

**FINAL
PRELIMINARY ASSESSMENT REPORT
FOR PERFLUORINATED COMPOUNDS
AT
TRAVIS AIR FORCE BASE
FAIRFIELD, CALIFORNIA**

Prepared for:



**Air Force Civil Engineer Center
2261 Hughes Avenue, Suite 155
Lackland AFB, Texas 78236-9853**

**Contract No. FA8903-08-D-8772
Task Order 0065
CDRL A001A**

May 2015

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May 2015

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REPORT DOCUMENTATION PAGE			Form Approved	
			QMB No. 0704-0188	
Public reporting for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1024, Arlington, VA 22202-1302, and to the Office of Management and Budget, Paperwork Reduction Project (0704B0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE		3. REPORT TYPE AND DATES COVERED
		May 2015		FINAL
4. TITLE AND SUBTITLE			5. FUNDING NUMBERS	
Preliminary Assessment Report for Perfluorinated Compounds at Travis Air Force Base, Fairfield, California			Contract No. FA8903-08-D-8772 Delivery Order No. 0065	
6. AUTHOR(S)				
HydroGeoLogic, Inc.				
7. PERFORMANCE ORGANIZATION NAMES(S) AND ADDRESS(S)			8. PERFORMANCE ORGANIZATION REPORT NUMBER	
HydroGeoLogic, Inc. 404 East Ramsey Road, Suite 210 San Antonio, Texas 78216			AF5065	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(S)			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
AFCEC/EXEW 2261 Hughes Avenue, Suite 155 Lackland AFB, Texas 78236-9853			A001A	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT			12b. DISTRIBUTION CODE	
Unlimited				
13. ABSTRACT (Maximum 200 words)				
This is a Preliminary Assessment Report of sites or locations at Travis AFB where perfluorinated compounds may have been released to the environment through the use or discharge of aqueous film-forming foam.				
14. SUBJECT TERMS			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE.	19. SECURITY CLASSIFICATION OF ABSTRACT.	20. LIMITATION OF ABSTRACT.	
Unclassified	Unclassified	Unclassified	Unlimited	

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LIST OF ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFFF	aqueous film-forming foam
Base	Travis Air Force Base
bgs	below ground surface
CE	Civil Engineering
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CGWTP	Central Groundwater Treatment Plant
DPT	direct push technology
EDR	Environmental Data Resources, Inc.
ERP	Environmental Restoration Program
FTA	Fire Training Area
GAC	granular activated carbon
HGL	HydroGeoLogic, Inc.
LRS	Logistics Readiness Squadron
OWS	oil-water separator
µg/L	microgram(s) per liter
PA	preliminary assessment
PFC	perfluorinated compound
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PHA	Public Health Advisory
RI	Remedial Investigation
RSSL	Residential Soil Screening Level
SCF	SES Construction and Fuel Services, LLC
SI	Site Inspection
STP	sewage treatment plant
TSDF	Treatment Storage and Disposal Facility
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
Weston	Roy F. Weston, Inc.

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PRELIMINARY ASSESSMENT REPORT
FOR PERFLUORINATED COMPOUNDS
TRAVIS AIR FORCE BASE
FAIRFIELD, CALIFORNIA**

1.0 INTRODUCTION

The Air Force Civil Engineer Center (AFCEC) contracted with HydroGeoLogic, Inc. (HGL) and subcontractor CH2M HILL (the HGL Team) to perform preliminary assessment (PA) activities at multiple U.S. Air Force (Air Force or USAF) and Air National Guard (ANG) Fire Training Areas (FTAs) to determine probable environmental release of perfluorinated compounds (PFCs). Specifically, HGL is completing PA activities consistent with the U.S. Environmental Protection Agency (USEPA) Guidance for Preparing Preliminary Assessments under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (USEPA, 1991) to determine potential releases of PFCs at 82 Air Force and ANG installations from FTAs and other known and suspected PFCs or aqueous film-forming foam (AFFF) usage or storage areas. The work is being performed by HGL and their team subcontractor, CH2M HILL, under the existing 4P Architecture and Engineering Contract, Contract Number FA8903-08-D-8772, Task Order 0065.

Under authority of CERCLA and the Superfund Amendments and Reauthorization Act of 1986, CH2M HILL conducted a PA visit at Travis Air Force Base (AFB) during the week of February 2, 2015. Travis AFB is an active installation in Solano County, California. The location of Travis AFB and the locations identified on Travis AFB during this PA visit are shown on Figure 1.1

1.1 BACKGROUND

PFCs are compounds used in the formulation of AFFF, which the Air Force 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 perfluorooctane sulfonate (PFOS) (and less so perfluorooctanoic acid [PFOA]) is a possible environmental contaminant following AFFF release. Both compounds may present potential, non-carcinogenic risks to human health and the environment (Chang et al., 2014; Porter, 2011; Rak and Vogel, 2009; USAF, 2012).

Several federal government documents confirm the initial use of AFFF by the Air Force 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
- A History of USAF Fire Protection Training at Chanute Air Force Base, 1964-1976 (Coates, 1977)

Based on Air Force performance testing results on AFFF, the Air Force Director of Civil Engineering, M.G. Goddard, issued authorization in 1970 for the Air Force to procure AFFF. No usage within the Air Force is documented or suspected prior to 1970.

1.2 PURPOSE AND OBJECTIVES

The objective of this PA Report is to identify locations at Travis AFB where PFCs may have been released into the environment and to provide an initial assessment of possible migration pathways and receptors of potential contamination.

This PA Report documents the known FTAs, as well as additional locations where AFFF may have been released into the environment at Travis AFB (Table 1.1). The purpose of the PA is to determine the potential environmental release of PFCs specifically from AFFF usage and storage. This PA Report differentiates locations that pose little or no potential threat to human health and the environment from locations that warrant further investigation.

1.3 BASEWIDE ENVIRONMENTAL SETTING

A detailed description of the topography, soil types, surface water, and stormwater is in the Travis AFB 2013 Annual Groundwater Remediation Implementation Status Report (CH2M HILL, 2014) and is summarized in the sections below.

