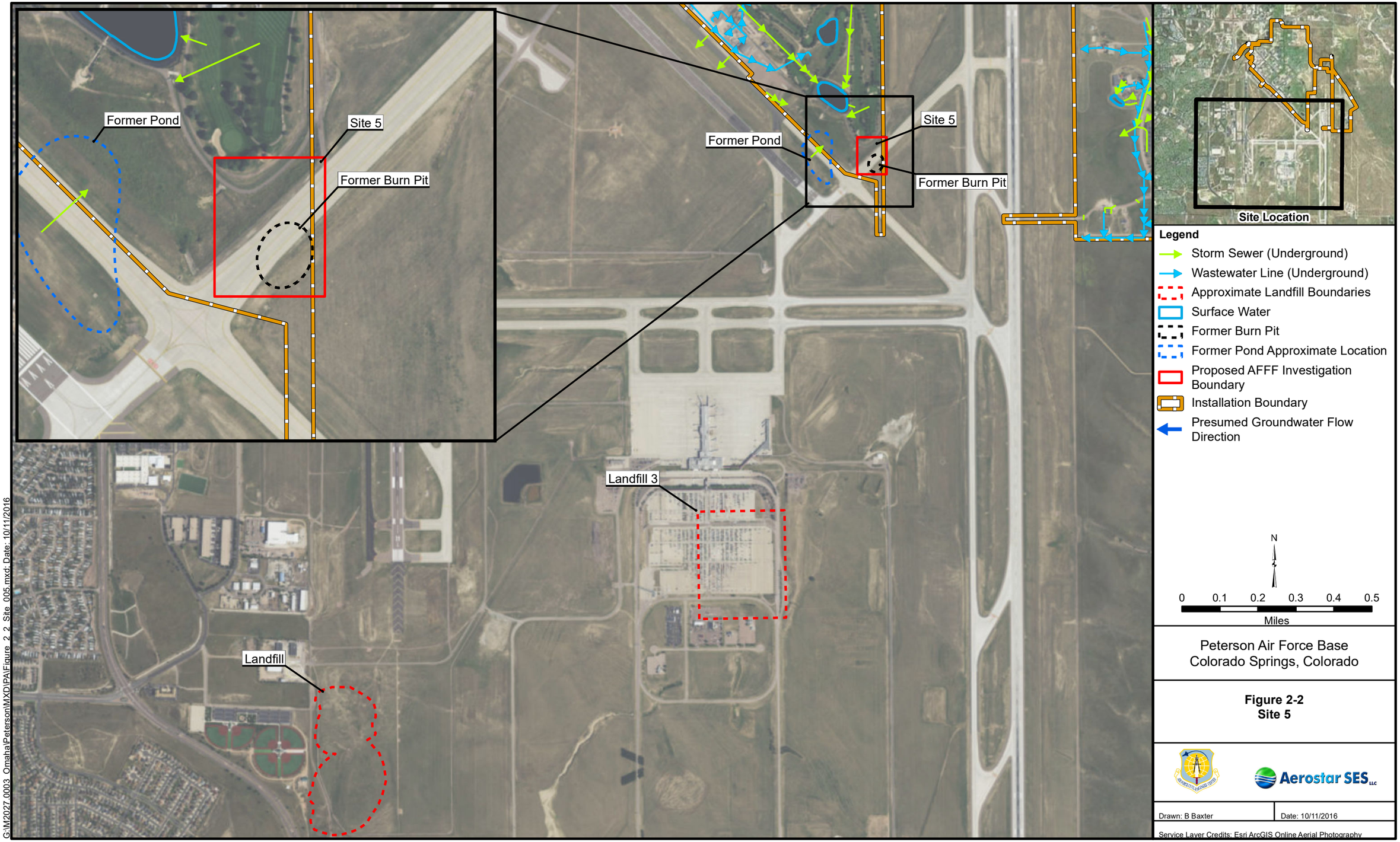
Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\PA\Figure_2_1_Current Fire Training Area.mxd; Date: 8/9/2016



Peterson Air Force Base
Colorado Springs, Colorado

Figure 2-2
Site 5

Aerostar SES LLC

Drawn: B Baxter

Date: 10/11/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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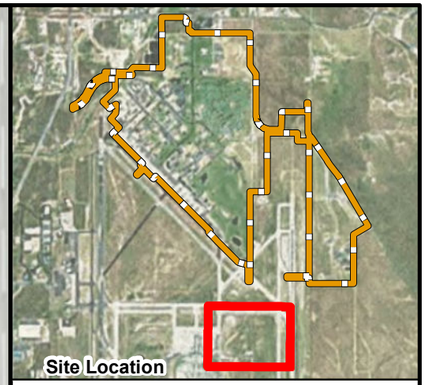


Legend

- Presumed Groundwater Flow Direction
- Proposed AFFF Investigation Boundary
- Installation Boundary

N

0 100 200 300 400 500

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 2-3
Site 8

Aerostar SES LLC

Drawn: B Baxter

Date: 9/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\PetersonMXD\PA\Figure_2_3_Site_008.mxd; Date: 9/22/2016

3. NON-FIRE TRAINING AREAS

3.1 HANGARS

3.1.1 Hangar 119

Typically, hangars have fixed foam suppression systems that are either deluge (water), AFFF, or high-expansion foam (HI-EX). ASL interviewed Assistant Fire Chiefs Burke Ferrin and Craig Powell for the types of systems that have been used historically and currently at each hangar. In addition, John Heimer, who works for base maintenance and tests the fire suppression systems, was interviewed. Base maintenance is responsible for all operational testing at PAFB. During more recent fire suppression testing, containment booms are placed around the inside perimeter of the hangar floor and water used to wash the foam into hangar floor drains to ensure that foam is not released to the environment. Hangar floors are sloped toward floor drains within the areas where testing is conducted. Floor drains were installed when the hangars were originally constructed; they are in good condition and have been maintained. Although containment booms were not used during historical testing, most AFFF released would be washed into floor drains. Any foam that exited the hangar door evaporated on the apron and any residual AFFF would ultimately enter the storm water system and discharge to Pond #3 (or the original pond replaced by Pond #3, shown on Figure 3-10). Photos of containment booms used during testing activities can be found in Appendix B. The booms in the photos are not positioned as they would be during testing activities. Fire suppression systems in hangars at PAFB are either charged with AFFF, HI-EX, or water. All hangars ASL visited had a fire suppression system of some type. At this time, PAFB has five hangars equipped with foam fire suppression systems; four are AFFF systems, and one is HI-EX but was formerly water only. A sixth hangar, Hangar 119, previously had an AFFF system installed that has been removed. These systems have been tested once every five years since installation. All six hangars investigated have floor drains that connect to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer system after the liquids pass through an OWS. Surface water on the apron areas outside the hangars flows in varying directions to storm drains connected to the underground storm sewer and ultimately discharges to Pond #3 (PAFB, February 2016).

3.1.1.1 Description and operational history

Hangar 119 is an aircraft maintenance hangar on the eastern side of the aircraft apron. It is south of Hangar 121 and can be accessed from Hamilton Avenue. Figure 3-1 shows Hangar 119. The geographic coordinates of the site are 39°49’09.74” N latitude and 104°42’19.34” W longitude.

Hangar 119 formerly had an AFFF system, but it was converted to a wet, or water only, system in 2009-2010. The AFFF pumps and a 300-gallon tank are on site and contain a small volume of residual AFFF. No further information on this building is available. No AFFF releases to the environment could have occurred at this location while the hangar had an active AFFF system because of the manner in which testing activities inside the hangars were conducted and surface runoff was managed on the aircraft apron outside the building.

3.1.1.2 Waste characteristics

This is not applicable.

3.1.1.3 Pathway and environmental hazard assessment

This is not applicable.

3.1.1.3.1 Groundwater pathway

This is not applicable.

3.1.1.3.2 Surface water pathway

This is not applicable.

3.1.1.3.3 Soil exposure and air pathways

This is not applicable.

3.1.2 Hangar 121

3.1.2.1 Description and operational history

Hangar 121 is on the northeast side of the aircraft apron south of Hangar 133. Hangar 121 can be accessed from Hamilton Avenue and is near the intersection with Peterson Boulevard. The fire suppression system at Hangar 121 uses a 500-gallon tank of AFFF that was filled with approximately 450 gallons of AFFF concentrate at the time of the site visit. Figure 3-2 shows Hangar 121. The geographic coordinates of Hangar 121 are 39°49’13.01” N latitude and 104°42’24.00” W longitude.

This building has historically been used for aircraft maintenance. The hangar was constructed in 1942, and the fire suppression system was installed in 1994 (URS, 2016a). Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment during testing operations. During the site visit, remnants of a previous test were apparent. Containment booms, as mentioned previously by Mr. Heimer, were still present. Though not fully inflated at the time of the visit, it was apparent that testing conducted at PAFB is done in a manner to prevent releases to the environment. After testing activities, foam and AFFF residue are routed to the hangar floor drains, which are connected to the OWS near Hangar 210, and then discharged into the sanitary sewer system. Photographs 43, 48, and 49 in Appendix B show how the containment booms are deployed. There have been no recorded accidental releases at this location; therefore, no releases to the environment could have occurred (URS, 2016a). The fire suppression system dispenses from a series of overhead sprinklers. There are no underwing cannons or other dispensing systems at this facility.

3.1.2.2 Waste characteristics

This is not applicable.

3.1.2.3 Pathway and environmental hazard assessment

This is not applicable.

3.1.2.3.1 Groundwater pathway

This is not applicable.

3.1.2.3.2 Surface water pathway

This is not applicable.

3.1.2.3.3 Soil exposure and air pathways

This is not applicable.

3.1.3 Hangar 133

3.1.3.1 Description and operational history

Hangar 133 is along Hamilton Avenue near the intersection with Truax Street. Hangar 133 is home to the PAFB Aero Club and has a newly refitted AFFF system that uses an 800-gallon storage tank of AFFF. This hangar is maintained by the USAF. The hangar was constructed in 1941, and the fire suppression system was installed in 1992 and has not had any accidental discharges, so no accidental releases to the environment could have occurred (URS, 2016b). Figure 3-3 shows Hangar 133. The geographic coordinates of Hangar 850 are 38°49’22.47” N latitude and 104°42’36.02” W longitude.

At the time of the PA visit, the AFFF storage tank was filled with approximately 675 gallons. During the PA visit, one 55-gallon drum of Ansulite (AFFF) was found in the mechanical room. The system froze in 2011 or 2012 and released a small amount of AFFF into the mechanical room. The fire suppression system dispenses from a series of overhead sprinklers. Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment during testing operations. After testing activities, foam and AFFF residue are routed to the hangar floor drains, which are connected to the OWS near Hangar 210, and then discharged into the sanitary sewer system. No underwing cannons or other dispensing systems are at this facility.

3.1.3.2 Waste characteristics

This is not applicable.

3.1.3.3 Pathway and environmental hazard assessment

This is not applicable.

3.1.3.3.1 Groundwater pathway

This is not applicable.

3.1.3.3.2 Surface water pathway

This is not applicable.

3.1.3.3.3 Soil exposure and air pathways

This is not applicable.

3.1.4 Hangar 140

3.1.4.1 Description and operational history

Hangar 140 is the northernmost aircraft maintenance facility at PAFB and is near the intersection of Hamilton Avenue and Otis Street. The hangar was constructed in 1953, and the fire suppression system was installed in 2005 (URS, 2016c). The fire suppression system uses HI-EX. Previously, the system relied on water only for fire suppression. HI-EX is a firefighting foam concentrate composed of nonfluorinated polymer and hydrocarbon surfactant-based mixtures. Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment during testing operations. After testing activities, foam and AFFF residue are routed to the hangar floor drains, which are connected to the OWS near Hangar 210, and then discharged into the sanitary sewer system. The fire suppression system at Hangar 140 has not had any accidental releases, so no releases to the environment could have occurred (URS, 2016c). Figure 3-4 shows Hangar 140. The geographic coordinates of Hangar 140 are 38°49’26.50” N latitude and 104°42’40.44” W longitude.

3.1.4.2 Waste characteristics

This is not applicable.

3.1.4.3 Pathway and environmental hazard assessment

This is not applicable.

3.1.4.3.1 Groundwater pathway

This is not applicable.

3.1.4.3.2 Surface water pathway

This is not applicable.

3.1.4.3.3 Soil exposure and air pathways

This is not applicable.

3.1.5 Hangar 210

3.1.5.1 Description and operational history

Hangar 210 is centrally situated on the eastern side of the aircraft apron south of Hangar 214. Hangar 210 is near the intersection of Duluth Avenue and Malmstrom Street. The hangar was constructed in 1985, and the fire suppression system was installed in 2005 (URS, 2016d). Figure 3-5 shows Hangar 210. The geographic coordinates of Hangar 706 are 39°49'04.17" N latitude and 104°42'07.35" W longitude.

Hangar 210 is a two-bay hangar with two independent AFFF fire suppression systems, one for each hangar bay. Bay 1 is a fuel cell maintenance facility on the south side of the building, and Bay 2 is on the north side and used for aircraft maintenance. Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment during testing operations. After testing activities, foam and AFFF residue are routed to the hangar floor drains, which are connected to the OWS near Hangar 210, and then discharged into the sanitary sewer system. Each bay has two underwing cannons for foam dispersion.

The hangar has had four instances of false activation. All incidents happened during normal operating hours, and no foam left the hangar. The first incident occurred because hangar personnel were playing basketball and accidentally hit the manual release button. The second incident was caused by water leaking into the control panel and short circuiting a release station. The third and fourth incidents were from water leaking into the release station during aircraft washing operations, short circuiting the system (URS, 2016d).

Mr. Heimer related further detail on the fourth and most recent incident. In late 2014 the system in Bay 2 tripped, releasing AFFF into the hangar. According to Mr. Heimer, a steam cleaner was being used near the manual release switch, again causing a short circuit of the control panel. All of the foam that was released was contained within the hangar. A record of this interview can be found in Appendix A. Because all accidental releases were contained within the hangar, no releases to the environment could have occurred.

3.1.5.2 Waste characteristics

This is not applicable.

3.1.5.3 Pathway and environmental hazard assessment

This is not applicable.

3.1.5.3.1 Groundwater pathway

This is not applicable.

3.1.5.3.2 Surface water pathway

This is not applicable.

3.1.5.3.3 Soil exposure and air pathways

This is not applicable.

3.1.6 Hangar 214

3.1.6.1 Description and operational history

Hangar 214 is centrally situated on the eastern side of the aircraft apron. Hangar 214 is near the intersection of Duluth Avenue and Malmstrom Street. The hangar was constructed in 1987, and the fire suppression system was also installed in 1987 (URS, 2016e). The fire suppression system consists of a 2,000-gallon tank of AFFF and two underwing cannons for dispersion within the hangar. Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment during testing operations. After testing activities, foam and AFFF residue are routed to the hangar floor drains, which are connected to the OWS near Hangar 210, and then discharged into the sanitary sewer system. Figure 3-6 shows Hangar 214. The geographic coordinates of Hangar 706 are 39°49’08.55” N latitude and 104°42’13.25” W longitude.

There is no overhead dispersion system. At the time of the PA visit, approximately 1,100 gallons of AFFF solution were in the storage tank. The 2016 URS hangar evaluation installation report (HEIR) states that no false activations have occurred at this hangar; however, the interviews conducted by ASL with Mr. Heimer in March 2016 recorded one accidental activation. The system tripped on an unknown date, and a small amount of AFFF leaked out the hangar doors. The area in front of the hangar is paved with concrete in good condition. A drain leading to the main storm sewer trunk is northwest of the hangar, and the concrete is sloped in that direction. This drain then dispenses to Pond #3. Because the area of the release is paved with well-maintained concrete and surface water is routed to the storm sewer truck, no release to the environment could have occurred at this location.

3.1.6.2 Waste characteristics

This is not applicable.

3.1.6.3 Pathway and environmental hazard assessment

This is not applicable.

3.1.6.3.1 Groundwater pathway

This is not applicable.

3.1.6.3.2 Surface water pathway

This is not applicable.

3.1.6.3.3 Soil exposure and air pathway

Not applicable.

3.2 FIRE STATIONS

3.2.1 Building 218 Fire Station #1

3.2.1.1 Description and operational history

Building 218 is one of two current fire stations at PAFB. The fire station is along Suffolk Street, near the intersection with Duluth Avenue. Approximately 600 gallons of ANSUL firefighting foam concentrate are stored in drums inside the building. AFFF transport equipment stationed at Fire Station 1 are

- Crash 6, a Rapid Intervention Vehicle (RIV) with a 56-gallon AFFF capacity;
- Crash 4, a P-23 with a 420-gallon AFFF capacity; and
- a trailer-mounted, 1,000-gallon foam tank.

Figure 3-7 shows Building 218. The geographic coordinates of Building 218 are 39°49'04.17" N latitude and 104°42'07.35" W longitude.

Spray testing at this facility is primarily conducted on the well-maintained concrete on the aircraft apron side of the building. Runoff from this concrete is directed into the storm water system for PAFB, which then makes its way to Pond #3. During freezing weather, spray testing is conducted over the adjacent volleyball court to avoid icing the concrete ramp. The total volume of AFFF released in this manner is unknown. Prior to the construction of Building 218, Building 117 was the original fire station at PAFB and was situated slightly southwest of Building 218, as shown on Figure 3-7. Spray testing conducted during the time that Fire Station #1 was at Building 117 was usually performed on the apron immediately southeast of Building 104 (see Figure 3-10) and occasionally on the apron adjacent to Building 117.

3.2.1.2 Waste characteristics

Spray testing at Building 218 is primarily conducted on the concrete areas outside the station. The well-maintained concrete prevents AFFF from entering the environment. Liquid from spray testing activities on the concrete is routed to the sanitary sewer system. During freezing weather, spray testing is conducted on the grass and sand area adjacent to the fire station, which provides a pathway into the environment. The total volume of AFFF released at this location is unknown.

3.2.1.3 Pathway and environmental hazard assessment

A complete exposure pathway typically includes

- a source of contamination (an environmental medium contaminated at the source or a release mechanism by which chemicals are released from a source medium and transported),
- an exposure medium by which a receptor comes into contact, and
- a route of intake for the contaminant into the receptor's body at the exposure point.

If any of these elements are missing, the pathway is incomplete. Other release mechanisms resulting in exposure media for receptors may include the uptake of soil contaminants by plants and animals and the emission of soil contaminants into the air in association with dust particles (EPA, 1989).

Database research (EDR, 2016) shows one daycare facility, one school, no hospitals, and four colleges within the potential migration area of 4 miles from any given potential release location of PFCs. No

elementary schools and two child development centers are on base. The closest child development center is approximately 0.9 miles hydrologically upgradient (north) of the location. The closest elementary school is approximately 2 miles crossgradient (west) of the location.