1.3.1 Geology

Travis AFB is on the western edge of the Sacramento Valley segment of the Great Valley Geomorphic Province. The Great Valley Geomorphic Province is a southeast-trending, sediment-filled basin. The Coast Range Geomorphic Province, which consists of folded and uplifted bedrock mountains, lies to the west of Travis AFB.

The geomorphology of Travis AFB is characterized by gently sloping alluvial plains and fans overlying undulating bedrock. Coalescing, low-relief fans were deposited by the Ulatis, Union, Alamo, Laurel, and Suisun Creeks in the area. Most of the alluvial material was deposited before the last period of glaciation during the Pleistocene Epoch and is referred to as Older Alluvium. Drainages were incised into the alluvial fans during the last glaciation in response to the global lowering of the sea level. During the last 15,000 years, as sea levels have risen, the drainages have refilled with alluvium. This material is referred to as Younger Alluvium. Topographic relief in the form of low ridges is provided by outcrops of sedimentary rocks characterized as bedrock in the Travis AFB area. These outcrops are mantled by colluvium deposited by sheetwash and mass wasting from the ridges. The colluvium interfingers with the alluvium, and the two units are indistinguishable in the field.

Older Alluvium makes up most of the sediment found on the Base. Alluvium beneath Travis AFB ranges in thickness from 0 to about 100 feet, but the alluvium thickness is typically about 20 to 50 feet. The alluvium is underlain by bedrock consisting of semi-consolidated to consolidated sedimentary units; the alluvium and bedrock are sometimes difficult to distinguish in the field. The alluvium consists primarily of silts and clays that are low in permeability and do not transmit groundwater readily. More permeable units, such as sands and gravels, are geographically restricted and occur as lenses rather than as continuous beds. The coarser-grained lenses typically cannot be correlated between data points.

**Table 1.1
Fire Training Areas and Non-Fire Training Areas Identified for Potential
AFFF Releases, Travis AFB, California**

Fire Training Areas
FT002 (FTA-1)
FT003 (FTA-2)
FT004 (FTA-3)
FT005 (FTA-4)
Current FTA
Non-Fire Training Areas
Hangars
Buildings 14, 808, 809, 810, 811, 818, and 837
Fire Stations
Fire Station 1 (Building 175)
Fire Station 2 (Former Building 560)
Fire Station 3 (Building 1380)
Fire Station 4 (Building 895)
Fire Station 5 (Building 38)
Emergency Response
1974 DC-8 Fire
1982/1983 C-5 Crash
1986 C-141B Accident
1987 L-100 Crash
1988 C-5 Fire
Late 1980s C-141B Crash
1993 C-141B Fire
2001 Aircraft Crash
2014 Boeing E75 Crash (Air Show)
Other
60th Logistic Readiness Squadron Base Supply (Building 549)
Civil Engineering Utility Shop (Building 176)
Hazardous Waste Treatment Storage and Disposal Facility (Building 1365)
Nozzle Spray Test Area (900 Ramp)
Former Sewerage Treatment Plant and Sludge Disposal Area
Union Creek Outfalls 1 and 2

Alluvium was carried in several streams (such as Union Creek) that have migrated laterally across the Base over time. Coarse sands and gravels are deposited in the streambed and immediately adjacent to the stream levee; finer silts and clays are deposited away from the stream during flood events. Consequently, the discontinuous sand lenses are usually elongated parallel to streams and are contained in an overall matrix of fine-grained silts and clays in the vicinity of Travis AFB. Sand lenses throughout the Base trend south-southeast. These discontinuous permeable zones are preferential pathways that create anisotropic groundwater flow in the horizontal plane.

Bedrock in the area includes Tertiary and Pliocene sedimentary rocks overlying Late Cretaceous sedimentary rocks. Individual stratigraphic units outcropping on the Base include, from oldest to youngest, the Domengine Sandstone, the Nortonville Shale, the Markley Sandstone, and the Tehama Formation. Outcrops of the relatively resistant bedrock units form most of the topographic high points on the Base.

The northwest-southeast trending axes of folds in the rocks are evident in the bedrock outcrops on the Base. Erosion of the less-resistant bedrock units, such as the Nortonville Shale, formed the low areas that were later filled with alluvium. These valleys, created by down-cutting of ancient streams into the folded bedrock during the Pleistocene Epoch, are filled with alluvium, as described. The folded units are observed to plunge to the southeast; the depth to bedrock in the alluvium-filled valleys increases to the south (CH2M HILL, 2014).

1.3.2 Hydrogeologic Setting

Travis AFB is located along the eastern edge of the Fairfield-Suisun Hydrologic Basin, a hydrologically distinct structural depression adjacent to the Sacramento Valley segment of the Central Valley Province. The primary water-bearing deposits at Travis AFB are the coarse-grained sediment lenses (sand and gravel) within the extremely heterogeneous Older Alluvium and Younger Alluvium. On the Base, alluvium reaches a maximum thickness of about 100 feet. The depth to bedrock, although variable, is typically around 40 to 60 feet below ground surface (bgs). However, bedrock was encountered as deep as 100 feet bgs in the southwestern portion of the Base.

Groundwater usually fluctuates from 2 to 5 feet in most wells between fall and spring, with the maximum elevations in spring and the minimum elevations in fall. The depth to groundwater is generally 6 to 20 feet bgs, with the exception of the northwest corner of the Base where groundwater was encountered up to 40 feet bgs. The regional groundwater gradient is generally toward the south or southeast. Groundwater recharge occurs from the direct infiltration of rainfall on the valley surface and from the infiltration of runoff through local streambeds and creek beds. Natural groundwater discharge occurs at the marshlands near Potrero Hills, south of Travis.

The groundwater flow system at Travis AFB is influenced by the configuration of alluvium and bedrock at the Base. Flow within the alluvium is consistently to the south; however, three groundwater mounds exist on Base. Groundwater in the immediate vicinity of a mound flows radially away from the mound and then rejoins the regional southerly flow. This flow occurs because bedrock geologic materials in the vicinity of the mound are less permeable than materials surrounding the mound.