3.2.1.3.1 Groundwater pathway

The basewide geologic and hydrogeologic settings are provided in Section 1. Groundwater use in the area of PAFB is both industrial and domestic in nature. Several public and private water wells are within 4 miles of this location, according to the CDWR water well locator, EDR database research, and the USGS NWIS (EDR, 2016). The human population both on and off base primarily relies on the PWS provided by the CSU, WWSD, and the Fountain Water Department. Drinking water for the city of Colorado Springs and the surrounding areas of El Paso County is primarily obtained from mountain springs in Aspen, Leadville, and Breckinridge with supplemental water being provided by local wells that are screened in the Widefield, Windmill Gulch, Laramie, Arapahoe, and Fox Hills aquifers. The Rampart Reservoir and the Catamount Reservoir are northwest (upgradient) of the AOC and are primarily fed by mountain runoff and previously mentioned springs (Realtyscoop, 2007).

The overburden in the area is approximately 50 feet thick and does not retain water. During the field investigation phase of the 1989 RI, groundwater was located between 15 and 60 feet bgs at the leach field, which is 0.6 miles southeast of the fire station. Groundwater flow is generally to the southwest throughout PAFB (USAF, September 1989). The soils throughout PAFB are well-drained and consist of loose, yellowish to yellowish dark brown, dry to slightly moist, poorly sorted sands with varying amounts of silt, fine to coarse-grained sand and fine gravel (Earth Tech, 2006).

The population both on and off base within a 4-mile radius of the site relies on drinking water provided by the Pueblo, Rampart, and Catamount Reservoirs and local wells.

3.2.1.3.2 Surface water pathway

Surface drainage originating from the northwest corner of the facility flows into the channel of East Fork Sand Creek, which is the largest on base surface drainage feature. Drainage from the airfield also contributes to East Fork Sand Creek. Drainage from the developed portions of the facility and the portions of the airfield that do not contribute to East Fork Sand Creek flows through surface ditches throughout the facility to the golf course ponds, where the water is stored and used for irrigation (USAF, September 1989). Liquids from spray testing conducted on the concrete areas near Building 218 drain into the industrial sewer system, which leads to Pond #3.

3.2.1.3.3 Soil exposure and air pathways

The site is a current fire station at which most spray testing is conducted on concrete areas. Freezing weather spray testing is conducted on a grass-bordered volleyball court area. The surrounding paved and well-vegetated areas would preclude any fugitive dust emissions and potential exposures; however, the sand-covered volleyball court may present a dust risk. Current land use involves human health exposure in the volleyball court area. Other portions of the spray test area do not present a human health risk. The potential exists for exposure to burrowing animals.

Workers at the site include airfield maintenance personnel and firefighter personnel. The nearest residential area is approximately 2,500 feet northeast of the site. Population details of the residential areas within a 4-mile radius are discussed in Section 3.2.1.3.

No schools or daycare facilities are within a 200-foot radius of the site. The nearest school is Wildflower Elementary School, approximately 1.9 miles west of PAFB in a residential area.

3.2.2 Building 2032 Fire Station #2

3.2.2.1 Description and operational history

Building 2032 is the second of two fire stations at PAFB. The fire station is along El Dorado Avenue and can be accessed from Steward Avenue in the Peterson East section of the facility. Opened in 1996, the facility has one AFFF-capable vehicle stationed at it. Crash 3 is a P-23 with a 210-gallon AFFF capacity. Figure 3-8 shows Building 2032. The geographic coordinates of the building are 38°48'25.25" N latitude and 104°40'52.24" W longitude.

The spray test area for this facility is to the west of the building along the airport access road. The total volume of AFFF released during spray testing at this location is unknown.

3.2.2.2 Waste characteristics

Beginning use in 1996, spray testing at Building 2032 is primarily conducted on the concrete areas east of the station. The total volume of AFFF released at this location is unknown.

3.2.2.3 Pathway and environmental hazard assessment

A complete exposure pathway typically includes

- a source of contamination (an environmental medium contaminated at the source or a release mechanism by which chemicals are released from a source medium and transported),
- an exposure medium by which a receptor comes into contact, and
- a route of intake for the contaminant into the receptor's body at the exposure point.

If any of these elements are missing, the pathway is incomplete. Other release mechanisms resulting in exposure media for receptors may include the uptake of soil contaminants by plants and animals and the emission of soil contaminants into the air in association with dust particles (EPA, 1989).

Database research (EDR, May 2016b) shows no daycare facilities, one school, no hospitals, and four colleges within the potential migration area of 4 miles from any given potential release location of PFCs. No elementary schools and two child development centers are on base. The closest day care is approximately 0.6 miles hydrologically upgradient (north) of the location. The closest elementary school is approximately 3.25 miles crossgradient (west) of the location.

3.2.2.3.1 Groundwater pathway

The basewide geologic and hydrogeologic settings are provided in Section 1. Groundwater use in the area of PAFB is both industrial and domestic in nature. Several public and private water wells are within 4 miles of this location, according to the CDWR water well locator, EDR database research, and the USGS NWIS (EDR, May 2016a; EDR, May 2016b; EDR, May 2016c). The human population both on and off base primarily relies on the PWS provided by the CSU, WWSD, and the Fountain Water Department. Drinking water for the city of Colorado Springs and the surrounding areas of El Paso County is primarily obtained from mountain springs in Aspen, Leadville, and Breckinridge with supplemental water being provided by local wells that are screened in the Widefield, Windmill Gulch, Laramie, Arapahoe, and Fox

Hills aquifers. The Rampart Reservoir and the Catamount Reservoir are northwest (upgradient) of the AOC and are primarily fed by mountain runoff and previously mentioned springs (Realtyscoop, 2007).

The overburden in the area is approximately 50 feet thick and does not retain water. Local groundwater flow has not been determined in this area by previous investigations; however, groundwater was located at approximately 60 feet bgs at Site 5, which is 0.6 miles northwest of Building 2032. Groundwater flow is generally to the southwest throughout PAFB (USAF, September 1989). The soils throughout PAFB are well-drained and consist of loose, yellowish to yellowish dark brown, dry to slightly moist, poorly sorted sands with varying amounts of silt, fine to coarse grained sand, and fine gravel (Earth Tech, 2006).

The population both on and off base within a 4-mile radius of the site relies on drinking water provided by the Pueblo, Rampart, and Catamount Reservoirs and local wells.

3.2.2.3.2 Surface water pathway

Surface water at Fire Station #2 flows into surrounding grassed areas where it infiltrates into the subsurface. The spray test area drains to the north into a topographically low, grassed area. The fire station is situated near a drainage divide and the nearest downgradient surface water body is Jimmy Camp Creek, approximately 1.3 miles east-southeast of the site.

3.2.2.3.3 Soil exposure and air pathways

The site is a fire station spray test area that has been active since 1996. The surrounding paved and vegetated areas would preclude any fugitive dust emissions and potential exposures. Current land use does not involve any human health exposures, and future land use is likely to remain unchanged. The potential exists for exposure to burrowing animals.

Workers at the site include airfield maintenance personnel and firefighters. The nearest residential area is approximately 1 mile northwest of the site. Population details of the residential areas within a 4-mile radius are discussed in Section 3.2.2.3

No schools or daycare facilities are within a 200-foot radius of the site. The nearest school is Wildflower Elementary School, approximately 3.65 miles west of the site in a residential area.

3.3 EMERGENCY RESPONSE

There are no emergency response activities of note within the boundaries of PAFB.

3.4 OTHER SPILLS AND RELEASES

3.4.1 Detention Pond #3

3.4.1.1 Description and operational history

Pond #3 is situated in the southern portion of PAFB between Taxiway B and the golf course (Figure 3-9) and receives storm water runoff from central and western portions of PAFB, including all industrial areas of the base. The pond was initially constructed in 1979 as an unlined detention pond; in early 2002, Pond #3 was upgraded and a butyl rubber liner was installed. The geographic coordinates for this location are 38°48’40.09” N latitude and 104°41’41.18” W longitude.

Prior to the construction of Pond #3, there was another pond approximately 850 feet to the south (based on the 1961 USGS Elsmere Topographic Quadrangle map) that received surface runoff from the same areas that currently discharge to Pond #3 (the approximate location of the former pond is shown on Figure 3-10).

Recently discovered photographs from 1997 show AFFF on the surface of the pond and a cleanup effort in progress. Although no other information is available, it appears an unknown quantity of AFFF was released to the unlined pond.

Water from Pond #3 is used to irrigate the adjacent golf course and is not treated prior to reuse. When Pond #3 reaches its maximum capacity, overflow is routed to the adjacent COS unlined detention pond and allowed to infiltrate into the ground surface. The total volume of AFFF released at this location is unknown.

3.4.1.2 Waste characteristics

Beginning use in 1979, Pond #3 is a lined detention basin that receives the majority of storm water for the facility, and all water disposed of from the industrialized areas of the facility. When the pond becomes too full, overflow is routed to the unlined basin to the west and allowed to infiltrate into the surrounding area. The total volume of AFFF released to this location is unknown.

3.4.1.3 Pathway and environmental hazard assessment

A complete exposure pathway typically includes

- a source of contamination (an environmental medium contaminated at the source or a release mechanism by which chemicals are released from a source medium and transported),
- an exposure medium by which a receptor comes into contact, and
- a route of intake for the contaminant into the receptors body at the exposure point.

If any of these elements are missing, the pathway is incomplete. Other release mechanisms resulting in exposure media for receptors may include the uptake of soil contaminants by plants and animals and the emission of soil contaminants into the air in association with dust particles (EPA, December 1989).

Database research (EDR, May 2016b) shows one daycare facility, one school, no hospitals, and four colleges within the potential migration area of 4 miles from any given potential release location of PFCs. No elementary schools and two child development centers are on base. The closest child development center is approximately 0.8 miles hydrologically upgradient (northeast) of the location. The closest elementary school is approximately 2.45 miles crossgradient (west) of the location.

3.4.1.3.1 Groundwater pathway

The basewide geologic and hydrogeologic settings are provided in Section 1. Groundwater use in the area of PAFB is both industrial and domestic in nature. Several public and private water wells are within 4 miles of this location, according to the CDWR water well locator, EDR database research, and the USGS NWIS (EDR, 2016). The human population both on and off base primarily relies on the PWS provided by the CSU, WWSD, and the Fountain Water Department. Drinking water for the city of Colorado Springs and the surrounding areas of El Paso County is primarily obtained from mountain springs in Aspen, Leadville, and Breckinridge with supplemental water being provided by local wells that are screened in the Widefield, Windmill Gulch, Laramie, Arapahoe, and Fox Hills aquifers. The Rampart Reservoir and

the Catamount Reservoir are northwest (upgradient) of the AOC and are primarily fed by mountain runoff and previously mentioned springs (Realtyscoop, 2007).

The overburden in the area is approximately 50 feet thick and does not retain water. Groundwater in this area ranges from 15 to 60 feet bgs. During the 1989 RI, groundwater ranged from 15 to 45 feet bgs at the leach field and was located at approximately 60 feet bgs at Site 5. The leach field was approximately 500 feet north, and Site 5 is 1,000 feet southeast. Groundwater flow is generally to the southwest throughout PAFB (USAF, September 1989). The soils throughout PAFB are well-drained and consist of loose, yellowish to yellowish dark brown, dry to slightly moist, poorly sorted sands with varying amounts of silt, fine to coarse-grained sand, and fine gravel (Earth Tech, 2006).

The population both on and off base within a 4-mile radius of the site relies on drinking water provided by the Pueblo, Rampart, and Catamount Reservoirs and local wells.

3.4.1.3.2 Surface water pathway

Surface drainage originating from the northwest corner of the facility flows into the channel of East Fork Sand Creek, which is the largest surface drainage feature on base. Drainage from the airfield also contributes to East Fork Sand Creek. Drainage from the developed portions of the facility and the portions of the airfield that do not contribute to East Fork Sand Creek flows through surface ditches throughout the facility to the golf course ponds, where the water is stored and used for irrigation (USAF, September 1989). Water collected in Pond #3 is used to irrigate the golf course.

3.4.1.3.3 Soil exposure and air pathways

The site is a lined detention pond and an associated unlined overflow basin. The unlined overflow basin is partially vegetated and approximately 30 feet below the surrounding grade. Current land use involves human health exposure for workers maintaining the basin. Future land use is likely to remain unchanged. The potential exists for exposure to burrowing animals.

Workers at the site include airfield maintenance personnel. The nearest residential area is approximately 1 mile northwest of the site. Population details of the residential areas within a 4-mile radius are discussed in Section 3.4.1.3.

No schools or daycare facilities are within a 200-foot radius of the site. The nearest school is Wildflower Elementary School, approximately 2.5 miles west of the site in a residential area.

3.4.2 Golf Course and Former Leach Field

3.4.2.1 Description and operational history

Built in 1977, the PAFB golf course uses water from Pond #3 for irrigation. Surface water that is collected in Pond #3 is not treated prior to reuse at the golf course. Prior to construction of the golf course, the leach field was in this area. The geographic coordinates of the golf course are 38°48’59.12” N latitude and 104°41’46.39” W longitude.

The former leach field at PAFB was active from 1956 until 1978. Two different years for the termination of use are listed in the 1989 RI. The leach field was designed to be an industrial waste drainage system and consisted of a settling tank, an OWS, and a gravel envelope leach field. Effluent from the leach field would have entered the subsurface and followed the same path as groundwater in the area, which is to the

southwest under the golf course and the unlined overflow pond next to Pond #3. In 1978 the industrial runoff from PAFB was connected to the sanitary sewer line, and the leach field was decommissioned. In the intervening years, the PAFB Golf Course has been built over the site. Figure 3-10 shows the location of the golf course and former leach field. The geographic coordinates of the leach field are 38°48'46.62" N latitude and 104°41'44.06" W longitude.

Based on information provided by Jeff Bohn (a former assistant fire chief at PAFB) during draft PA review, "foam checks" were conducted along the northern edge of the ramp southeast of Building 104. Spraying occurred just off the ramp area and was directed to the northeast toward an unpaved area between the ramp and the golf course, as shown on Figure 3-10.

3.4.2.2 Waste characteristics

Beginning use in 1977, the PAFB golf course uses water from Pond #3 and other ponds on its grounds for irrigation. This practice continues today. The water in Pond #3 is not treated for AFFF. The former leach field, decommissioned in 1978, served as the terminal release point for industrial runoff from the industrial portions of PAFB. The total volume of AFFF released at both the golf course and the leach field area is unknown.

3.4.2.3 Pathway and environmental hazard assessment

A complete exposure pathway typically includes

- a source of contamination (an environmental medium contaminated at the source or a release mechanism by which chemicals are released from a source medium and transported),
- an exposure medium by which a receptor comes into contact, and
- a route of intake for the contaminant into the receptors body at the exposure point.

If any of these elements are missing, the pathway is incomplete. Other release mechanisms resulting in exposure media for receptors may include the uptake of soil contaminants by plants and animals and the emission of soil contaminants into the air in association with dust particles (EPA, 1989).

Database research (EDR, 2016) shows one daycare facility, one school, no hospitals, and four colleges within the potential migration area of 4 miles from any given potential release location of PFCs. No elementary schools and two child development centers are on base. The closest child development center is approximately 0.6 miles hydrologically crossgradient (west) of the location. The closest elementary school is approximately 2.4 miles crossgradient (west) of the location.

3.4.2.3.1 Groundwater pathway

The basewide geologic and hydrogeologic settings are provided in Section 1. Groundwater use in the area of PAFB is both industrial and domestic in nature. Several public and private water wells are within 4 miles of this location, according to the CDWR water well locator, EDR database research, and the USGS NWIS (EDR, 2016). The human population both on and off base primarily relies on the PWS provided by the CSU, WWSD, and the Fountain Water Department. Drinking water for the city of Colorado Springs and the surrounding areas of El Paso County is primarily obtained from mountain springs in Aspen, Leadville, and Breckinridge with supplemental water being provided by local wells screened in the Widefield, Windmill Gulch, Laramie, Arapahoe, and Fox Hills aquifers. The Rampart Reservoir and the Catamount Reservoir are northwest (upgradient) of the AOC and are primarily fed by mountain runoff and previously mentioned springs (Realtyscoop, 2007).

The overburden in the area is approximately 50 feet thick and does not retain water. Groundwater in this area ranges from 15 to 60 feet bgs. During the 1989 RI, groundwater ranged from 15 to 45 feet bgs at the leach field and was located at approximately 60 feet bgs at Site 5. Groundwater flow is generally to the southwest throughout PAFB (USAF, September 1989). The soils throughout PAFB are well-drained and consist of loose, yellowish to yellowish dark brown, dry to slightly moist, poorly sorted sands with varying amounts of silt, fine to coarse-grained sand and fine gravel (Earth Tech, 2006).

The population both on and off base within a 4-mile radius of the site relies on drinking water provided by the Pueblo, Rampart, and Catamount Reservoirs and local wells.