Groundwater is found under unconfined or semi-confined conditions and flows in a predominantly horizontal direction. Typical groundwater flow rates in the alluvium in the Base area are on the order of 100 to 200 feet per year, assuming an effective porosity of 20 percent, which is typical for the fine-grained sediments encountered at the Base (CH2M HILL, 2014).

The Travis AFB drinking water is purchased from the City of Vallejo Water Department and California State Water Project that originates in Lake Oroville and flows through the Sacramento River to the North Bay Aqueduct pumping facility then to the water treatment plant located on Base. The treatment plant also receives surface water from the Solano Project, which provides water from Lake Berryessa transported by the Putah South Canal to the terminal reservoir. If the Travis AFB water treatment plant is down for maintenance, water is obtained from up to five

groundwater production wells (only three production wells are currently functional) located on Cypress Golf Course, approximately 4 miles north of the Base (Roy F. Weston, Inc., [Weston], 2011; Travis AFB, 2013). The five off-Base production wells provide a supplemental potable water supply to Travis AFB, and the total depths of all the water wells range from about 480 to 984 feet bgs (Engineering-Science, Inc., 1983). As described in Sections 2 and 3, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

1.3.3 Hydrologic Setting

Union Creek is the primary surface water pathway for runoff at Travis AFB. The headwaters of Union Creek are approximately 1 mile north of the Base, near the Vaca Mountains, where the creek is an intermittent stream. Union Creek splits into two branches north of the Base, with the main (eastern) branch being impounded into a recreation pond designated as Duck Pond. At the exit from Duck Pond, the creek is routed through a storm sewer beneath the runway to the southeastern area of the Base, where it empties into an open creek channel.

Surface runoff at Travis AFB has been altered artificially by the rerouting of both branches of Union Creek, the installation of storm sewers and ditches, and general development. Surface water runoff within Travis AFB ultimately drains to Union Creek. Union Creek flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014).

1.3.4 Ecological Receptors

An officially designated federal wilderness area/wildlife preserve encompasses Travis AFB (Environmental Data Resources, Inc.[EDR], 2015). The following endangered species are known to inhabit Solano County:

- Plover, Mountain – Bird
- Rail, California Clapper – Bird
- Pelican, Brown – Bird
- Shrimp, Vernal Pool Tadpole – Crustacean
- Shrimp, Vernal Pool Fairy – Crustacean
- Salmon, Chinook (Central Valley Spring Run) – Fish
- Salmon, Chinook (Central Valley Winter Run) – Fish
- Smelt, Delta – Fish
- Splittail, Sacramento – Fish
- Steelhead, Central California Population – Fish
- Steelhead, California Central Valley Population – Fish
- Beetle, Delta Green Ground – Insect
- Beetle, Valley Elderberry Longhorn – Insect
- Mouse, Salt Marsh Harvest – Mammal
- Grass, Solano – Plant
- Grass, Colusa – Plant
- Navarretia, Many-Flowered – Plant
- Navarretia, Few-Flowered – Plant
- Goldfields, Contra Costa – Plant

- Stonecrop, Lake County – Plant

It is possible that these endangered species may be found within the boundaries of Travis AFB.

1.4 PRELIMINARY ASSESSMENT METHODS

This PA Report was prepared in accordance with the following guidance documents:

- CERCLA Guidance (USEPA, 1991)
- Interim Air Force Guidance (U.S. Air Force, 2012)
- U.S. Fish and Wildlife Service Guidance (U.S. Fish and Wildlife Service [USFWS], 2015a)

The performance of this PA included the following activities:

- Reviewing information and reports in the Administrative Record.
- Reviewing documents related to Air Force use of AFFF.
- Conducting a 3-day visit to Travis AFB.
- Conducting interviews with government personnel in Civil Engineering (CE), Travis AFB Fire Department, Base historian/volunteer, and Facility Program Managers.
- Visiting and photographing locations where AFFF has been used or may have been used.
- Performing an environmental data records search to document nearby populations and recording water supply well information and wetlands information.

1.5 REPORT ORGANIZATION

This PA Report is organized as follows:

- Section 1.0, Introduction, provides a project overview and describes the methods used to conduct the PA.
- Section 2.0, Fire Training Areas, describes the FTAs identified during the visit.
- Section 3.0, Non-Fire Training Areas, describes the non-FTAs identified during the visit.
- Section 4.0, Summary and Conclusions, summarizes and provides conclusions for both FTAs and non-FTAs.
- Section 5.0, References, lists the references cited in this report.

In addition, the following support information is appended to this report:

- Appendix A, Photo Documentation
- Appendix B, Field Documentation
- Appendix C, Records of Communication