3.4.2.3.2 Surface water pathway

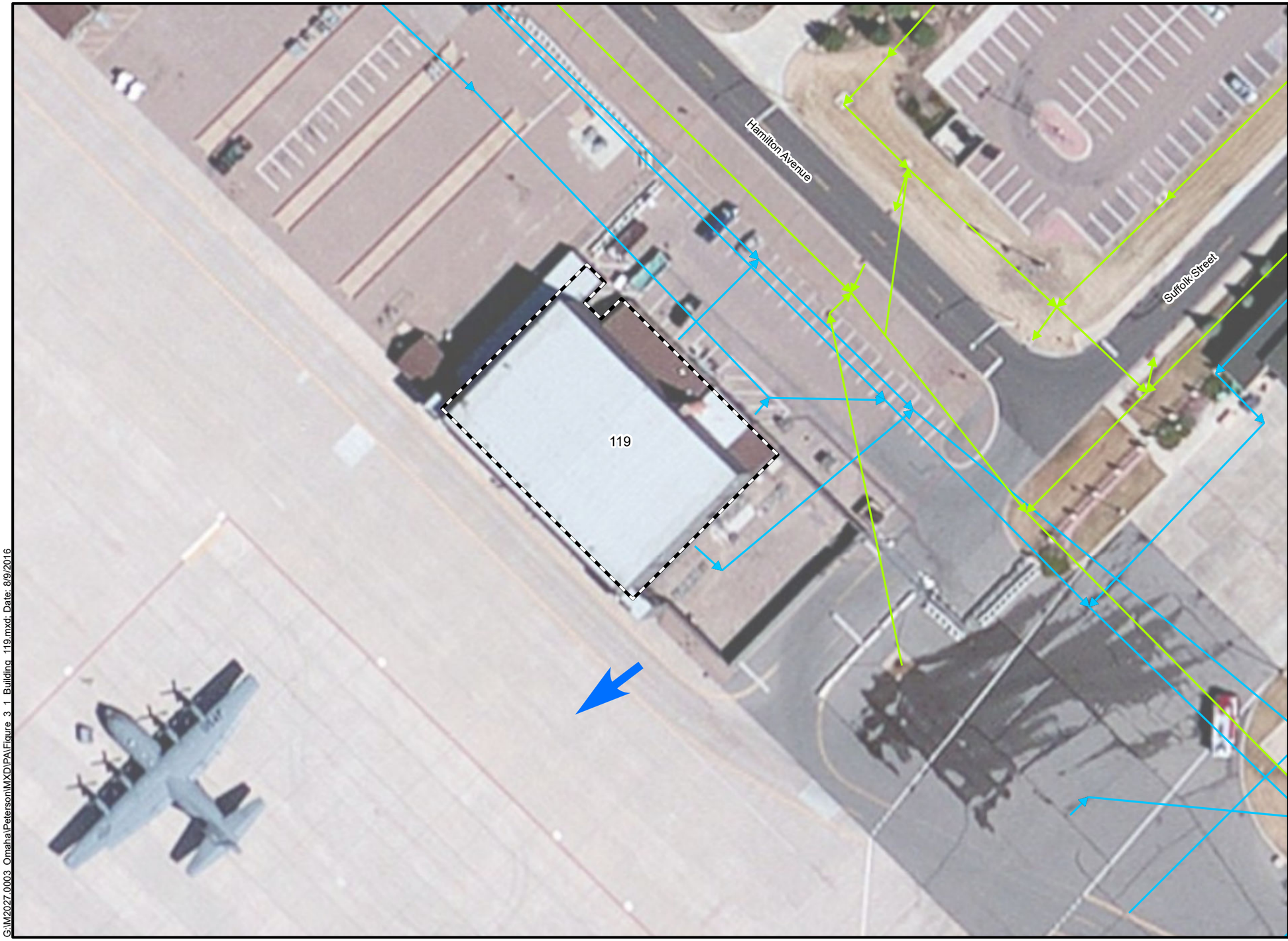
Surface drainage originating from the northwest corner of the facility flows into the channel of East Fork Sand Creek, which is the largest surface drainage feature on base. Drainage from the airfield also contributes to East Fork Sand Creek. Drainage from the developed portions of the facility and the portions of the airfield that do not contribute to East Fork Sand Creek flows through surface ditches throughout the facility to the golf course ponds and Pond #3, where the water is stored and used for irrigation (USAF, September 1989).

3.4.2.3.3 Soil exposure and air pathways

The site is a golf course and former leach field. The golf course was built in 1977, and the former leach field was decommissioned in 1978. The well-vegetated nature of the golf course would preclude any fugitive dust emissions and potential exposures. Current land use involves human health exposure from the sprinkler system. Future land use is likely to remain unchanged. The potential exists for exposure to burrowing animals.

Workers at the site include golf course maintenance personnel. Public users of the course are also a potentially exposed population. The nearest residential area is approximately 215 feet northeast of the site across Glasgow Avenue. Population details of the residential areas within a 4-mile radius are discussed in Section 3.4.2.3.

No daycare facilities or schools are within a 200-foot radius of the site. The nearest school is Wildflower Elementary School, approximately 2.4 miles northwest of the site in a residential area.



Legend

- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 119 Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-1
Hangar 119

Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\PetersonMXD\PA\Figure_3_1_Building_119.mxd; Date: 8/9/2016

Legend

- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 121 Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-2
Hangar 121

Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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Legend

- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 133 Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-3
Hangar 133

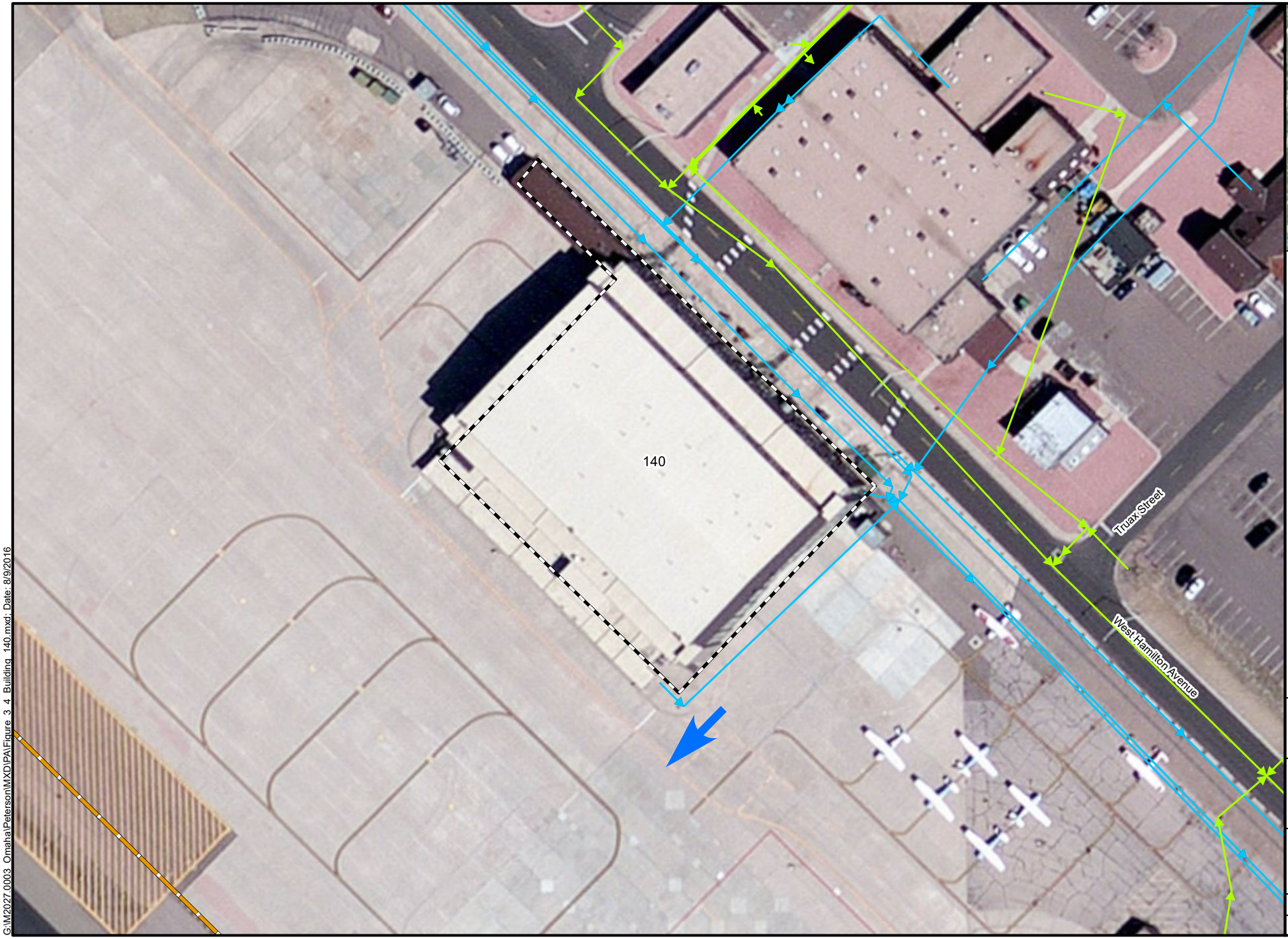
Aerostar SES LLC

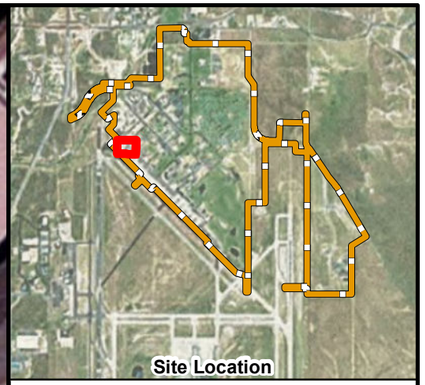
Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\PetersonMXD\PA\Figure_3_3_Building_133.mxd; Date: 8/9/2016





Legend

- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 140 Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-4
Hangar 140

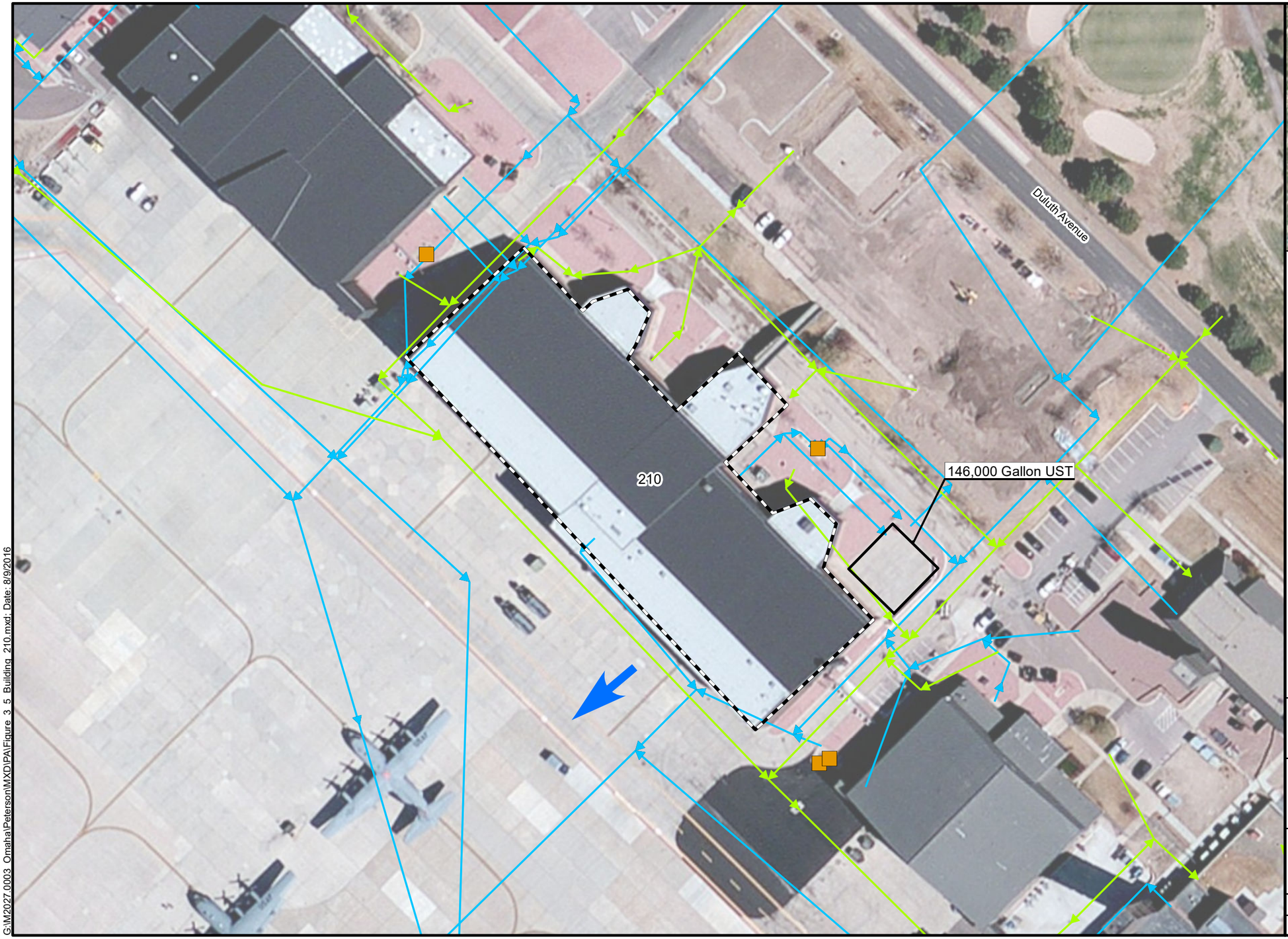
Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\PA\Figure_3_4_Building_140.mxd; Date: 8/9/2016



Legend

- Oil/Water Separator
- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 210 Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-5
Hangar 210

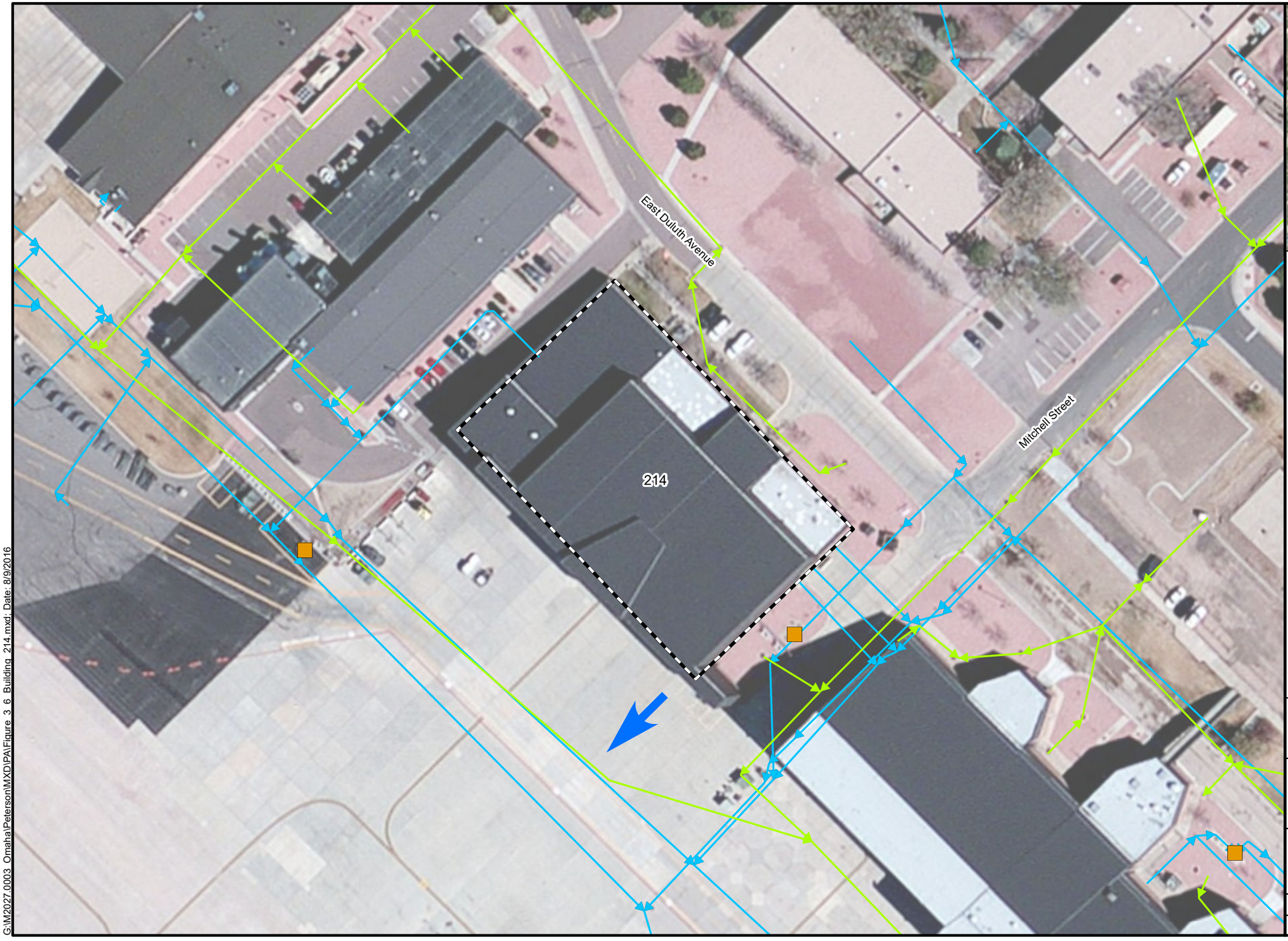
Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\PA\Figure_3_5_Building_210.mxd; Date: 8/9/2016



Legend

- Oil/Water Separator
- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 214 Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-6
Hangar 214

Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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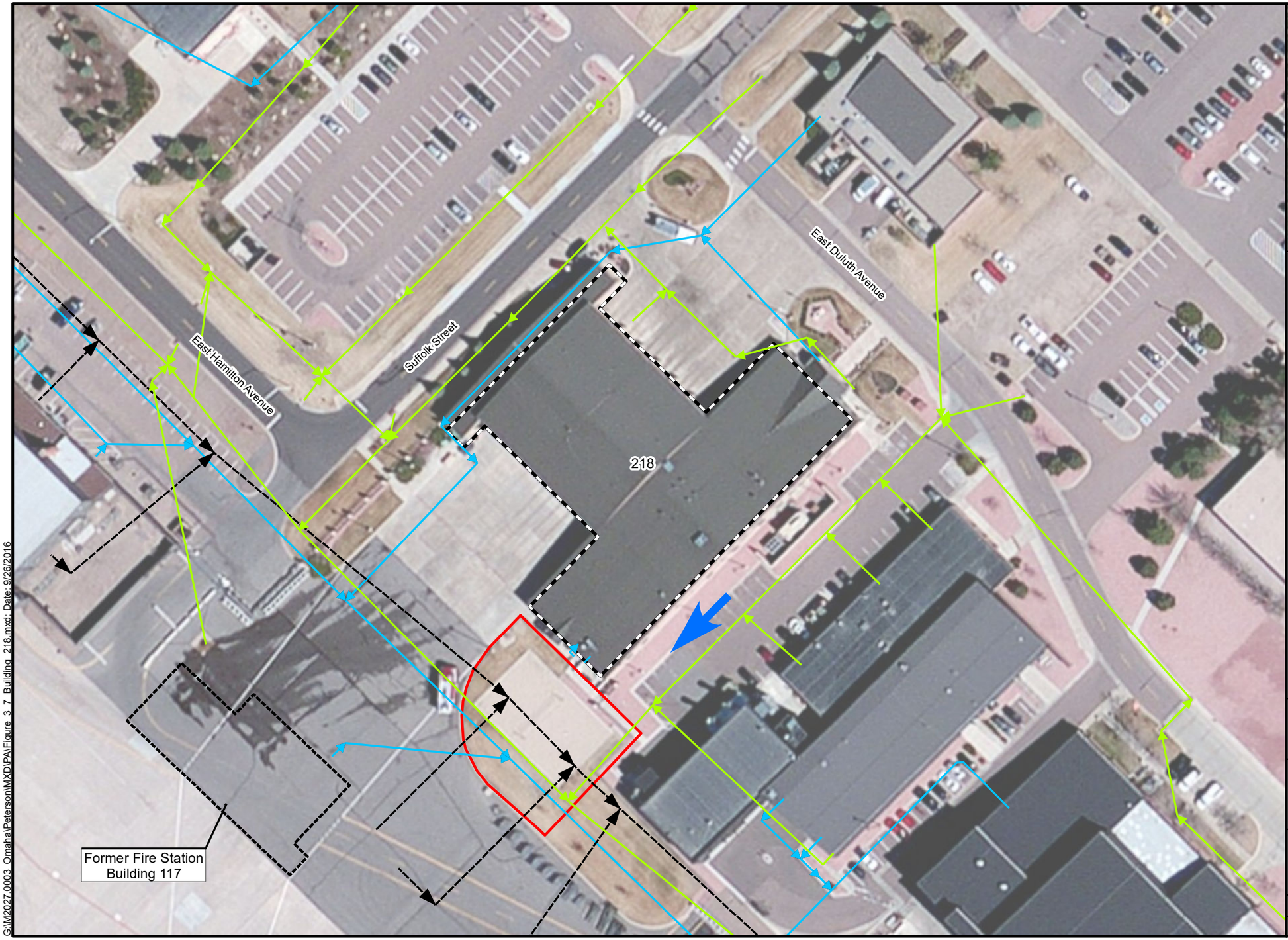

Legend

- Storm Sewer (Underground)
- Industrial Waste Line
- Wastewater Line
- Presumed Groundwater Flow Direction
- Building 218 Boundary
- Proposed AFFF Investigation Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-7
Building 218 Fire Station #1

Aerostar SES LLC

Drawn: B Baxter

Date: 9/26/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003 Omaha\Peterson\MXD\PA\Figure 3_7 Building 218.mxd Date: 9/26/2016

Legend

- Storm Sewer (Underground)
- Wastewater Line (Underground)
- Presumed Groundwater Flow Direction
- Building 2032 Boundary
- Proposed AFFF Investigation Boundary
- Installation Boundary

N

0 50 100

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-8
Building 2032 Fire Station #2

Aerostar SES LLC

Drawn: B Baxter

Date: 8/9/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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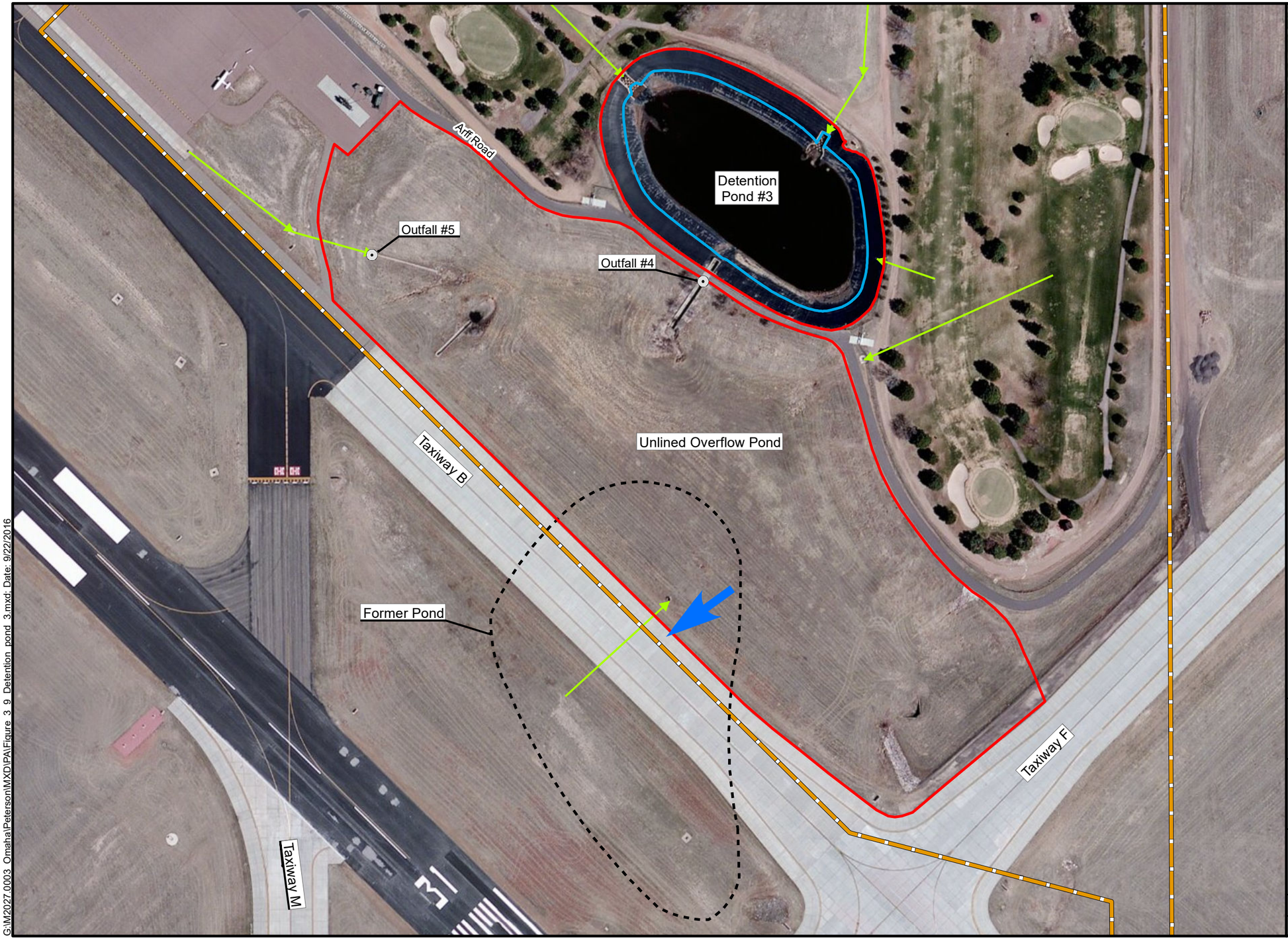
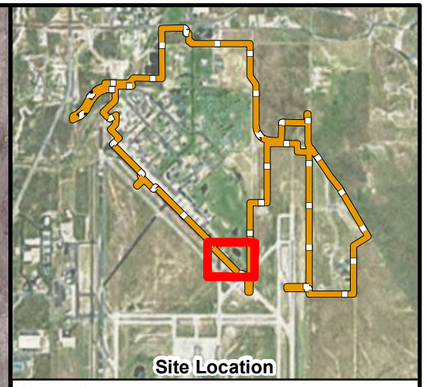




Legend

- Outfall
- Storm Sewer (Underground)
- Surface Water
- Presumed Groundwater Flow Direction
- Proposed AFFF Investigation Boundary
- Installation Boundary

N

0 50 100 150 200

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-9
Detention Pond #3

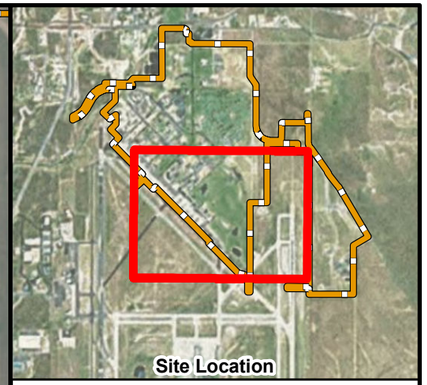
Aerostar SES LLC

Drawn: B Baxter

Date: 9/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003 Omaha\Peterson\MXD\PA\Figure 3_9_Detention_pond_3.mxd; Date: 9/22/2016



Legend

- Oil/Water Separator
- Storm Sewer (Underground)
- Surface Water
- Proposed AFFF Investigation Boundary
- Former Burn Pit
- Former Spray Test Area
- Former Pond Approximate Location
- Installation Boundary
- Presumed Groundwater Flow Direction

N

0 250 500 750 1,000

Feet

Peterson Air Force Base
Colorado Springs, Colorado

Figure 3-10
Golf Course and Former Leach Field

Aerostar SES LLC

Drawn: B Baxter

Date: 10/11/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2027.0003_Omaha\Peterson\MXD\PA\Figure_3_10_Golf_Course_and_Former_Leach_Field.mxd; Date: 10/11/2016

4. SUMMARY AND CONCLUSIONS

4.1 SUMMARY

4.1.1 Fire Training Areas

4.1.1.1 Fire training areas closed prior to 1970

FTAs closed prior to 1970 did not use AFFF for fire training activities and are not considered to have been impacted by PFOA or PFOS from AFFF use. PAFB does not have any FTAs that were closed prior to 1970.

4.1.1.2 Fire training areas operational after 1970

FTAs used after 1970 may potentially contain PFOA- and PFOS-impacted media. Site 5 and Site 8 were used after 1970 and have had AFFF releases during their operational periods. During construction of the PAFB golf course, excavated soil from Site 5 was placed in Landfill 3, situated approximately 1 mile south-southwest of the site. In addition, information provided by CDPHE indicates that material placed in Landfill 3 was subsequently excavated in 1989 during COS expansion and placed in a landfill south of Runway 17R-35L

4.1.1.3 Current fire training areas

PAFB has one operating FTA with a lined burn pit that contains a mock aircraft. The current FTA has been fully operational since 1991/1992 and was converted to a propane system in 1999. When it was first opened, the current FTA was a hydrocarbon pit, where fuels were used to create training fires. Foams were used to extinguish some training fires, but because they made further fires hard to relight, their use was not extensive. Generally, current fire training activities use water only. During the PA site visit in March 2016, Assistant Fire Chief Craig Powell reported that AFFF has been used twice at this location since the beginning of his tenure in 2005. He did state that all dispensed foam was contained within the lined burn pit. The water storage tank, which collects water from the lined training area, is drained into the sanitary sewer as needed. Empty AFFF drums were also seen at this location; however, Assistant Fire Chief Powell stated that these drums were triple-rinsed prior to storage though the location where they were cleaned is unknown. Currently these drums are used for training purposes. An OWS was previously installed on site, but it has been decommissioned.

4.1.2 Non-Fire Training Areas

4.1.2.1 Hangars

PAFB has five hangars equipped with foam fire suppression systems; four are AFFF systems, and one is currently HI-EX but was formerly water only. A sixth hangar, Hangar 119, previously had an AFFF system that has been removed and replaced with a wet system. At PAFB, base maintenance is responsible for all operational testing. Containment booms are placed around the inside perimeter of the hangar being tested to ensure that foam is not released to the environment. Fire suppression systems in hangars at PAFB are either charged with foam, not charged with foam, or removed. These systems are tested once every five years. All hangars investigated at PAFB have floor drains installed that connect to the main industrial sewer line, which dispenses into a 146,000-gallon UST near Building 210. This storage tank is pumped into the sanitary sewer system after the liquids pass through an OWS. Two hangars, Hangars 210

and 214, have had confirmed accidental activations of their AFFF systems. All five confirmed instances of accidental activation were contained within the hangar itself or on the paved apron outside the hangar and did not impact the environment. No accidental releases of AFFF to the environment could have occurred at any of the hangars on PAFB.

4.1.2.2 Fire stations

Two operating fire stations are at PAFB. Building 218 is the primary fire station, and Building 2032 is a satellite station on the eastern portion of PAFB. These two stations have three trucks and one trailer that can carry foam:

- Crash 6, an RIV with a 56-gallon AFFF capacity (Building 218);
- Crash 3, a P-23 with a 210-gallon AFFF capacity (at Building 2032);
- Crash 4, a P-23 with a 420-gallon AFFF capacity (Building 218); and
- A 1,000-gallon foam trailer (Building 218).

Additionally, 600 gallons of ANSUL AFFF concentrate are stored in drums at Building 218.

Both stations have a spray test area. At Building 218 spray tests are primarily conducted on the paved surface leading to the aircraft apron, which drains to the industrial sewer system. In the event of freezing weather, spray testing is conducted in the volleyball court area adjacent to the station. Building 117 was the original fire station at PAFB and was situated slightly southwest of Building 218, as shown on Figure 3-7. Spray testing conducted during the time that Fire Station #1 was at Building 117 was usually performed on the apron immediately southeast of Building 104 (see Figure 3-10) and occasionally on the apron adjacent to Building 117. Spray testing is conducted along the road leading to the airfield at Building 2032 (Fire Station #2). Surface conditions at both spray test areas allow for infiltration of AFFF to the subsurface.

4.1.2.3 Emergency Response

No emergency response events at PAFB have been on Air Force property.

4.1.2.4 Other spills and releases

Pond #3 and the Golf Course/Former Leach Field are both in the southern portion of PAFB east of the aircraft taxiway.

Pond #3 is a lined detention pond that receives all runoff from the industrial areas of PAFB. Water from Pond #3 is used to irrigate the adjacent golf course and is not treated prior to reuse. Southwest of detention Pond #3 is an unlined overflow pond that is within the boundaries of PAFB. The PAFB golf course uses water from Pond #3 for irrigation, and portions of the golf course were built over the former leach field. If Pond #3 gets too full, it will dispense water through Outfall #4 into the overflow pond. Outfall #5 is on the northern side of the secondary pond, and it is unlikely that it will contribute to PFC contamination that may be in the unlined overflow pond. This is because all releases in the area of the hangar apron were confined within Hangar 210 or would enter Pond #3 through the storm water management system prior to arriving at the unlined overflow pond. Both outfalls show evidence of use. Water from Pond #3 is not treated before reuse.

Spray testing was also conducted along the northern edge of the ramp southeast of Building 104. Spraying occurred just off the ramp area and was directed to the northeast toward an unpaved area between the ramp and the golf course.

Prior to construction of the golf course, the former leach field was in this area. The former leach field served as a final point to which all industrial runoff was routed. Effluent from the leach field would have entered the subsurface and followed the same path as groundwater in the area, which is to the southwest under the golf course and the unlined overflow pond next to Pond #3.

4.2 CONCLUSIONS

Table 4-1 summarizes the findings from this PA report and presents possible future management decisions on the identified locations. These locations are identified as areas of possible PFC contamination as a result of AFFF release to the environment. In accordance with the EPA CERCLA PA and site inspections guidance documents, each of the identified locations is either recommended for implement removal action due to imminent threat; close out of the identified location due to no release; initiate an RI; or initiate a site inspection.

- Removal action, as defined in CERCLA Section 104, are actions taken to eliminate, control, or otherwise mitigate a threat posed to public health or the environment from a release or threatened release of hazardous substances (EPA, 1991).
- Close out or no further remedial action planned is defined as a site disposition decision that further response under the Federal Superfund Act is not necessary (EPA, 1991).
- Site inspection is defined as an investigation to collect and analyze waste and environmental samples to support a site evaluation (EPA, 1992).
- RI is defined as a field investigation to characterize the nature and extent of contamination at a site. The RI supports development, evaluation, and selection of the appropriate response alternative (EPA, 1991).

None of the sites investigated during this PA were identified as presenting an imminent risk to public health or the environment.

Table 4-1 Preliminary Assessment Report Summary and Findings Peterson Air Force Base

Locations	Rationale	Recommendation
Current Fire Training Area	• The current FTA has been fully operational since 1991/1992 and currently uses propane as a fuel source. • From 1991/1992 until 1999, hydrocarbon fuels were used as a fuel source and an unknown volume of AFFF was used during this period. Although there are no known releases of AFFF to the environment, CDPHE has requested that the recommendation for the current FTA be changed to "Initiate a Site Inspection". • All current fire training activities are conducted using water only. This is generally true for historical training events at this location as well. • Assistant Fire Chief Powell reported that AFFF has been used twice at this location since the beginning of his tenure in 2005; however, all dispensed foam was contained within the lined burn pit. • Empty AFFF drums were seen at this location; however, Assistant Fire Chief Powell stated that these drums were triple-rinsed prior to storage. The location that these drums were rinsed at is unknown. • Water collected from the FTA is stored in a covered tank that is dispensed into the sanitary sewer system as needed.	Initiate a Site Inspection
Site 5	• Site 5 was an active FTA from 1956 to 1977. Though no record confirming use could be found, it is likely that AFFF was used at this location. • Soil was excavated from Site 5 during construction of the golf course and placed in Landfill 3, approximately 1 mile south-southwest of the site. • Soil placed in Landfill 3 was subsequently excavated and relocated to a landfill immediately south of Runway 17R-35L.	Initiate a Site Inspection
Site 8	• Site 8 was active from 1977 to 1991. AFFF was used at this location.	Initiate a Site Inspection
Hangar 119	• Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment. • Hangar 119 has floor drains that connect to the main storm sewer line which dispenses to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer after the liquids pass through an OWS.	Close out with no additional investigation
Hangar 121	• Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment. • Hangar 121 has floor drains that connect to the main storm sewer line, which dispenses to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer after the liquids pass through an OWS.	Close out with no additional investigation

Locations	Rationale	Recommendation
Hangar 133	• Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment. • Hangar 133 has floor drains installed that connect to the main storm sewer line, which dispenses to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer after the liquids pass through an OWS.	Close out with no additional investigation
Hangar 140	• Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment. • Hangar 140 has floor drains installed that connect to the main storm sewer line, which dispenses to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer after the liquids pass through an OWS.	Close out with no additional investigation
Hangar 210	• Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment. • Hangar 210 has floor drains that connect to the main storm sewer line, which dispenses to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer after the liquids pass through an OWS.	Close out with no additional investigation
Hangar 214	• Containment booms are placed around the inside perimeter of the hangar floor during fire suppression system tests to ensure that foam is not released to the environment. • Hangar 214 has floor drains installed that connect to the main storm sewer line, which dispenses to a 146,000-gallon UST near Building 210. This storage tank empties into the sanitary sewer after the liquids pass through an OWS.	Close out with no additional investigation
Building 218, Fire Station #1	• Spray tests are primarily conducted on the paved surface leading to the aircraft apron. Runoff from these tests then drain to Pond #3. • In the event of freezing temperatures, spray testing is conducted in the volleyball court area adjacent to the station. • An unknown volume of AFFF has been released into the volleyball court area. • Building 117 was the original fire station at PAFB and was situated slightly southwest of Building 218. • Spray testing conducted during the time that Fire Station #1 was at Building 117 was usually performed on the apron immediately southeast of Building 104 and occasionally on the apron adjacent to Building 117.	Initiate a Site Inspection
Building 2032, Fire Station #2	• Spray tests are conducted along the road leading to the airfield. • An unknown volume of AFFF may have been released during spray testing.	Initiate a Site Inspection
Pond #3	• Pond #3 is a lined detention pond that receives all runoff from the industrial areas of PAFB. • Adjacent to detention Pond #3 is an unlined overflow pond. If Pond #3 gets too full, it will dispense water through Outfall #4 into the overflow pond. • Water from Pond #3 is not treated for AFFF. • An unknown volume of AFFF may have been released from this location.	Initiate a Site Inspection

Locations	Rationale	Recommendation
Golf Course/Former Leach Field	• Prior to construction of the golf course, the leach field was in this area. The leach field served as a final point to which all industrial runoff was routed. • Spray testing was conducted on the northern edge of the airfield ramp between the ramp and the golf course. • The golf course uses water from Pond #3 for irrigation. • An unknown volume of AFFF may have been released from this location.	Initiate a Site Inspection