FIGURE

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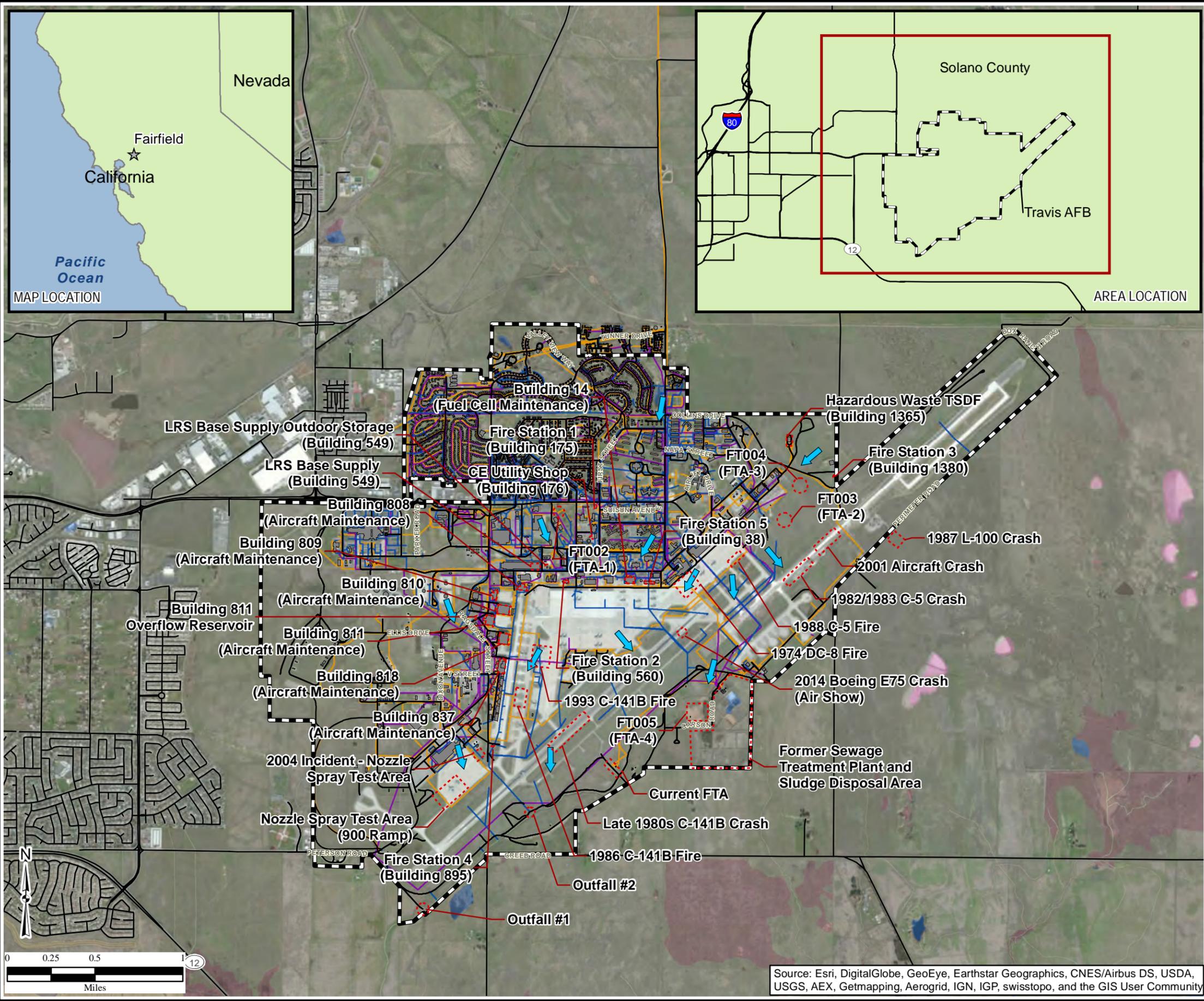


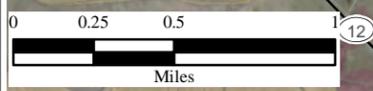
Figure 1.1
All Identified Locations
Travis AFB, California

Legend

-  Approximate Shallow Groundwater Flow Direction
-  Storm Sewer
-  Wastewater Line
-  Water Line
-  Road
-  Approximate Location
-  Base Boundary
-  Building
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Pond
-  Riverine
-  Other

Notes:
 FTA = fire training area
 LRS = logistics readiness squadron
 TSDF = treatment storage and disposal facility

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 4/27/2015 SA
 Source: Wetland, National Wetlands Inventory - Wetland Polygons, Published September 2012, U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Washington, D.C. <http://www.fws.gov/wetlands/>



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

2.0 FIRE TRAINING AREAS

2.1 FT002 (FTA-1)

2.1.1 Description and Operational History

Site FT002 (formerly known as FTA-1) is currently a grassy field located along Travis Avenue, between Airman Drive and Broadway Street. Site FT002 was also the location of airmen dormitories (Buildings 106 through 109); however, the dormitories have since been demolished. Surficial remnants of FT002 may have been removed or covered during the construction of the dormitories and adjacent parking lots and by subsequent demolition of Buildings 103 through 105 (Weston, 1995).

From 1943 to 1950, waste fuels, oils, solvents, and other combustible wastes were allegedly burned in a 10-acre area during fire training exercises at FT002. The primary extinguishing agent used was water (Weston, 1995). AFFF was not introduced into Air Force inventory prior to 1970; therefore, FT002 never had AFFF applied as a fire extinguishing agent. The location of FT002 is shown on Figures 1.1 and 2.1.

2.1.2 Waste Characteristics

Not applicable.

2.1.3 Pathway and Environmental Hazard Assessment

Not applicable.

2.1.3.1 Groundwater Pathway and Targets

Not applicable.

2.1.3.2 Surface Water Pathway and Targets

Not applicable.

2.1.3.3 Soil and Air Exposure Pathways and Targets

Not applicable.

2.2 FT003 (FTA-2)

2.2.1 Description and Operational History

Site FT003 (formerly known as FTA-2) is a grassy field located in the northeastern portion of the Base between Building 1205 and the runway. A portion of the area is now covered by a concrete pad that was constructed prior to 1961. It is unknown whether the soil was removed from FT003 during construction of the concrete pad or whether the soil was spread throughout the area. The concrete pad has been used as a temporary storage area for 55-gallon drums containing investigation-derived waste materials and as a staging area for petroleum-contaminated soil from

underground storage tank removal activities (Weston, 1995). Currently, the concrete pad is used as the overflow aircraft parking area for the Base museum.

From 1950 to 1952, waste fuels, oils, and solvents were reported to have been burned in a 15-acre area during fire training exercises at FT003. The flammable materials were usually sprayed or spilled on or in structures. The primary extinguishing agents used were water and protein foam (Weston, 1995). AFFF was not introduced into Air Force inventory prior to 1970; therefore, FT003 never had AFFF applied as a fire extinguishing agent. The location of FT003 is shown on Figures 1.1 and 2.1.

Site FT003 was closed in 2007 following the soil excavation. Approximately 3,000 cubic yards of soil were excavated and achieved cleanup levels that allow for unlimited use and unrestricted exposure (Shaw Environmental, 2008; Travis AFB, 2009). Because Site FT003 was not carried into the Final Groundwater Record of Decision, the site has been closed for groundwater. The remaining FT003 groundwater wells are used for monitoring nearby Sites FT004 and SD031.

2.2.2 Waste Characteristics

Not applicable.

2.2.3 Pathway and Environmental Hazard Assessment

Not applicable.

2.2.3.1 Groundwater Pathway and Targets

Not applicable.

2.2.3.2 Surface Water Pathway and Targets

Not applicable.