FTA = fire training area OWS = oil water separator PAFB = Peterson Air Force Base UST = underground storage tank

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Appendix A

Peterson Air Force Base Communication Log

	Date: 03-23-2016 Time: 0800	**Communication Record**

Name of Base, State: Peterson AFB			
Interviewer: G. Carlson			
Organization: ASL		Phone: 865-368-3112	
Position/Role on this project: Field Operations		E-mail: gcarlson@specproenv.com	
Interviewee: Base Environmental Staff		Phone: Various	
Organization: PAFB		E-mail: Various	
How Long at this positions: Various			
How long at this base in current and previous positions: Various			
Have you held similar positions at other bases: No			
Which bases:			
How Long:			

Discussion:

Fred Brooks - Environmental Element Chief - frederick.brooks@us.af.mil
(719) 556-6100

Sharon Stone - ERA Program Manager - sharon.stone@us.af.mil
(719) 554-5819

Sylvette Rivera - Environmental Engineer - silvette.rivera-eliza@us.af.mil
(719) 556-1910

Facility Borders - Delineating line bt PAFB and the Colorado springs municipal airport is Taxiway Bravo
- Runways are shared bt the facilities but the City of Colorado Springs is the owner

Previous Sampling - The state of Colorado has conducted sampling previously. These results were electronically shared with ASL

Drinking Water - Water for the facility is provided by the City of Colorado Springs
- A register of public and private wells is available online

Stormwater - Managed by Sylvette Rivera
- 3 units, North, East, and Central
- The central unit encompasses the majority of the working facilities at PAFB and drains to Pond #3
- Pond #3 is a lined pond on the southern end of the facility

- Pond #3 has a spillway leading to an unlined over flow pond
- Northern unit flows to Pond #2 (Sand Creek)
- Eastern unit flows to Peterson East Pond
- Six outfalls are sampled on a quarterly basis for NPDES permiting

Buildings - Hangars of Concern 140, 133, 126, 130, 123, 123, 121 119, and 214 (All in Central unit)
- Bldg 216 is Fire Station #1 (Central Unit)
Bldg 2032 is Fire Station #2 (Eastern unit)

Other areas of Concern - Current FTA
- Site 5 (Former FTA) on CSMA
- Site 8 (Former FTA) on CSMA
- 146,000 gallon OST near building 210

AFFF Volume on site - Hangar 121 - 500 gal 3% AFFF
Hangar 133 - 800 gal 3% AFFF
Hangar 140 - 800 gal 3% AFFF
Hangar 210 - 2 x 1100 gal 3% AFFF
Hangar 214 - 2000 gal 3% AFFF
** - Later determined Hangar 140 uses HEF

Work at Colorado Springs Municipal Airport (CSMA) will involve an escort

- GW is 65-100 ft BGS

	Date: 03-23-16 Time: 1330	**Communication Record**

Name of Base, State: Peterson AFB	
Interviewer: G Carlson	
Organization: ASL	Phone: 865-368-3112
Position/Role on this project: Field Operations	E-mail: gcarlson@specproenv.com
Interviewee: Craig Powell, Burke Ferrin	Phone:
Organization: PAFBFD, Asst Chiefs and Training	E-mail: burke.ferrin@us.af.mil
How Long at this positions:	
How long at this base in current and previous positions:	
Have you held similar positions at other bases: No	
Which bases:	
How Long:	

Discussion:

Assistant Chief Powell - Training officer for PAFD fire department

Assistant Chief Burke - Assistant Fire Chief, gave ASL a tour of Station 1.

Current FTA - Installed in the early 1980's, is engineered and has a lining
- AFFF has been used twice at the current FTA. All AFFF was contained within the lined pit.

Spray testing - Spray testing at Fire Station #1 is done on the concrete ramp during good weather, and at the volley ball court during inclement weather

Fire Station #2 - Built in 1996 to enable quicker response times. Bldg 20x

Building 104 - Has a Hi-Ex system that was installed in 2007. Previously the system was water only

System Maintenance - Base plumbing maintains the plumbing related systems of fire suppression equipment while base utilities maintains the electrical and mechanical portions of the systems

Accidental Discharges - Hangar 210 and Hangar 214 both recently tripped and dispersed through the underwing nozzles. The Hangar 214 system was rebuilt by Western States Fire Protection 12-13 years ago.

Vehicles Maintained by PAFB FD-

Crash 6- TCIV - 56 gallon AFFF tank
Crash 4- P-23 - 4120 gallon AFFF tank
Crash 3- P-23 - 4200 gallon Tank (AFFF), Station 2
AFFF Trailer - 1000 gallon capacity
600 gallons of ANSUL stored at Station 1

Old Crash 4 - Currently at base motor pool awaiting disposition

Emergency Response - Mooney Crash - Dec 23, 2010
- Small personal plane
- Crash occurred just North of Runway 17L
- Truck had a stuck valve that wasn't metering properly. At least 100 gallons of AFFF were released

	Date: 3-24-2016 Time: 0800	**Communication Record**

Name of Base, State:	Peterson AFB		
Interviewer:	G Carlson		
Organization:	ASL	Phone:	865-368-5112
Position/Role on this project:	Field Operations	E-mail:	gcarlson@specpro-env.com
Interviewee:	John Heimer	Phone:	
Organization:	Base Utilities	E-mail:	john.heimer@us.af.mil
How Long at this positions:	7 years		
How long at this base in current and previous positions:	7 years		
Have you held similar positions at other bases:	No		
Which bases:			
How Long:			

Discussion:

- Mr. Heimer will provide access to all required facilities today

- Hangars to visit include 119, 121, 133, 210, and 214. Mr. Heimer stated that Hangar 140 has a Hi-Ex system

- The primary sewer trunk for the facility begins at Hangar 140 and ends near Hangar 210, discharging into a 146,000 gallon UST located there. This UST drains to Pond #3 after liquids pass through an OWS

- Facility tour notes will be kept in the project logbook

Appendix B

Peterson Air Force Base Photo Record Log and Field Photographs

Photogragh Log

Team: G. Carlson/ B. Odom	Date: 03-23 thru 03-24-16	
Project Number: M2027.0003	Observation Period: 0800-1600	
Weather: 03-23-16 - Blizzard conditions, 30-35°F 03-24-16 - Partly cloudy, 45-60°F	Start_____	Stop_____

Photo Number	Time	View Direction	Location/Description
1		East	Site 5 Former FTA
2		East	Site 5 Former FTA
3		East	Site 5 Former FTA
4		South	Site 5 Former FTA
5		Southeast	Site 5 Former FTA
6		East	Site 5 Former FTA
7		Southeast	Site 8 Former FTA
8		North	Site 8 Former FTA
9		Southeast	Site 8 Former FTA
10		South	Site 8 Former FTA
11		Southeast	Site 8 Former FTA
12		Southeast	Site 8 Former FTA
13			AFFF Storage at Fire Station #1, 600 gallons
14			AFFF Storage at Fire Station #1, 600 gallons
15			Crash 4, Model P-23, 420-gallon AFFF capacity, left side
16			Crash 4, Model P-23, 420-gallon AFFF capacity, right side
17			1,000-gallon AFFF trailer, right side
18			1,000-gallon AFFF trailer, left side
19			Rapid Intervention Vehicle (RIV), 56-gallon AFFF capacity
20		Northwest	Ramp outside Fire Station #1. View looks northwest
21		Southeast	Southeast view of fire station #1
22			Fire station #1 vehicle doors
23			Fire station #1 ramp
24		Southwest	Station #1 inclement weather spray test area, the volleyball court
25		Southwest	Southwest view from fire station #1
26			Hangar 133 AFFF mechanical room
27			Hangar 133, 3% AFFF label on 800-gallon tank
28			Hangar 133 AFFF pump and activation system
29			Hangar 133 AFFF system test label

Photogragh Log

Photo Number	Time	View Direction	Location/Description
30			Current AFFF volume at Hangar 133, approximately 650 gallons
31			55 gallon drum of 3% AFFF found at Hangar 133. Ansulite brand
32			Ceiling joists and AFFF suppression system at Building 131
33			Further image of AFFF suppression system at Building 131
34			Close up view of AFFF dispensing head at Hangar 133
35			Building 131 drain system
36			Hangar 121 AFFF mechanical room
37			Hangar 121 AFFF system test label
38			Hangar 121 AFFF activation system
39			Hangar 121 AFFF storage tank, 600-gallon capacity
40			Hangar 121 current volume on hand, approximately 450
41			Hangar 121 AFFF activation system
42			Fire department connection to AFFF system at Hangar 121
43			Hangar at 121. Note the puddles and containment booms from recent testing
44			Residual water and small bubbles remaining from recent
45			Containment booms from testing
46			Residual foam from testing
47			Hangar 121 foam controls
48			Deflated containment booms from AFFF system testing at Hangar 121
49			Note boom placement outside sewer drainage during testing
50			Foam controls and alarms at Hangar 121
51			Foam heads at Hangar 121
52			Hangar 119 sprinkler heads
53			Decommissioned foam system at Hangar 119
54			Decommissioned foam tank at Hangar 119
55			2,000-gallon AFFF storage tank at Hangar 214
56			Showing the level of AFFF concentrate at Hangar 214
57			AFFF system inspection tag at Hangar 214
58			AFFF pump control system for Hangar 214
59			Foam pumping system, Hangar 214
60			Underwing cannon at Hangar 214
61			Underwing cannon at Hangar 214

Photogragh Log

Photo Number	Time	View Direction	Location/Description
62			Interior of Hangar 214 hangar doors
63		Northeast	Exterior of Hangar 214 hangar doors, view facing northeast
64		East	Exterior of Hangar 214 hangar doors, view facing east
65			Tarmac outside Hangar 214. Note the depression for drainage, center right
66			Close up of tarmac drainage in previous photo
67			Second view of drainage from Hangar 214 tarmac
68		Southeast	Southeast looking photo of Hangar 214, note the good repair of the concrete
69			Hangar 210 AFFF storage tanks
70			Hangar 210, tank 2, inspection tag
71			Hangar 210, tank 1, inspection tag
72			Drain protection in place at Hangar 210
73			Hangar 210 AFFF storage tanks
74			Hangar 210 AFFF pump motor
75			Hangar 210 diesel engine pump controllers
76			Hangar 210 fire suppression water supply to AFFF tanks
77			Second view of Hangar 210 diesel pumps at Hangar 210
78			AFFF dispensing manifold in Hangar 210 mechanical room
79			Hangar 210, Bay 1 underwing cannon #1
80			Hangar 210, Bay 1, underwing cannon #2
81			Hangar 210, Bay 2, underwing cannon #1
82			Hangar 210, Bay 2, underwing cannon #2
83			Hangar 210, Bay 2 floor drainage
84			Hot high pressure washers in Bay 2
85			Rear of hot high pressure washers in Bay 2 at Hangar 210
86			Unlined detention pond next to Pond #3. Notice the overflow scarring
87			Outfall #5 leading to unlined detention pond. View is northwest
88		Northwest	Northwestern looking view of unlined detention pond
89		Southwest	Southwestern view of unlined pond
90			Spillway from Pond #3
91		Northeast	Northeastern view of Pond #3
92			Note the pond lining
93		East	Eastern view of Pond #3

Photogragh Log

Photo Number	Time	View Direction	Location/Description
94		Southeast	Southeastern view of Pond #3
95			Current FTA airplane mockup
96			Current FTA used water holding tank
97			Current FTA holding tank
98			Used Ansul AFFF drums.
99			Current FTA airplane mockup
100			Current FTA airplane mockup
101			Current FTA vehicle mockup
102			Current FTA airplane mockup
103			Crash 3, stationed at fire station #2, Model P-23, 210 gallon AFFF capacity, left side
104			Crash 3, stationed at fire station #2, Model P-23, 210 gallon AFFF capacity, right side
105			Station #2 spray test area
106			Station #2 spray test area

Photo 1 Site 5.

Photo 2 Site 5.

Photo 3 Site 5.

Photo 4 Site 5.

Photo 5 Site 5.

Photo 6 Site 5.

Photo 7 Site 8.

Photo 8 Site 8.

Photo 9 Site 8.

Photo 10 Site 8.

Photo 11 Site 8.

Photo 12 Site 8.

Photo 12 AFFF Storage at Fire Station #1, 600 gallons.

Photo 13 AFFF Storage at Fire Station #1, 600 gallons.

Photo 14 Crash 4, Model P-23, 420-gallon AFFF capacity.

Photo 14 Crash 4, Model P-23, 420-gallon AFFF capacity.

Photo 15 AFFF trailer (1,000 gallons).

Photo 16 AFFF trailer (1,000 gallons).

Photo 19 Rapid Intervention Vehicle, 56- gallon AFFF capacity.

Photo 20 Ramp outside Fire Station #1. View looks northwest.

Photo 21 Southeast view of Fire Station #1.

Photo 22 Fire Station #1 vehicle doors.

Photo 23 Fire Station #1 ramp.

Photo 24 Station #1 inclement weather spray test area, the volleyball court.

Photo 25 Southwest view from Fire Station #1.

Photo 26 Building 133 AFFF mechanical room.

Photo 27 Hangar 133, 3 percent AFFF label on 800-gallon tank.

Photo 28 Hangar 133 AFFF pump and activation system.

Photo 29 Hangar 133 AFFF system test label.

Photo 30 Current AFFF volume at Hangar 133, approximately 650 gallons.

Photo 31 55 gallon drum of 3 percent AFFF found at Hangar 133 (Ansulite brand).

Photo 32 Ceiling joists and AFFF suppression system at Building 131.

Photo 33 Further image of AFFF suppression system at Building 131.

Photo 34 Closeup view of AFFF dispensing head at Hangar 133.

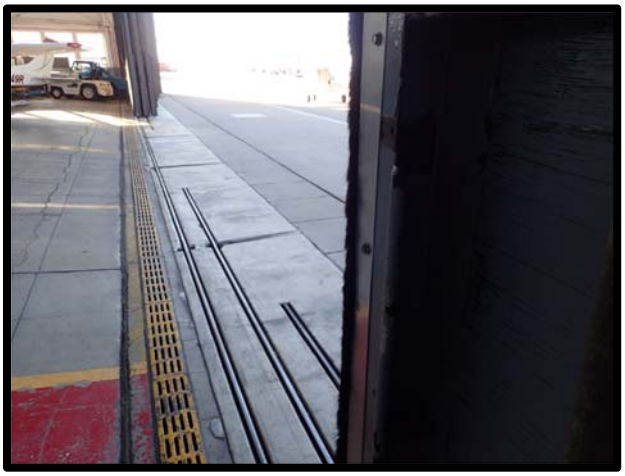

Photo 35 Building 131 drain system.

Photo 36 Hangar 121 AFFF mechanical room.

Photo 37 Hangar 121 AFFF system test label.

Photo 38 Hangar 121 AFFF activation system.

Photo 39 Hangar 121 AFFF storage tank, 600-gallon capacity.

Photo 40 Hangar 121 current volume on hand, approximately 450 gallons.

Photo 41 Hangar 121 AFFF activation system.

Photo 42 Fire department connection to AFFF system at Hangar 121.

Photo 43 Hangar 121. Note puddles and containment booms from recent testing.

Photo 44 Residual water and small bubbles from recent testing at Hangar 121.

Photo 45 Containment booms from testing.

Photo 46 Residual foam from testing.

Photo 47 Hangar 121 foam controls.

Photo 48 Deflated containment booms from AFFF system testing at Hangar 121.

Photo 49 Note boom placement outside sewer drainage during testing.

Photo 50 Foam controls and alarms at Hangar 121.

Photo 51 Foam heads at Hangar 121.

Photo 52 Hangar 119 sprinkler heads.

Photo 53 Decommissioned foam system at Hangar 119.

Photo 54 Decommissioned foam tank at Hangar 119.

Photo 55 AFFF storage tank at Hangar 214 (2,000-gallon).

Photo 56 Showing the level of AFFF concentrate at Hangar 214.

Photo 57 AFFF system inspection tag at Hangar 214.

Photo 58 AFFF pump control system for Hangar 214.

Photo 59 Foam pumping system at Hangar 214.

Photo 60 Underwing cannon at Hangar 214.

Photo 61 Underwing cannon at Hangar 214.

Photo 62 Interior of Hangar 214.

Photo 63 Exterior of Hangar 214 doors (view facing northeast).

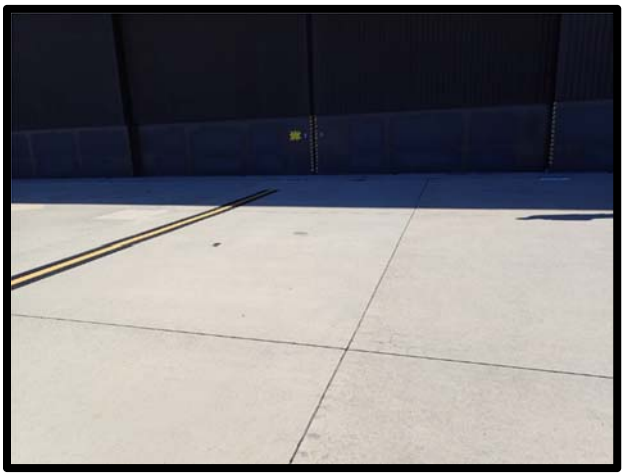

Photo 64 Exterior of Hangar 214 doors (view facing east)

Photo 65 Tarmac outside Hangar 214. Note the depression for drainage, center right.

Photo 66 Closeup of tarmac drainage in Photo 65.

Photo 67 Second view of drainage from Hangar 214 tarmac.

Photo 68 Southeast looking photo of Hangar 214. Note the good repair of the concrete.

Photo 69 Hangar 210 AFFF storage tanks.

Photo 70 Hangar 210, Tank 2, inspection tag.

Photo 71 Hangar 210, tank 1, inspection tag.

Photo 72 Drain protection in place at Hangar 210.

Photo 73 Hangar 210 AFFF storage tanks.

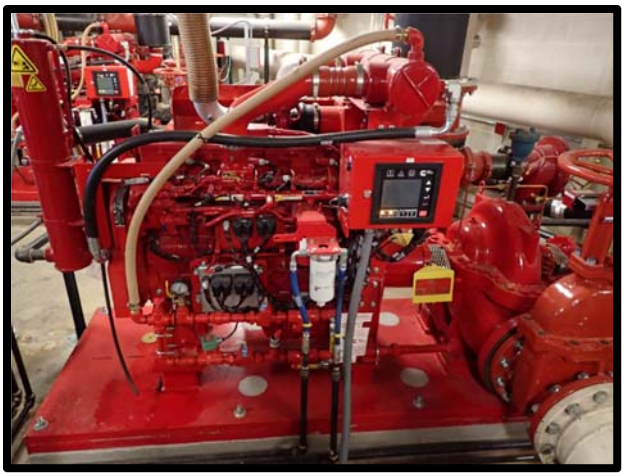

Photo 74 Hangar 210 AFFF pump motor.

Photo 75 Hangar 210 diesel engine pump controllers.

Photo 76 Hangar 210 fire suppression water supply to AFFF tanks.

Photo 76 Second view of Hangar 210 diesel pumps.

Photo 77 AFFF dispensing manifold in Hangar 210 mechanical room.

Photo 79 Hangar 210, Bay 1 underwing Cannon #1.

Photo 80 Hangar 210, Bay 1, underwing Cannon #2.

Photo 81 Hangar 210, Bay 2, underwing Cannon #1.

Photo 82 Hangar 210, Bay 2, underwing Cannon #2.

Photo 83 Hangar 210, Bay 2 floor drainage.

Photo 84 Hot high-pressure washers in Bay 2.

Photo 85 Rear of hot high-pressure washers in Bay 2 at Hangar 210.

Photo 86 Unlined detention pond next to Pond #3. Notice the overflow scarring.

Photo 87 Outfall #5 leading to unlined detention pond. View is northwest.

Photo 88 Northwestern looking view of unlined detention pond.

Photo 89 Southwestern view of unlined pond.

Photo 90 Spillway from Pond #3.

Photo 91 Northeastern view of Pond #3.

Photo 92 Note the pond lining.

Photo 93 Eastern view of Pond #3.

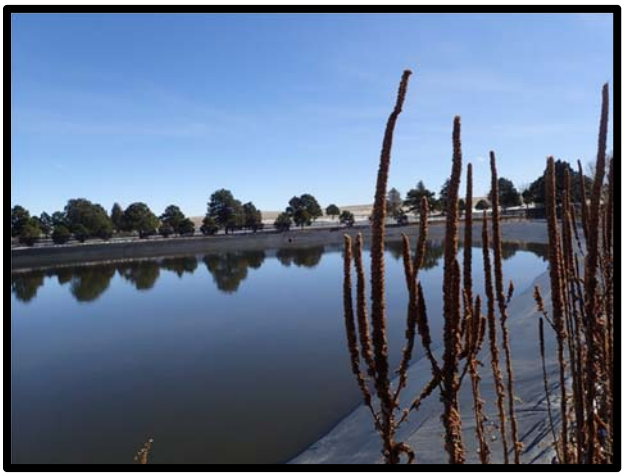

Photo 94 Southeastern view of Pond #3.

Photo 95 Current FTA airplane mockup.

Photo 96 Current FTA used water holding tank.

Photo 97 Current FTA holding tank.

Photo 98 Used ANSUL AFFF drums.

Photo 99 Current FTA airplane mockup.

Photo 100 Current FTA airplane mockup.

Photo 101 Current FTA vehicle mockup.

Photo 102 Current FTA airplane mockup.

Photo 103 Crash 3, stationed at Fire Station #2, Model P-23, 210-gallon AFFF capacity.

Photo 104 Crash 3, stationed at Fire Station #2, Model P-23, 210-gallon AFFF capacity.

Photo 105 Fire Station #2 spray test area.

Photo 106 Fire Station #2 spray test area.

Appendix C

Peterson Air Force Base Preliminary Assessment Forms

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 39°49'42.71" N	Longitude: 104°42'46.49" W	Approximate Area of Site: 5.85 Acres / 255,000 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Current Fire Training Area

The current FTA, which is in the northern portion of the facility, is a lined fire training pit with an aircraft mockup in the center. The fires used for training activities are generated with propane, and water is used to extinguish training fires. This FTA was installed in the early 1990s. Two instances of AFFF use were reported by Assistant Chief Powell since the beginning of his tenure in 2005; however, all dispensed foam was contained within the lined pit. Water generated from training activities is pumped into an enclosed holding tank on the southern side of the training area. This holding tank used to have a sediment separator and OWS associated with it, but these have been removed. The holding tank is occasionally drained into the sewer system, but the occurrence of such events is rare. Several empty ANSUL AFFF drums were observed on site. Assistant Chief Powell stated that these drums were triple-rinsed before being stored at this location.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial | Mining | Other Federal
Commercial | **DOD** | Facility:_____
Residential | DOE
Forest/Fields | DOI | Other: _____
Agriculture

Site Setting:

Urban
Suburban
Rural

Years of Operation:

Beginning Year: 1989
Ending Year: In Use
Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):
Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

0.0 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals
Organics
Inorganics
Solvents
Paints/Pigments
Laboratory/Medical Waste
Radioactive Waste
Construction/Demolition Waste
Pesticides/Herbicides
Acids/Bases
Oily Waste
Municipal Waste
Mining Waste
Explosives
Other: AFFF

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
Liquid
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

550 Feet
0.11 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes

No

Have Primary Target Wetlands Been Identified

Yes

No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes

No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes **No**

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes

No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None

1-100

101-1,000

>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes

No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes

No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°48'31.83" N	Longitude: 104°41'31.17" W	Approximate Area of Site: 10.50 Acres / 456,935 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Site 5

Site Description: Site 5 (FT002) is a former fire training area near the end of Runway 31 and the golf course. The FTA was active from the 1960s through 1977 and consisted of a shallow unlined burn pit. Originally at the same elevation as the golf course, the area has been filled in some areas to provide for the installation of the taxiways and runway. The FTA followed standard operating procedures of the time by having a shallow burn pit excavated and burning JP-4, waste oils, and solvents for training fires.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:	Not Specified
State	Other:	State	Other:
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date:	Other	
	Date:	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

- **Industrial** (circled)
- Commercial
- Residential
- Forest/Fields
- Agriculture
- Mining
- **DOD** (circled)
- DOE
- DOI
- Other Federal Facility:_____
- Other: _____

Site Setting:

- Urban
- **Suburban** (circled)
- Rural

Years of Operation:

Beginning Year: 1950's

Ending Year: 1977

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):

- Lumber and Wood Products
- Inorganic Chemicals
- Plastic and/or Rubber Products
- Paints/Varnishes
- Industrial Organic Chemicals
- Agricultural Chemicals
- Miscellaneous Chemical Products
- Primary Metals
- Metal Coating, Plating, Engraving
- Metal Forging, Stamping
- Fabricated Structural Metal
- Electronic Equipment

Mining (Must Select a Sub-Category):

- Metals
- Coal
- Oil and Gas
- Non-Metallic Minerals

- Retail
- Recycling
- Junk/Salvage yard
- Municipal Landfill
- Other Landfill
- **DOD** (circled)
- DOE
- DOI
- Other Federal Facility:_____

RCRA

- TSDF
- Large Quantity Generator
- Small Quantity Generator
- Subtitle D
- Municipal
- Industrial
- "Converter"
- "Protective Filer"
- "Non or Late Filer"
- Not Specified
- Other: _____

Waste Generated:

- **Onsite** (circled)
- Offsite
- Onsite and Offsite

Waste Deposition Authorized By:

- **Present Owner** (circled)
- Former Owner
- Present and Former Owner
- Unauthorized
- Unknown

Waste Accessible to the Public:

- Yes
- **No** (circled)

Distance to Nearest Dwelling School or Workplace:

0.48 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

- Metals
- Organics
- Inorganics
- Solvents
- Paints/Pigments
- Laboratory/Medical Waste
- Radioactive Waste
- Construction/Demolition Waste
- Pesticides/Herbicides
- Acids/Bases
- Oily Waste
- Municipal Waste
- Mining Waste
- Explosives
- **Other: AFFF** (circled)

Physical State of Waste as Deposited (Circle all that apply):

- Solid
- Sludge
- Powder
- **Liquid** (circled)
- Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

1,285 Feet
0.24 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes **No**

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°47'58.96" N	Longitude: 104°41'35.96" W	Approximate Area of Site: 2.76 Acres / 120,265 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Site 8

Site Description: Site 8 is a former fire training area, also known as Rapier Area 6, along the southeastern boundary of PAFB. Site 8 (FT003) consisted of two areas: a burn pit and a drainage area for water from a collocated OWS. Site 8 was active from 1977 to 1989. The site was decommissioned to allow for the expansion of the Colorado Springs Municipal Airport. In accordance with standard practice at the time, JP-4, waste oils, and solvents were burned in the pit to create training fires.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial
Commercial
Residential
Forest/Fields
Agriculture

Mining
DOD
DOE
DOI

Other Federal Facility:_____

Other: _____

Site Setting:

Urban
Suburban
Rural

Years of Operation:

Beginning Year: 1977

Ending Year: 1989

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):
Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

0.42 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals
Organics
Inorganics
Solvents
Paints/Pigments
Laboratory/Medical Waste
Radioactive Waste
Construction/Demolition Waste
Pesticides/Herbicides
Acids/Bases
Oily Waste
Municipal Waste
Mining Waste
Explosives
Other: AFFF

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
Liquid
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

4,505 Feet
0.85 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No** If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes
No

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes
No

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd				
City: Colorado Spings		State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 39°49'09.74" N	Longitude: 104°42'19.34" W	Approximate Area of Site: 0.33 Acres / 14,216 Sq. Ft.		Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Hangar 119

Site Description: Hangar 119 formerly had an AFFF system, but it has been converted to a wet system. Remaining on site are the pumps and a 300-gallon tank with a small volume of residual AFFF in the bottom. No further information on this building was available.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN
Name of EPA or State Agency Contact: N/A	Street Address: N/A	
City: N/A	State: N/A	Telephone: N/A

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial | Mining | Other Federal Facility:_____
Commercial | **DOD** | Residential | DOE | Forest/Fields | DOI | Other: _____
Agriculture

Site Setting:

Urban | **Suburban** | Rural

Years of Operation:

Beginning Year: _____
Ending Year: ____In Use____
Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):
Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

_____0.0____ Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill	_____	_____
Surface Impoundment	_____	_____
Drums	_____	_____
Tanks and Non Drum Containers	_____	_____
Chemical Waste Pile	_____	_____
Scrap Metal or Junk Pile	_____	_____
Tailings Pile	_____	_____
Trash Pile (open drum)	_____	_____
Land Treatment	_____	_____
Contaminated GW Plume	_____	_____
Contaminated SW/Sediment	_____	_____
Contaminated Soil	_____	_____
Other	____Unknown_____	_____
No Sources	_____	_____

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals | Pesticides/Herbicides
Organics | Acids/Bases
Inorganics | Oily Waste
Solvents | Municipal Waste
Paints/Pigments | Mining Waste
Laboratory/Medical Waste | Explosives
Radioactive Waste | **Other: AFFF**
Construction/Demolition Waste

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
Liquid
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

If Yes, Distance to Nearest Drinking Well

---- Miles

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

If Yes, Enter Primary Target Population

---- People

Depth to Shallowest Aquifer:

43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

3,679 Feet
0.70 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd				
City: Colorado Spings		State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 39°49'13.01" N	Longitude: 104°42'24.00" W	Approximate Area of Site: 0.26 Acres / 11,469 Sq. Ft.		Status of Site: **Active** / Inactive		Not Specified / NA (GW Plume etc.)

Site Name: Hangar 121

Site Description: Hangar 121 is on the northeast side of the aircraft apron south of Hangar 133. The fire suppression system at Hangar 121 uses a 500-gallon tank of 3% AFFF that was filled with approximately 450 gallons of material at the time of the site visit. During the site visit, remnants of a previous test were apparent. Containment booms, as mentioned previously by Mr. Heimer, were still present. Though not fully inflated at the time of the visit, it was apparent that testing conducted at PAFB is done in a manner to prevent releases to the environment. There have been no recorded accidental releases at this location. The fire suppression dispersion system at Hangar 121 operates in the same manner as the system at Hangar 133 with sprinkler heads running parallel to overhead trusses.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----
Type of Ownership: Private / **Federal Agency** / Name: DOD / State / Indian; County / Municipal / Not Specified / Other: _____			Type of Ownership: Private / Federal Agency / Name: _____ / State / Indian; County / Municipal / Not Specified / Other: _____		

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN
Name of EPA or State Agency Contact: N/A	Street Address: N/A	
City: N/A	State: N/A	Telephone: N/A

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation: Yes / No; Date: _____	CERCLIS Recommendation: Higher Priority SI / Lower Priority SI / NFRAP / RCRA / Other _____; Date: _____	Signature: / Name (Typed): / Position:

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

(Industrial) | Mining | Other Federal
Commercial | **(DOD)** | Facility:_____
Residential | DOE |
Forest/Fields | DOI | Other: _____
Agriculture

Site Setting:

Urban
(Suburban)
Rural

Years of Operation:

Beginning Year: _____

Ending Year: ____In Use____

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):

Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):

Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
(DOD)
DOE
DOI
Other Federal Facility:_____

RCRA

TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

(Onsite)
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

(Present Owner)
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
(No)

Distance to Nearest Dwelling School or Workplace:

_____0.0____ Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill	_____	_____
Surface Impoundment	_____	_____
Drums	_____	_____
Tanks and Non Drum Containers	_____	_____
Chemical Waste Pile	_____	_____
Scrap Metal or Junk Pile	_____	_____
Tailings Pile	_____	_____
Trash Pile (open drum)	_____	_____
Land Treatment	_____	_____
Contaminated GW Plume	_____	_____
Contaminated SW/Sediment	_____	_____
Contaminated Soil	_____	_____
(Other)	____Unknown_____	_____
No Sources	_____	_____

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals
Organics
Inorganics
Solvents
Paints/Pigments
Laboratory/Medical Waste
Radioactive Waste
Construction/Demolition Waste
Pesticides/Herbicides
Acids/Bases
Oily Waste
Municipal Waste
Mining Waste
Explosives
(Other: AFFF)

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
(Liquid)
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
____ People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	____
>0.25 - 0.5 Mile	____
>0.5 - 1.0 Mile	____
>1.0 - 2.0 Mile	____
>2.0 - 3.0 Mile	____
>3.0 - 4.0 Mile	____
Total within 4 Miles	____

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

4,618 Feet
0.88 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes **No**

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°49'22.47" N	Longitude: 104°42'36.02" W	Approximate Area of Site: 0.23 Acres / 10,082 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Hangar 133

Site Description: Hangar 133 is on the northern end of the parking apron, just south of Hangar 140. Hangar 133 is home to the PAFB Aero Club and has a newly refitted AFFF system that uses an 800-gallon storage tank of 3% AFFF. At the time of the PA visit, the tank was filled to approximately 675 gallons. One 55-gallon plastic drum of Ansulite (3% AFFF) was found in the mechanical room during the PA visit. The system froze in 2011 or 2012 and released a small amount of AFFF into the mechanical room. The fire suppression system dispenses from a series of parallel sprinkler heads along the beams of the overhead trusses. There are no underwing cannons or other, more modern, dispensing systems at this facility.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16		
Street Address: 1006 Floyd Culler Court		City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A		Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A		

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

- **Industrial**
- Commercial
- Residential
- Forest/Fields
- Agriculture
- Mining
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____
- Other: _____

Site Setting:

- Urban
- **Suburban**
- Rural

Years of Operation:

Beginning Year: 1941

Ending Year: In Use

- Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):

- Lumber and Wood Products
- Inorganic Chemicals
- Plastic and/or Rubber Products
- Paints/Varnishes
- Industrial Organic Chemicals
- Agricultural Chemicals
- Miscellaneous Chemical Products
- Primary Metals
- Metal Coating, Plating, Engraving
- Metal Forging, Stamping
- Fabricated Structural Metal
- Electronic Equipment

Mining (Must Select a Sub-Category):

- Metals
- Coal
- Oil and Gas
- Non-Metallic Minerals

- Retail
- Recycling
- Junk/Salvage yard
- Municipal Landfill
- Other Landfill
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____

RCRA

- TSDF
- Large Quantity Generator
- Small Quantity Generator
- Subtitle D
- Municipal
- Industrial
- "Converter"
- "Protective Filer"
- "Non or Late Filer"
- Not Specified
- Other: _____

Waste Generated:

- **Onsite**
- Offsite
- Onsite and Offsite

Waste Deposition Authorized By:

- **Present Owner**
- Former Owner
- Present and Former Owner
- Unauthorized
- Unknown

Waste Accessible to the Public:

- Yes
- **No**

Distance to Nearest Dwelling School or Workplace:

0.0 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

- Metals
- Organics
- Inorganics
- Solvents
- Paints/Pigments
- Laboratory/Medical Waste
- Radioactive Waste
- Construction/Demolition Waste
- Pesticides/Herbicides
- Acids/Bases
- Oily Waste
- Municipal Waste
- Mining Waste
- Explosives
- **Other: AFFF**

Physical State of Waste as Deposited (Circle all that apply):

- Solid
- Sludge
- Powder
- **Liquid**
- Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

If Yes, Distance to Nearest Drinking Well

---- Miles

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

If Yes, Enter Primary Target Population

440,000 People

Depth to Shallowest Aquifer:

43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

6,060 Feet
1.15 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes
No

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes
No

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd				
City: Colorado Spings		State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°49'26.50" N	Longitude: 104°42'40.44" W	Approximate Area of Site: 0.92 Acres / 40,100 Sq. Ft.		Status of Site: **Active** / Inactive		Not Specified / NA (GW Plume etc.)