2.2.3.3 Soil and Air Exposure Pathways and Targets

Not applicable.

2.3 FT004 (FTA-3)

2.3.1 Description and Operational History

Site FT004 (formerly known as FTA-3) is currently an unused grassy field located in the northeastern portion of the Base approximately 1,500 feet northeast of Site FT003. The site covers approximately 30 acres (Weston, 1995).

From 1953 to 1962, approximately 20 to 30 55-gallon drums of waste fuels, oils, and solvents were delivered to the site per week. The drums were emptied onto frames or mockups on the ground and burned during fire training exercises. The primary extinguishing agents used were water and protein foam (Weston, 1995). AFFF was not introduced into Air Force inventory prior to 1970; therefore, FT004 never had AFFF applied as a fire extinguishing agent. The location of FT004 is shown on Figures 1.1 and 2.1.

Site FT004 was closed in 2007 following the soil excavation. Approximately 3,000 cubic yards of soil were excavated and achieved cleanup levels that allow for unlimited use and unrestricted exposure (Shaw Environmental, 2008; Travis AFB, 2009). The groundwater beneath the site continues long-term monitoring under the Groundwater Remediation Implementation Program (CH2M HILL, 2014).

2.3.2 Waste Characteristics

Not applicable.

2.3.3 Pathway and Environmental Hazard Assessment

Not applicable.

2.3.3.1 Groundwater Pathway and Targets

Not applicable.

2.3.3.2 Surface Water Pathway and Targets

Not applicable.

2.3.3.3 Soil and Air Exposure Pathways and Targets

Not applicable.

2.4 FT005 (FTA-4)

2.4.1 Description and Operational History

Site FT005 (formerly known as FTA-4) is currently a partially vegetated open field located on the southeastern portion of the Base, and south of the northern runway. The site covers approximately 30 acres and is bounded by Union Creek to the north and west, the decommissioned sewage treatment plant (STP) to the east, and an open grass field to the south. The geographic coordinates are 38°15'15.97"N and 121°55'47.13"W.

Prior to 1958, this area may have been used for munition storage. Fire training exercises were conducted between 1962 to approximately 1987. AFFF, protein foam, and water were used as extinguishing agents during these training activities (Weston, 1995). In the early 1990s, construction debris such as concrete, asphalt pavement, fencing, and street sweeping debris was dumped in the northern portion of the site. Between 2011 and 2012, approximately 11,800 cubic yards of soil were excavated and disposed offsite. The soil removal met the unrestricted cleanup levels for polycyclic aromatic hydrocarbons, total petroleum hydrocarbons, polychlorinated biphenyls, and dioxins. Excavation depths ranged from 1 to 8 feet bgs (ITSI Gilbane, 2012). Since the site restoration, the southern portion of the site has been used as a storage area for concrete pipe. The rest of the site has remained vacant. FT005 is a current Environmental Restoration Program (ERP) site for Travis AFB. The chemicals of concern in groundwater are volatile organic compounds and include 1,2-dichloroethane, bromodichloromethane, chloroform, cis-1,2-dichloroethene, and trichloroethene. The active remediation technologies used include

groundwater extraction and treatment (CH2M HILL, 2014). A full description of the site and operational history are presented in previous investigation documents. The location of FT005 is shown on Figures 1.1 and 2.1.

2.4.2 Waste Characteristics

AFFF, protein foam, and water were used to extinguish the fires used during these training activities. From 1962 until the early 1970s, waste fuels, oils, and solvents were used to fuel the training fires. The wastes were delivered to the site in 55-gallon drums. From the early 1970s through 1987, only contaminated fuels were used during the training exercises. In approximately, 1976, an aboveground storage tank was installed in the western side of FT005 to hold the waste fuels (Weston, 1995). The aboveground storage tank was removed in 2007-2008.

The site had no berms or dikes to contain runoff, and surface runoff may have flowed into Union Creek, located north and west of the site, or to the low-lying seasonal wetlands to the east (Weston, 1995). The amount of AFFF used at this site is unknown (Duke, 2015a, personal communication; Appendix C). Based on the operational history and release of AFFF during these years, the potential for PFCs released to the environment is high.

2.4.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 8,880 feet hydrologically upgradient of FT005. The nearest on-Base child development center is located approximately 8,450 feet hydrologically upgradient of FT005.

2.4.3.1 Groundwater Pathway and Targets

Groundwater is present at FT005 at approximately 10 to 19 feet bgs with low-permeability silts and clays occurring between 10 and 20 feet bgs, and relatively permeable sands and silts occurring from 20 feet bgs to bedrock (approximately 50 to 60 feet bgs). FT005 is currently an ERP site and has land use controls in place to prevent access to and development of groundwater at the site. Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at Site FT005. The groundwater extraction and treatment system at FT005 is part of the South Base Boundary Groundwater Treatment Plant. Currently, the groundwater is

treated with granular activated carbon (GAC); however, an air stripper has been used in conjunction with the GAC in the past. The treated water is discharged to the main branch of Union Creek. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of FT005 is 22,080. The nearest potential drinking well (residential well) is located approximately 7,700 feet cross-gradient (southeast) of the site. The potential exists that within 4 miles downgradient of the site, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

2.4.3.2 Surface Water Pathway and Targets

The surface water drainage from FT005 is north and west from the site to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The site is not located within a flood zone. The nearest body of water is Union Creek, located directly adjacent to the north and west of the site. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). A wetland and sensitive environments are adjacent to the site (EDR, 2015; USFWS, 2015b).

2.4.3.3 Soil and Air Exposure Pathways and Targets

FT005 is in an isolated area of Travis AFB with a wetland within 1,000 feet (EDR, 2015). Workers are within 0.5 mile but there are no residents. The post-excavation and partially vegetated area would preclude any fugitive dust emissions and potential exposures. Current and planned future land use does not involve any human health exposures, and no utilities are present to allow dermal soil exposures to utility workers. The potential of exposure to burrowing animals would be present.

No schools or day care facilities are within a 200-foot radius of the site. The nearest on-Base elementary school is located approximately 8,880 feet northwest of FT005. The nearest on-Base child development center is located approximately 8,450 feet northwest of FT005.