Site Name: Hangar 140

Site Description: Building 140 is an aircraft hangar on the northeastern side of the aircraft apron. A Hi-Ex system was installed in 2007. Previously the system relied on water only for fire suppression.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN
Name of EPA or State Agency Contact: N/A	Street Address: N/A	
City: N/A	State: N/A	Telephone: N/A

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial
Commercial
Residential
Forest/Fields
Agriculture

Mining
DOD
DOE
DOI

Other Federal Facility:_____

Other: _____

Site Setting:

Urban
Suburban
Rural

Years of Operation:

Beginning Year: ____1953____

Ending Year: ____In Use____

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):
Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

_____0.0_____ Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill	_____	_____
Surface Impoundment	_____	_____
Drums	_____	_____
Tanks and Non Drum Containers	_____	_____
Chemical Waste Pile	_____	_____
Scrap Metal or Junk Pile	_____	_____
Tailings Pile	_____	_____
Trash Pile (open drum)	_____	_____
Land Treatment	_____	_____
Contaminated GW Plume	_____	_____
Contaminated SW/Sediment	_____	_____
Contaminated Soil	_____	_____
Other	____Unknown_____	_____
No Sources	_____	_____

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals
Organics
Inorganics
Solvents
Paints/Pigments
Laboratory/Medical Waste
Radioactive Waste
Construction/Demolition Waste
Pesticides/Herbicides
Acids/Bases
Oily Waste
Municipal Waste
Mining Waste
Explosives
Other: AFFF

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
Liquid
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
__440,000__ People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

___6,600___ Feet
___1.25____ Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
___40___ Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes

No

Have Primary Target Wetlands Been Identified

Yes

No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes

No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes **No**

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes

No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None

1-100

101-1,000

>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes

No

If Yes, List Each Terrestrial Sensitive Environment:

_____

_____

_____

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes

No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	_____
0 - 0.25 Mile	_____
>0.25 - 0.5 Mile	_____

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 39°49'04.17" N	Longitude: 104°42'07.35" W	Approximate Area of Site: 0.81 Acres / 54,360 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Hangar 210

Site Description: Hangar 210 is centrally located on the eastern side of the aircraft apron south of Hangar 214. Hangar 210 is a two-bay hangar with two independent AFFF fire suppression systems, one for each hangar bay. Bay 1 is on the south side of the building, and Bay 2 is on the north side. Each bay has two underwing cannons for foam dispersion. In late 2014 the system in Bay 2 tripped releasing AFFF into the hangar. According to Mr. Heimer, a steam cleaner near the manual release switch in the bay was being used and too much water got into the control panel causing the system to release. All of the foam that was released was contained within the hangar.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:	Not Specified
State	Other:	State	Other:
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date:	Other	
	Date:	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

- **Industrial**
- Commercial
- Residential
- Forest/Fields
- Agriculture
- Mining
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____
- Other: _____

Site Setting:

- Urban
- **Suburban**
- Rural

Years of Operation:

Beginning Year: 1985

Ending Year: In Use

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):

- Lumber and Wood Products
- Inorganic Chemicals
- Plastic and/or Rubber Products
- Paints/Varnishes
- Industrial Organic Chemicals
- Agricultural Chemicals
- Miscellaneous Chemical Products
- Primary Metals
- Metal Coating, Plating, Engraving
- Metal Forging, Stamping
- Fabricated Structural Metal
- Electronic Equipment

Mining (Must Select a Sub-Category):

- Metals
- Coal
- Oil and Gas
- Non-Metallic Minerals

- Retail
- Recycling
- Junk/Salvage yard
- Municipal Landfill
- Other Landfill
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____

RCRA

- TSDF
- Large Quantity Generator
- Small Quantity Generator
- Subtitle D
- Municipal
- Industrial
- "Converter"
- "Protective Filer"
- "Non or Late Filer"
- Not Specified
- Other: _____

Waste Generated:

- **Onsite**
- Offsite
- Onsite and Offsite

Waste Deposition Authorized By:

- **Present Owner**
- Former Owner
- Present and Former Owner
- Unauthorized
- Unknown

Waste Accessible to the Public:

- Yes
- **No**

Distance to Nearest Dwelling School or Workplace:

0.0 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

- Metals
- Organics
- Inorganics
- Solvents
- Paints/Pigments
- Laboratory/Medical Waste
- Radioactive Waste
- Construction/Demolition Waste
- Pesticides/Herbicides
- Acids/Bases
- Oily Waste
- Municipal Waste
- Mining Waste
- Explosives
- **Other: AFFF**

Physical State of Waste as Deposited (Circle all that apply):

- Solid
- Sludge
- Powder
- **Liquid**
- Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well

____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:

43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population

440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

105 Feet
0.15 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake

40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:

_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes
No

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes
No

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 39°49'08.55" N	Longitude: 104°42'13.25" W	Approximate Area of Site: 0.81 Acres / 35,363 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Hangar 214

Site Description: Hangar 214 is centrally located on the eastern side of the aircraft apron. The fire suppression system consists of a 2,000-gallon tank of 3% AFFF and two underwing cannons for dispersion within the hangar. There is no overhead dispersion system. At the time of the PA visit, there were approximately 1,100 gallons of AFFF concentrate stored in this tank. On an unknown date the system tripped, and a small amount of AFFF leaked out the hangar doors. The area in front of the hangar is paved with concrete in good condition. A drain leading to the main storm sewer trunk is northwest of the hangar, and the concrete is sloped in that direction.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:	Not Specified
State	Other:	State	Other:
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date:	Other	
	Date:	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

- **Industrial**
- Commercial
- Residential
- Forest/Fields
- Agriculture
- Mining
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____
- Other: _____

Site Setting:

- Urban
- **Suburban**
- Rural

Years of Operation:

Beginning Year: 1987

Ending Year: In Use

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):

- Lumber and Wood Products
- Inorganic Chemicals
- Plastic and/or Rubber Products
- Paints/Varnishes
- Industrial Organic Chemicals
- Agricultural Chemicals
- Miscellaneous Chemical Products
- Primary Metals
- Metal Coating, Plating, Engraving
- Metal Forging, Stamping
- Fabricated Structural Metal
- Electronic Equipment

Mining (Must Select a Sub-Category):

- Metals
- Coal
- Oil and Gas
- Non-Metallic Minerals

- Retail
- Recycling
- Junk/Salvage yard
- Municipal Landfill
- Other Landfill
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____

RCRA

- TSDF
- Large Quantity Generator
- Small Quantity Generator
- Subtitle D
- Municipal
- Industrial
- "Converter"
- "Protective Filer"
- "Non or Late Filer"
- Not Specified
- Other: _____

Waste Generated:

- **Onsite**
- Offsite
- Onsite and Offsite

Waste Deposition Authorized By:

- **Present Owner**
- Former Owner
- Present and Former Owner
- Unauthorized
- Unknown

Waste Accessible to the Public:

- Yes
- **No**

Distance to Nearest Dwelling School or Workplace:

0.0 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

- Metals
- Organics
- Inorganics
- Solvents
- Paints/Pigments
- Laboratory/Medical Waste
- Radioactive Waste
- Construction/Demolition Waste
- Pesticides/Herbicides
- Acids/Bases
- Oily Waste
- Municipal Waste
- Mining Waste
- Explosives
- **Other: AFFF**

Physical State of Waste as Deposited (Circle all that apply):

- Solid
- Sludge
- Powder
- **Liquid**
- Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well ____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

973 Feet
0.18 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes
No

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes
No

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB) | Street Address: Platte Avenue & Powers Blvd

City: Colorado Spings | State: CO | Zip Code: 80916 | County: El Paso | Co Code: | Cong. Dist. CO-05

Latitude: 39°49'04.17" N | Longitude: 104°42'07.35" W

Approximate Area of Site: 0.18 Acres; 39,791 Sq. Ft.

Status of Site: **Active** (circled) | Inactive | Not Specified | NA (GW Plume etc.)

Site Name: Building 218, Fire Station #1

Site Description: Spray testing for the department's fire engines is done on the station ramp south of Building 218. This area is well- paved and in good condition, and all runoff is directed into the stormwater management system. During freezing weather, spray testing is conducted in the area of the volleyball court, which is to the south of the bay doors on the airport side of the station. Three crash trucks are stationed at PAFB. They are

- Crash 6, a Rapid Intervention Vehicle (RIV) with a 56-gallon AFFF capacity;
- Crash 4, a P-23 with a 420-gallon AFFF capacity; and
- Crash 3, a P-23 with a 210-gallon AFFF capacity at Station 2.

In addition to the three trucks, the Fire Department maintains a 1,000-gallon AFFF trailer and 600 gallons of ANSUL in drums stored at the main station. A transfer pump is used if AFFF needs to be loaded onto the fire trucks from the drums. A fourth truck, the old Crash 4 vehicle, is at the base motor pool awaiting disposal.

2. Owner/Operator Information

Owner: Peterson Air Force Base | Operator: Same As Owner

Street Address: Platte Avenue & Powers Blvd | Street Address: ----

City: Colorado Spings | City: ----

State: Colorado | Zip Code: 80916 | Telephone: N/A | State: ---- | Zip Code: ---- | Telephone: ----

Type of Ownership:

Private | County
Federal Agency (circled) | Municipal
Name: DOD | Not Specified
State | Other: _____
Indian

Type of Ownership:

Private | County
Federal Agency | Municipal
Name: _____ | Not Specified
State | Other: _____
Indian

3. Site Evaluator Information

Name of Evaluator: Greg Carlson | Agency/Organization: Aerostar SES LLC | Date Prepared: 05-16-16

Street Address: 1006 Floyd Culler Court | City: Oak Ridge | State: TN

Name of EPA or State Agency Contact: N/A | Street Address: N/A

City: N/A | State: N/A | Telephone: N/A

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:

Yes
No

Date: _____

CERCLIS Recommendation:

Higher Priority SI
Lower Priority SI
NFRAP
RCRA
Other _____

Date: _____

Signature:

Name (Typed):

Position:

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial | Mining | Other Federal
Commercial | **DOD** | Facility:_____
Residential | DOE
Forest/Fields | DOI | Other: _____
Agriculture

Site Setting:

Urban
Suburban
Rural

Years of Operation:

Beginning Year: _____
Ending Year: ____In Use____
Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):
Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

_____0.0____ Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill	_____	_____
Surface Impoundment	_____	_____
Drums	_____	_____
Tanks and Non Drum Containers	_____	_____
Chemical Waste Pile	_____	_____
Scrap Metal or Junk Pile	_____	_____
Tailings Pile	_____	_____
Trash Pile (open drum)	_____	_____
Land Treatment	_____	_____
Contaminated GW Plume	_____	_____
Contaminated SW/Sediment	_____	_____
Contaminated Soil	_____	_____
Other	____Unknown_____	_____
No Sources	_____	_____

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals
Organics
Inorganics
Solvents
Paints/Pigments
Laboratory/Medical Waste
Radioactive Waste
Construction/Demolition Waste
Pesticides/Herbicides
Acids/Bases
Oily Waste
Municipal Waste
Mining Waste
Explosives
Other: AFFF

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
Liquid
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well ____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

1,245 Feet
0.24 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes **No**

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°48'25.25" N	Longitude: 104°40'52.24" W	Approximate Area of Site: 0.15 Acres / 6,357 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Building 2032, Fire Station #2

Site Description: Spray testing for the department's fire engines is done on the station ramp east and north of Building 2032. This area is well-paved but not in good condition, with a graveled area next to it. Crash 3, a P-23 with a 210-gallon AFFF capacity is stationed at Station 2

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN
Name of EPA or State Agency Contact: N/A	Street Address: N/A	
City: N/A	State: N/A	Telephone: N/A

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

- **Industrial**
- Commercial
- Residential
- Forest/Fields
- Agriculture
- Mining
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____
- Other: _____

Site Setting:

- Urban
- **Suburban**
- Rural

Years of Operation:

Beginning Year: 1996

Ending Year: In Use

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):

- Lumber and Wood Products
- Inorganic Chemicals
- Plastic and/or Rubber Products
- Paints/Varnishes
- Industrial Organic Chemicals
- Agricultural Chemicals
- Miscellaneous Chemical Products
- Primary Metals
- Metal Coating, Plating, Engraving
- Metal Forging, Stamping
- Fabricated Structural Metal
- Electronic Equipment

Mining (Must Select a Sub-Category):

- Metals
- Coal
- Oil and Gas
- Non-Metallic Minerals

- Retail
- Recycling
- Junk/Salvage yard
- Municipal Landfill
- Other Landfill
- **DOD**
- DOE
- DOI
- Other Federal Facility:_____

RCRA

- TSDF
- Large Quantity Generator
- Small Quantity Generator
- Subtitle D
- Municipal
- Industrial
- "Converter"
- "Protective Filer"
- "Non or Late Filer"
- Not Specified
- Other: _____

Waste Generated:

- **Onsite**
- Offsite
- Onsite and Offsite

Waste Deposition Authorized By:

- **Present Owner**
- Former Owner
- Present and Former Owner
- Unauthorized
- Unknown

Waste Accessible to the Public:

- Yes
- **No**

Distance to Nearest Dwelling School or Workplace:

0.0 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

- Metals
- Organics
- Inorganics
- Solvents
- Paints/Pigments
- Laboratory/Medical Waste
- Radioactive Waste
- Construction/Demolition Waste
- Pesticides/Herbicides
- Acids/Bases
- Oily Waste
- Municipal Waste
- Mining Waste
- Explosives
- **Other: AFFF**

Physical State of Waste as Deposited (Circle all that apply):

- Solid
- Sludge
- Powder
- **Liquid**
- Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

If Yes, Distance to Nearest Drinking Well

---- Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population

440,000 People

Depth to Shallowest Aquifer:

43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

4,140 Feet
0.78 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake

40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:

_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes
No

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes
No

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°48'40.09" N	Longitude: 104°41'41.18" W	Approximate Area of Site: 2.41 Acres / 104,927 Sq. Ft.	Status of Site: **Active** / Inactive	Not Specified / NA (GW Plume etc.)	

Site Name: Detention Pond #3

Site Description: Pond #3 is in the southern portion of PAFB between the aircraft taxiway and the golf course. Pond 3 is a lined detention pond that receives the majority of the stormwater from the industrialized portion of PAFB. Adjacent to the southwest of Detention Pond #3 is an unlined overflow pond. If Pond #3 gets too full, it will dispense water through Outfall #4 into the overflow pond. Outfall #5 is on the western side of the secondary pond. Both outfalls show evidence of use. Water from Pond #3 is used to irrigate the adjacent golf course.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:	Not Specified
State	Other:	State	Other:
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date:	Other	
	Date:	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial
Commercial
Residential
Forest/Fields
Agriculture
Mining
DOD
DOE
DOI
Other Federal Facility:_____
Other: _____

Site Setting:

Urban
Suburban
Rural

Years of Operation:

Beginning Year: 1979
Ending Year: In Use
Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
Lumber and Wood Products
Inorganic Chemicals
Plastic and/or Rubber Products
Paints/Varnishes
Industrial Organic Chemicals
Agricultural Chemicals
Miscellaneous Chemical Products
Primary Metals
Metal Coating, Plating, Engraving
Metal Forging, Stamping
Fabricated Structural Metal
Electronic Equipment

Mining (Must Select a Sub-Category):
Metals
Coal
Oil and Gas
Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
TSDF
Large Quantity Generator
Small Quantity Generator
Subtitle D
Municipal
Industrial
"Converter"
"Protective Filer"
"Non or Late Filer"
Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

0.27 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

Metals
Organics
Inorganics
Solvents
Paints/Pigments
Laboratory/Medical Waste
Radioactive Waste
Construction/Demolition Waste
Pesticides/Herbicides
Acids/Bases
Oily Waste
Municipal Waste
Mining Waste
Explosives
Other: AFFF

Physical State of Waste as Deposited (Circle all that apply):

Solid
Sludge
Powder
Liquid
Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:

Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

0.0 Feet
0.0 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake
440,000 est. People

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No** If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes **No**

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes **No**

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes **No**

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: CO | CERCLIS #:

CERCLIS Discovery Date:

1. General Site Information

Name: Peterson Air Force Base (PAFB)		Street Address: Platte Avenue & Powers Blvd			
City: Colorado Spings	State: CO	Zip Code: 80916	County: El Paso	Co Code:	Cong. Dist. CO-05
Latitude: 38°48'59.12" N	Longitude: 104°41'46.39" W	Approximate Area of Site: 137 Acres; 5,984,255 Sq. Ft.	Status of Site: **Active** (circled); Inactive	Not Specified; NA (GW Plume etc.)	

Site Name: PAFB Golf Course and Former Leach Field

Site Description: The golf course at PAFB is still in use, and the grass for the fairways is maintained with water from Pond #3, the primary drainage point for the industrial portion of PAFB. Water from Pond #3 is not treated for AFFF. The former Leach Field at PAFB was active from 1956 until 1978. Two different years for the termination of use are listed in the 1989 RI. The Leach Field served as a final point to which all industrial runoff was routed. In 1978 the industrial runoff from PAFB was connected to the sanitary sewer line, and the Leach Field decommissioned. In the intervening years, the PAFB Golf Course has been built over the site.

2. Owner/Operator Information

Owner: Peterson Air Force Base			Operator: Same As Owner		
Street Address: Platte Avenue & Powers Blvd			Street Address: ----		
City: Colorado Spings			City: ----		
State: Colorado	Zip Code: 80916	Telephone: N/A	State: ----	Zip Code: ----	Telephone: ----

Type of Ownership:		Type of Ownership:	
Private	County	Private	County
Federal Agency (circled)	Municipal	Federal Agency	Municipal
Name: DOD	Not Specified	Name:_____	Not Specified
State	Other: _____	State	Other: _____
Indian		Indian	

3. Site Evaluator Information

Name of Evaluator: Greg Carlson	Agency/Organization: Aerostar SES LLC	Date Prepared: 05-16-16	
Street Address: 1006 Floyd Culler Court	City: Oak Ridge	State: TN	
Name of EPA or State Agency Contact: N/A	Street Address: N/A		
City: N/A	State: N/A	Telephone: N/A	

4. Site Disposition (*for EPA use only*)

Emergency Response Removal Assessment Recommendation:	CERCLIS Recommendation:	Signature:
Yes	Higher Priority SI	
No	Lower Priority SI	Name (Typed):
	NFRAP	
	RCRA	Position:
Date: _____	Other _____	
	Date: _____	

5. General Site Characteristics

Predominant Land Use Within 1 Mile of Site:

Industrial
Commercial
Residential
Forest/Fields
Agriculture

Mining
DOD
DOE
DOI

Other Federal Facility:_____

Other: _____

Site Setting:

Urban
Suburban
Rural

Years of Operation:

Beginning Year: 1977

Ending Year: In Use

Unknown

Type of Site Operations (Circle All that Apply):

Manufacturing (Must select a sub-category):
- Lumber and Wood Products
- Inorganic Chemicals
- Plastic and/or Rubber Products
- Paints/Varnishes
- Industrial Organic Chemicals
- Agricultural Chemicals
- Miscellaneous Chemical Products
- Primary Metals
- Metal Coating, Plating, Engraving
- Metal Forging, Stamping
- Fabricated Structural Metal
- Electronic Equipment

Mining (Must Select a Sub-Category):
- Metals
- Coal
- Oil and Gas
- Non-Metallic Minerals

Retail
Recycling
Junk/Salvage yard
Municipal Landfill
Other Landfill
DOD
DOE
DOI
Other Federal Facility:_____

RCRA
- TSDF
- Large Quantity Generator
- Small Quantity Generator
- Subtitle D
- Municipal
- Industrial
- "Converter"
- "Protective Filer"
- "Non or Late Filer"

Not Specified
Other: _____

Waste Generated:

Onsite
Offsite
Onsite and Offsite

Waste Deposition Authorized By:

Present Owner
Former Owner
Present and Former Owner
Unauthorized
Unknown

Waste Accessible to the Public:

Yes
No

Distance to Nearest Dwelling School or Workplace:

>0.5 Miles

6. Waste Characteristics Information (Refer to PA Table 1 for WC Score)

Source Type (Select all that apply)	*Source Waste Quantity (Include Units)*	*Tier**
Landfill		
Surface Impoundment		
Drums		
Tanks and Non Drum Containers		
Chemical Waste Pile		
Scrap Metal or Junk Pile		
Tailings Pile		
Trash Pile (open drum)		
Land Treatment		
Contaminated GW Plume		
Contaminated SW/Sediment		
Contaminated Soil		
Other	Unknown	
No Sources		

*C=Consultant, W=Wastestream, V=Volume, A=Area

General Type of Waste (Circle all that Apply)