2.5 CURRENT FIRE TRAINING AREA

2.5.1 Description and Operational History

From 1987 to 1996, fire training exercises were performed at this location within a pit using an old aircraft engine container for the fuselage and four engines. The fuel was put in the pit from a tank to the mockup via an old fire hose/pump (Renucci, 2015b, personal communication; Appendix C). Diesel was the likely fuel source (Duke, 2015a, personal communication; Appendix C), and water and AFFF were likely used as extinguishing agents. In 1996, the current FTA was built and contains a mock aircraft located within a concrete berm. A four-story structural trainer was constructed in 2004. Both the pit and structural trainer were built with propane burning systems. Additionally, the pit area of the training facility is outfitted with a closed water recirculation system consisting of a flexible dual lining system for containment. That runoff is gravity fed to three step-down holding and filtration tanks before it reaches a main sump tank. The structural trainer also contains floor drains in the slab floor, which discharge into the pit's main sump tank. The main sump is outfitted with two pumps that can lift the water back to the existing system for pit water fill or use in the emergency fire sprinkler and mockup cooling system. Extinguishing agents used at the FTA include AFFF, dry chemical, and water (Speakman, 2015, personal communication; Appendix C). When the waste tanks are full, the water goes through an oil-water separator (OWS) before being discharged to the sanitary sewer (Duke, 2015a, personal communication; Appendix C). The geographic coordinates are 38°15'1.58"N and 121°56'19.90"W. The location of the current FTA is shown on Figures 1.1 and 2.1.

2.5.2 Waste Characteristics

AFFF, dry chemical, and water were used to extinguish the fires during these training activities. Prior to the existing FTA, the water and foam used were not contained; therefore, it likely infiltrated into the ground or flowed southeast toward Union Creek. Since 1996 when the current FTA was built, any water and foam used would be contained in the training pit and structural trainer closed systems. During these activities, it is also likely that some extinguishing agents, including AFFF, may escape the containment systems by wind, splashing, or accidental spills. The amount of AFFF used at the current FTA is unknown (Speakman, 2015, personal communication; Appendix C). Based on the operational history and discharge of AFFF during these years, there is potential for PFCs released to the environment at the current FTA.

2.5.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 6

miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200 foot radius of this location. The nearest on-Base elementary school is located approximately 8,000 feet hydrologically upgradient of the current FTA. The nearest on-Base child development center is located approximately 8,900 feet hydrologically upgradient of the current FTA.

2.5.3.1 Groundwater Pathway and Targets

Several groundwater monitoring wells associated with nearby ERP Site SS030 are located in the vicinity of the FTA. Groundwater is present at approximately 14 to 18 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at this location. The groundwater flows to the south and is captured by the South Base Boundary Groundwater Treatment Plant. Currently, the groundwater is treated with GAC; however, an air stripper has been used in conjunction with the GAC in the past. The treated water is discharged to the main branch of Union Creek. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the current FTA is 29,570. The nearest potential drinking well (residential well) is located approximately 8,900 feet cross-gradient (southeast) of the current FTA. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

2.5.3.2 Surface Water Pathway and Targets

The surface water drainage from the FTA is south from the current FTA to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The current FTA is not located within a flood zone. The nearest body of water is Union Creek, located directly adjacent to the north and west of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No

national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are adjacent to this location (EDR, 2015; USFWS, 2015b).

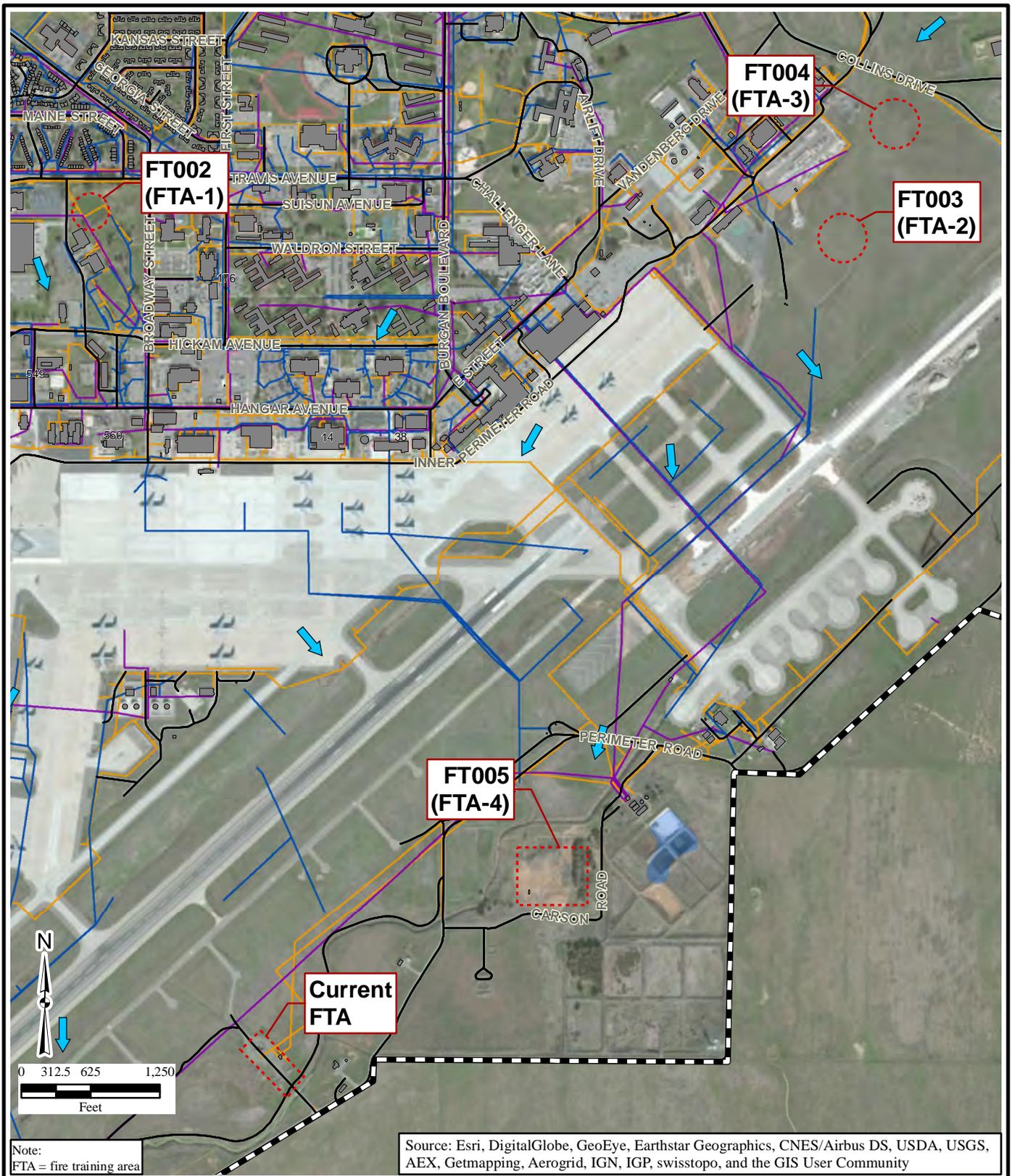
2.5.3.3 Soil and Air Exposure Pathways and Targets