- Metals
- Organics
- Inorganics
- Solvents
- Paints/Pigments
- Laboratory/Medical Waste
- Radioactive Waste
- Construction/Demolition Waste
- Pesticides/Herbicides
- Acids/Bases
- Oily Waste
- Municipal Waste
- Mining Waste
- Explosives
- **Other: AFFF**

Physical State of Waste as Deposited (Circle all that apply):

- Solid
- Sludge
- Powder
- **Liquid**
- Gas

7. Groundwater Pathway

Is Groundwater Used for Drinking Within 4 Miles

Yes
No

If Yes, Distance to Nearest Drinking Well
____ Miles

Type of Drinking Water Wells Within 4 Miles (Circle Each that Applies)

Municipal
Private
None

Depth to Shallowest Aquifer:
43-55 feet

Karst Terrain/Aquifer Present:
Yes
No

Is There a Suspected Release to Groundwater:

Yes
No

Have Primary Target Drinking Water Wells Been Identified:

Yes
No

If Yes, Enter Primary Target Population
440,000 People

Nearest Designated Wellhead Protection Area:

Underlies Site
>0-4 Miles
None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0.0-0.25 Mile	----
>0.25 - 0.5 Mile	----
>0.5 - 1.0 Mile	----
>1.0 - 2.0 Mile	----
>2.0 - 3.0 Mile	----
>3.0 - 4.0 Mile	----
Total within 4 Miles	----

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream:

Stream River **Pond** **Lake**
Bay Ocean Other _____

Shortest Overland Distance From Any Source to Surface Water:

>1,000 Feet
>0.25 Miles

Is There as Suspected Release to Surface Water:

Yes
No

Site is Located in:

Annual - 10 yr. Floodplain
>10 yr. - 100 yr. Floodplain
>100 yr. - 500 yr. Floodplain
> 500 yr. Floodplain

Drinking Water Intake Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Drinking Water Intakes Been Identified:

Yes
No

If Yes, Distance to Nearest Drinking Water Intake
40 Miles

If Yes, Enter Population Served By Target Intake

_____

List All Secondary Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----
----	----	----	----

Total Within 15 Miles 0

Fisheries Located Along the Surface Water Migration Path:

Yes **No**

If Yes, Distance to Nearest Fishery:
_____ Miles

Have Primary Target Fisheries Been Identified:

Yes **No**

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
----	----
----	----
----	----

8. Surface Water Pathway (Continued)

Wetlands Located Along the Surface Water Migration Path:

Yes
No

Have Primary Target Wetlands Been Identified

Yes
No

List All Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Wetlands and Waters of the US	Unknown	Unknown

Other Sensitive Environments Located Along the Surface Water Migration Path:

Migration Path

Yes
No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Sensitive Environments Been Identified:

Yes
No

List All Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
----	----	----
----	----	----
----	----	----

9. Soil Exposure Pathway

Are People Occupying Residence or Attending School or Daycare on or Within 200 Feet of Area of Known or Suspected Contamination:

Yes
No

If Yes, Enter Total Residential Population:

_____ People

Number of Workers Onsite:

None
1-100
101-1,000
>1,000

Population Within 1 Mile:

_____ People

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:

Yes
No

If Yes, List Each Terrestrial Sensitive Environment:

_____

10. Air Pathway

Is There A Suspected Release to Air:

Yes
No

Enter The Population on or Within:

0.0-0.25 Mile	_____
>0.25 - 0.5 Mile	_____
>0.5 - 1.0 Mile	_____
>1.0 - 2.0 Mile	_____
>2.0 - 3.0 Mile	_____
>3.0 - 4.0 Mile	_____
Total within 4 Miles	_____

Wetlands Located within 4 Miles of the Site:

Yes
No

If Yes, How Many Acres:

101 Acres

Other Sensitive Environments Located Within 4 Miles of the Site

Yes
No

List All Sensitive Environments Within 0.5 Mile of the Site

Distance	Sensitive Environment Type/Wetlands Area (Acres)
Onsite	
0 - 0.25 Mile	
>0.25 - 0.5 Mile	

Appendix D

Aerostar SES LLC March 2016 Peterson Air Force Base Site Visit Notes

Peterson AFB PA Site Visit

Personnel:

- Brian Odom — bodom@specproenv.com — (478)397-4906
  ASL Project Manager
- Greg Carlson — gcarlson@specproenv.com — (865) 368-3112
  ASL Field Operations
- Ron Porter — Ronald.porter@noblis.org
  Noblis
- Fred Brooks — Frederick.brooks@us.af.mil — (719) 556-6100
  Environmental Element Chief
- Sharon Stone — Sharon.stone@us.af.mil — (719) 554-5819
  ERA Program Manager
- Sylvette Rivera — sylvette.rivera-eliza@us.af.mil — (719) 556-1410
  Environmental Engineer

General Notes

The Peterson AFB Preliminary Assessment was conducted March 23-24, 2016. Peterson Air Force Base (PAFB) shares facilities with the Colorado Springs Municipal Airport. The delineating line between the two facilities is Taxiway Bravo. Runways are shared between the two facilities with the city of Colorado Springs retaining ownership.

Drinking water for the PAFB is supplied by the city of Colorado Springs. The facility has never had a wastewater treatment plant (WWTP). There is a register of public and private wells for the area available to the public. This register is primarily concerned with water rights management, which is of concern in the area.

Colorado, as a state, has conducted some PFC sampling in the area already. These results were provided to ASL during the visit.

Sylvette Rivera (CEIE) is the environmental engineer on staff responsible for the stormwater management system at PAFB. The stormwater system is divided into three management units: North, East, and Central. The central unit encompasses the majority of the working facilities at PAFB and drains to Pond #3, which is a lined detention pond at the southern end of the facility. Pond #3 does have a spillway leading to an unlined overflow area. The northern unit flows to Detention Pond #2, also known as Sand Creek. The eastern unit drains to the Peterson East detention pond as well as outfalls. Six outfalls are sampled on a quarterly basis for NPDES permitting purposes. Of these outfalls, the majority of the drainage from the facility goes to Outfall #4.

Buildings of concern in the central section of the facility are Hangars 140, 133, 126, 130, 123, 122, 121, 119, and 214 along with Building 216 which is the current Fire Station. The eastern unit has one building of concern, Building 2032, which is a newly constructed fire station. The northern unit primarily consists of family housing and has never had any buildings or facilities with AFFF. Two areas of concern that are not within PAFB boundaries are the current and former fire training areas (FTAs). These are ERP sites 08 and 05 respectively.

Drainage from all of the hangars on the facility goes to a 146,000-gallon underground storage tank (UST) near Building 210. On the northeastern side of the tank, an exit pipe flows to an oil water separator that treats the water from the UST before releasing it to the sanitary sewer.

The Civil Engineering group at PAFB is responsible for spill response and the testing of all AFFF systems. Currently there are five AFFF systems installed at PAFB. Hangar 121 has a 500 gallon tank of 3% AFFF, Hangar 133 has an 800 gallon tank of 3% AFFF, Hangar 140 has an 800 gallon tank of 3% AFFF, Hangar 210 has two 1,100 gallon tanks of 3% AFFF and Hangar 214 has one 2,000 gallon tank of 3% AFFF.

During work on the public side of the airfield, personnel must be escorted by an airport representative or base personnel that take the airport's training class. This person will be allowed to escort a maximum of 5 people at one time.

Groundwater in the area of PAFB is at approximately 100 feet below ground surface (BGS).

Fire Department Visit March 23, 2016 at 1330

- Craig Powell

Assistant Fire Chief (Training Officer)

- Burke Ferrin burke.ferrin@us.af.mil

Assistant Fire Chief for Operations

Assistant Chief Craig Powell is the training officer for PAFB Fire Department. Assistant Chief Burke Ferrin is the Assistant Chief for Operations for the PAFB Fire Department.

According to Chief Powell, the current FTA was installed in the early 1990s and has a liner. AFFF has been used at the FTA twice since the beginning of his tenure in 2005, and during both instances of use, all AFFF was contained within the lined portion of the pit.

Spray testing for the department's fire engines is done on the station ramp south of Building 218. This area is well paved and in good condition, with all runoff being directed into the stormwater management system. During freezing weather, spray testing is conducted in the area of the volleyball court which is to the south of the bay doors on the airport side of the station.

A second fire station was built in 1996 on the eastern side of the installation to enable quicker response times. This is Building 2032.

According to Assistant Chief Ferrin, the system installed in Building 140 is High Expansion Foam (HEF) and was installed in approximately 2007. Prior to that the fire suppression system in that building relied exclusively on water. Base plumbing maintains the plumbing related systems for all of the fire suppression systems while base utilities maintain the electrical and mechanical portions of the fire suppression systems.

The systems that are installed in Hangar 210 and Hangar 214 recently tripped and dispensed through the underwing nozzles. The system at Hangar 214 was rebuilt by Western States Fire Protection Company 12-13 years ago.

Three crash trucks are currently stationed at PAFB. They are

- Crash 6, a Rapid Intervention Vehicle (RIV) with a 56-gallon AFFF capacity;

- Crash 4, a P-23 with a 420-gallon AFFF capacity; and
- Crash 3, a P-23 with a 210-gallon AFFF capacity at Station 2.

In addition to the three trucks the Fire Department maintains a 1,000-gallon AFFF trailer and 600 gallons of ANSUL in drums stored at the main station. A transfer pump is used in the event that AFFF needs to be loaded onto the fire trucks from the drums. A fourth truck, the old Crash 4 vehicle, is currently at the base motor pool awaiting disposition.

Emergency Response

The only emergency response reported during the PA visit was the Mooney crash, which occurred on December 23, 2010. A Mooney aircraft is a small single prop airplane that can carry up to four passengers. The crash occurred just north of runway 17L and foam was applied. The total volume of foam applied is unknown because the P-23 that responded to the crash had a stuck valve and was not metering properly at the time. According to Assistant Chief Powell, who looked up the report in the PAFB incident logs, at least 100 gallons of AFFF were released.

Other incidents involving the use of foam may have occurred; however, records of such incidents were not available.

Base Utilities, Interview conducted on 03-24-2016

John Heimer, PAFB Utilities (Wastewater)

Mr. Heimer has been at PAFB since 2009, working in the wastewater portion of base utilities. He will be providing us with access to all the hangars of interest during the day's tour of facilities with AFFF systems installed. Hangars to be visited include 119, 121, 133, 210, and 214. During the initial interview with Mr. Heimer he stated that Hangar 140 has a Hi-Ex system, and it has never had any other type of foam suppression system installed.

When interviewed in detail about the sewer system at PAFB Mr. Heimer stated that PAFB has an industrial sewer system which functions as a collection system. The primary sewer trunk runs parallel to the flightline and begins near Hangar 140 before ending near Hangar 210 and emptying into the 146,000 gallon UST. This UST empties into a 3 stage OWS before discharging to the sanitary sewer.

Mr. Heimer is also responsible for the testing and maintenance of the foam suppression systems installed at PAFB. During conversation he pointed out that prior to testing he seals any apparent gaps in the hangar doors, thus forcing all foam that is expended into the drains installed at each hangar. These drains tie into the main sewer trunk that empties into the UST near Hangar 210. During the tour, a recently tested system still had containment boom laid out following the test. Mr. Heimer conducts system tests once every 5 years for each system. All hangars have been tested twice since 2009. During one test on October 6, 2015 a small amount of foam leaked onto the apron in front of Hangar 214.

Building 140

Building 140 is an aircraft hangar on the northeastern side of the aircraft apron. A Hi-Ex system was installed in 2007. Previously the system relied on water only for fire suppression.

Hangar 133

Hangar 133 is on the northern end of the parking apron, just south of Hangar 140. Hangar 133 is home to the PAFB Aero Club, and has a newly refitted AFFF system that utilizes an 800 gallon storage tank of 3% AFFF. At the time of the PA visit, the tank was filled to approximately 675 gallons. One 55 gallon plastic drum of Ansulite (3% AFFF) was found in the mechanical room during the PA visit. The system froze in 2011 or 2012 and released a small amount of AFFF into the mechanical room. The fire suppression

system dispenses from a series of sprinkler heads that run in parallel along the beams of the overhead trusses. There are no underwing cannons or other, more modern, dispensing systems at this facility.

Hangar 121

Hangar 121 is on the northeast side of the aircraft apron south of Hangar 133. The fire suppression system at Hangar 121 uses a 500-gallon tank of 3% AFFF that was filled with approximately 450 gallons of material at the time of the site visit. During the site visit, remnants of a previous test were apparent. Containment booms, as mentioned previously by Mr. Heimer, were still present. Though not fully inflated at the time of the visit, it was apparent that testing conducted at PAFB is done in a manner to prevent releases to the environment. There have been no recorded accidental releases at this location. The fire suppression dispersion system at Hangar 121 operates in the same manner as the system at Hangar 133 with sprinkler heads running parallel to overhead trusses.

Hangar 119

Hangar 119 formerly had an AFFF system but it has since been converted to a wet system. Remaining on site are the pumps and a 300 gallon tank with a small volume of residual AFFF in the bottom. No further information on this building was available.

Hangar 214

Hangar 214 is centrally located on the eastern side of the aircraft apron. The fire suppression system consists of a 2,000 gallon tank of 3% AFFF and two underwing cannons for dispersion within the hangar. There is no overhead dispersion system. At the time of the PA visit there were approximately 1,100 gallons of AFFF concentrate stored in this tank. On an unknown date the system tripped, and a small amount of AFFF leaked out the hangar doors. The area in front of the hangar is paved with concrete in good condition. A drain leading to the main storm sewer is northwest of the hangar and the concrete is sloped in that direction.

Hangar 210

Hangar 210 is centrally located on the eastern side of the aircraft apron south of Hangar 214. Hangar 210 is a two bay hangar with two independent AFFF fire suppression systems, one for each hangar bay. Bay 1 is on the south side of the building, Bay 2 is on the north side. Each bay has two underwing cannons for foam dispersion. In late 2014 the system in Bay 2 tripped releasing AFFF into the hangar. According to Mr. Heimer a steam cleaner near the manual release switch in the bay was being used and too much water got into the control panel causing the system to release. All of the foam that was released was contained within the hangar.

Pond 3

Pond 3 is in the southern portion of PAFB between the aircraft taxiway and the golf course. Pond 3 is a lined detention pond that receives the majority of the stormwater from PAFB. Adjacent to the southwest of detention pond #3 is an unlined overflow pond. In the event that Pond #3 gets to full, it will dispense water through Outfall #4 into the overflow pond. Outfall #5 is on the western side of the secondary pond. Both outfalls show evidence of use. Water from Pond #3 is used to irrigate the adjacent golf course.

Current FTA

The current FTA, which is in the northern portion of the facility, is a lined fire training pit with an aircraft mockup in the center. The fires used for training activities are generated with propane, and water is used to extinguish training fires. This FTA was installed in the early 1990's. Two instances of AFFF use were reported by Assistant Chief Powell since the beginning of his tenure, however all dispensed foam was contained within the lined pit. Water generated from training activities is pumped into an enclosed holding tank on the southern side of the training area. This holding tank used to have a sediment separator and OWS associated with it though these have since been removed. The holding tank is occasionally

drained into the sanitary sewer system but the occurrence of such events is rare. Several empty ANSUL AFFF drums were observed on site. Assistant Chief Powell stated that these drums were triple rinsed before being stored at this location.

Site 5

Site 5 (FT002) is a former fire training area near the end of Runway 31 and the golf course. The FTA was active from the 1960's through 1977 and consisted of a shallow unlined burn pit. Originally at the same elevation as the golf course, the area has been filled in some areas to provide for the installation of the taxiways and runway. The FTA followed standard operating procedures of the time by having a shallow burn pit excavated and burning JP-4, waste oils, and solvents for training fires.

Site 8

Site 8 is a former fire training area, also known as Rapier Area 6, along the southeastern boundary of PAFB. Site 8 (FT003) consisted of two areas, a burn pit and a drainage area for water from a collocated OWS. Site 8 was active from 1977 to 1989. The site was decommissioned to allow for the expansion of the Colorado Springs Municipal Airport. In accordance with standard practice at the time JP-4, waste oils, and solvents were burned in the pit to create training fires.

Building 2032, Fire Station #2

Fire Station #2 is in the eastern portion of PAFB. One truck, Crash 3, is stationed at this facility to enable rapid response to runway incidents. Details of Crash 3 can be found in the section reporting on the interview with fire department personnel. Spray testing is conducted on the eastern side of the building over the concrete areas along the road leading to the airfield.

Information received during Draft PA comment period

The following information was provided by Jeff Bohn during the comment period on the Draft Preliminary Assessment for Perfluorinated Compounds at Peterson Air Force Base. The information provided was integrated into the Final Preliminary Assessment for Perfluorinated Compounds at Peterson Air Force Base where applicable.

Here are some things to consider, having read the report;

-We abandoned use of the Site 8 pit in late 1991/early 1992 -- I used this pit for fires during that time.

-The new pit became fully operational in 1991/92.

-The new pit was originally a hydrocarbon fuel pit that was converted in 1999 to propane. We burnt a lot of fuel from '92 to '94 when I was there.

-We used foam during pit fires when it was a hydrocarbon pit -- many more than twice.

-We trained approximately 19 civilian Colorado airports' firefighters for four or five years; about 600 to 800 firefighters including area DOD. Not a lot of foam was used as it made the fires hard to relight -- but there was a fair amount used.

-The civilian airport firefighters used the base's foam with the Centennial Airport's Titan trucks.

-There is/was a fuel/water separator at the pit and the water separated was into the sanitary sewer.

-Firefighters did foam checks on the apron, but they also did foam checks down by Bldg. 104 -- it was very common for firefighters to irrigate wildlife in that area.

-The fire department sent foam use reports to AFCESA. There is a record of use for the past decade.

-I am not seeing in the report where the foam in the hangars or the fire station is post-2002 era foam, or if we are still in custody of that foam.

My information is based on being stationed here from Sept. 13, 1991 to April 1994. I was a firefighter here -- assistant chief to be precise. I worked operations from my arrival until I deployed in June 1992. I returned from Saudi Arabia in October 1992 and worked operations for a short time until I became the assistant chief for fire prevention. I was an EET member with the training chief -- Cindy Litteral. That's the person you need to talk with.

As far as using AFFF twice on the pit ... I fought fire on the old pit in '91, and I fought fire in the new pit when it became active in '92. Even though my primary duty was fire inspector, we still had to perform fires to maintain our certifications as well as our Prime BEEF qualifications – I put foam on the fires multiple times in the years I was here.

Sites that will move on to the SI phase of the CERCLA process

1) Site 5
2) Site 8
3) Fire Station No. 1 (focusing on the volleyball court area)
4) Pond 3
5) Golf Course and Former Leach Field
6) Building 2032, Fire Station #2