The current FTA is in an isolated area of Travis AFB with seasonal wetlands within 1,000 feet. This FTA is still currently being used by firefighters, and other workers are within 0.25 mile. In addition, residents are within 0.5 mile. AFFF is no longer used during training exercises. The current FTA is primarily gravel and dirt surfaces outside of the lined berm area. Any foam that may have been incidentally applied outside of the bermed area could be present in the gravel/dirt surrounding the FTA. Therefore, fugitive dust emissions and potential exposures are possible. Current and planned future land use does not involve any human health exposures. The potential of exposure to burrowing animals would be present.

No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 8,000 feet to the north-northwest. The nearest on-Base child development center is located approximately 8,900 feet to the north-northwest.

FIGURE

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Note:
FTA = fire training area

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4/24/2015 SA
Source: Wetland, National Wetlands Inventory - Wetland Polygons. Published September 2012. U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Washington, D.C.
<http://www.fws.gov/wetlands/>

CH2MHILL.

Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building
- Wetland**
- Freshwater Pond
- Riverine

Figure 2.1
Fire Training
Areas
Travis AFB,
California

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3.0 NON-FIRE TRAINING AREAS

3.1 HANGARS

3.1.1 Building 808, Building 809, Building 810, and Building 818 (Aircraft Maintenance)

3.1.1.1 Description and Operational History

Building 810 was constructed in 1955, and Buildings 808, 809, and 818 were constructed in 1970. All four hangars contained a water deluge fire suppression system; however, in the early 2010s, the deluge systems were replaced with high-expansion foam systems. High-expansion foam systems do not use AFFF; therefore, AFFF was not used in these four hangars. The locations of these hangars are shown on Figures 1.1 and 3.1.

3.1.1.2 Waste Characteristics

Not applicable.

3.1.1.3 Pathway and Environmental Hazard Assessment

Not applicable.

3.1.1.3.1 *Groundwater Pathway and Targets*

Not applicable.

3.1.1.3.2 *Surface Water Pathway and Targets*

Not applicable.

3.1.1.3.3 *Soil and Air Exposure Pathways and Targets*

Not applicable.

3.1.2 Building 837 (Aircraft Maintenance)

3.1.2.1 Description and Operational History

Building 837 was constructed in 2010 with a high-expansion foam system. High-expansion foam systems do not use AFFF; therefore, AFFF was not used in this hangar. The location of Building 837 is shown on Figures 1.1 and 3.1.

3.1.2.2 Waste Characteristics

Not applicable.

3.1.2.3 Pathway and Environmental Hazard Assessment

Not applicable.

3.1.2.3.1 Groundwater Pathway and Targets

Not applicable.

3.1.2.3.2 Surface Water Pathway and Targets

Not applicable.

3.1.2.3.3 Soil and Air Exposure Pathways and Targets

Not applicable.

3.1.3 Building 14 (Fuel Cell Maintenance)

3.1.3.1 Description and Operational History

Building 14 is located south of Hangar Avenue at Travis AFB. Building 14 is bordered by buildings to the north, east, and west, including Building 38 (main fire station), and to the south by paved/concrete aircraft parking areas. Several small strips of landscaped grassy areas are on the north, east, and west sides of Building 14. The geographical coordinates are 38°15'56.57"N and 121°56'12.36"W. Building 14 was constructed in 1996 with an AFFF fire suppression system that remains in use. The fire suppression system consists of two plastic tanks containing AFFF with a capacity of 1,400 gallons each (Andrews, 2015, personal communication; Appendix C). During this PA visit, each tank contained approximately 1,000 gallons of Chemguard 3 percent concentrated AFFF. No drains were located in the fire suppression room; therefore, if a leak occurred, AFFF would flow out of the room into a concrete courtyard and into a storm drain.

Inside the hangar, a floor drain holding system was constructed to contain the AFFF. Based on the design of the floor drain system, any AFFF discharged within the hangar would be contained in a holding tank. When the tank is full, it is pumped out; however, there are no records of when the tank was last emptied (Duke, 2015b and 2015c, personal communication; Appendix C). Although, there are no records of activations of the fire suppression system, Mr. LaPlante recalls several AFFF discharges in the past, with the most recent being in early 2010 (LaPlante, 2015, personal communication; Appendix C). The AFFF was likely contained in the floor drain system and holding tank as designed, and it is likely that no environmental media were impacted. The location of Building 14 is shown on Figures 1.1 and 3.1.

3.1.3.2 Waste Characteristics

Not applicable.

3.1.3.3 Pathway and Environmental Hazard Assessment

Not applicable.

3.1.3.3.1 Groundwater Pathway and Targets

Not applicable.

3.1.3.3.2 Surface Water Pathway and Targets

Not applicable.

3.1.3.3.3 Soil and Air Exposure Pathways and Targets

Not applicable.

3.1.4 Building 811 (Aircraft Maintenance and Wash Rack)

3.1.4.1 Description and Operational History

Building 811 is located near Ellis Drive and Boyles Street at Travis AFB. It is bordered by small strips of landscaped grassy areas/asphalt roads on all sides except for the concrete Tow Way W on the east side. Several other buildings are in the area. The geographical coordinates are 38°15'44.56"N and 121°57'5.39"W. Building 811 was constructed in 1979 with an AFFF fire suppression system that remains in use. In 2011, an accidental discharge of AFFF occurred in Building 811. The AFFF cannon punctured the side of the hangar and released AFFF onto the grass and concrete-covered areas west, south, and southwest of the building (SES Construction and Fuel Services, LLC [SCF], 2015). In addition, the facility manager for Building 811, Mr. LaPlante, recalls several AFFF discharges in the past, with the most recent being in November-December 2014. The amount of AFFF discharged is unknown (LaPlante, 2015, personal communication; Appendix C). The mechanical room was also used to store empty AFFF drums. The location of Building 811 is shown on Figures 1.1 and 3.1.

The trench drains in the hangar are connected to the OWS on the northwest corner of the building, which then drain to the sanitary sewer. However, when the fire suppression system activates, some water likely flows to a concrete overflow reservoir located west of the building. The overflow reservoir has been used several times in the past, indicating discharges from the fire suppression system (Duke, 2015a, personal communication; Appendix C). It is also likely that the concrete overflow reservoir may be cracked, and the content may be slowly draining out into the ground. Once the reservoir is partially full, a water sample is collected and then pumped into the sanitary sewer. It is unknown when the reservoir was last sampled, and no analytical results are available (Tetrick, 2015, personal communication; Appendix C).

3.1.4.2 Waste Characteristics

The fire suppression system consists of two plastic tanks containing AFFF with a capacity of 1,500 gallons each (Andrews, 2015, personal communication; Appendix C). During this PA visit, both tanks were completely full with Ansulite 3 percent concentrated AFFF. In addition, there were three 55-gallon drums of AFFF. Several floor drains are located within the fire suppression room. During the 2011 accidental release, AFFF was released onto the grass and concrete-covered areas west, south, and southwest of the building. In addition, some AFFF was also likely captured in the floor drains that entered the sanitary sewer lines (SCF, 2015). Several discharges of AFFF within and outside of Building 811 have occurred; therefore, it is likely that environmental media were impacted.

The overflow reservoir likely contained the majority of any AFFF discharged; however, there may be minor cracks in the concrete, and AFFF could be released to the subsurface (Tetirick, 2015, personal communication; Appendix C).

3.1.4.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. In addition, not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 3,300 feet hydrologically upgradient of Building 811. The nearest on-Base child development center is located approximately 2,900 feet hydrologically upgradient of Building 811.

3.1.4.3.1 *Groundwater Pathway and Targets*

Because the accidental activation of the fire suppression system punctured the side of Building 811 and released AFFF onto the grass and concrete, the AFFF likely infiltrated to groundwater. In addition, the overflow reservoir may be cracked and AFFF could have been released to the subsurface (Tetirick, 2015, personal communication; Appendix C). Building 811 is located near ERP Site SD034, and several groundwater wells are located in the vicinity. Groundwater is present at approximately 9 to 11 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at Building 811. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of Building 811 is 44,040. The nearest potential drinking well (residential well) is located approximately 9,200 feet upgradient (north) of the building. Within 4 miles downgradient of this location are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and one monitoring well. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

In July 2014, groundwater samples from three nearby monitoring wells (MW1205x37, MW04x34, and MWSNSM2x37) and one direct push technology (DPT) location were collected and analyzed

for PFOS and PFOA. The monitoring wells were located west, southwest, and south of Building 811, and the DPT boring was south of the overflow reservoir. Concentrations of PFOS and PFOA exceeded the USEPA Provisional Health Advisories (PHAs). The maximum PFOS and PFOA concentrations were 40 micrograms per liter ($\mu\text{g/L}$) and 8.9 $\mu\text{g/L}$, respectively. The results of this sampling indicate that PFOS and PFOA components migrated vertically to groundwater (SCF, 2015).

3.1.4.3.2 Surface Water Pathway and Targets

Because the accidental activation of the fire suppression system punctured the side of Building 811 and released AFFF onto the grass and concrete, the AFFF may migrate to the nearby grassy areas, to a nearby storm drain, or directly into Union Creek, located 460 feet southwest of the building. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

Building 811 is not located within a flood zone. The nearest body of water is Union Creek, located approximately 460 feet southwest of the building. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile of this building (EDR, 2015; USFWS, 2015b).

3.1.4.3.3 Soil and Air Exposure Pathways and Targets

Because the accidental activation of the fire suppression system punctured the side of Building 811 and released AFFF onto the grass and concrete, the AFFF likely infiltrated into the subsurface. In addition, the overflow reservoir may have leaked and caused AFFF to infiltrate into the subsurface. Therefore, construction workers are the most likely receptors at this location. Because the release occurred underground, it is unlikely to have any air pathway receptors in the area. Building 811 is located in a heavily populated area at Travis AFB, with both workers and residents within 1 mile. Burrowing animals would have a potential for exposure.

No schools or day care facilities are within a 200-foot radius of Building 811. The nearest on-Base elementary school is located approximately 3,300 feet to the north of Building 811. The nearest on-Base child development center is located approximately 2,900 feet to the north.

In July 2014, surface and subsurface soil samples from four locations were collected and analyzed for PFOS and PFOA. Samples were collected on the west, south, and southwest sides of Building 811. The maximum PFOS and PFOA concentrations were 110 $\mu\text{g/kg}$ and 13 $\mu\text{g/kg}$, respectively; however, all soil concentrations were less than Residential Soil Screening Levels (RSSLS) (SCF, 2015). The results of this sampling indicate that PFOS and PFOA components are present in soil at low concentrations. It appears that PFCs in solution tend to stay in solution and not bond to soil.

3.2 FIRE STATIONS

3.2.1 Fire Station 1 (Building 175)

3.2.1.1 Description and Operational History

Fire Station 1 was constructed in 1956. It is located on the southwest corner of Travis Avenue and First Street on Travis AFB. The building is surrounded by landscaped grass to the north, west, and southwest. The remaining surrounding areas are paved with asphalt and concrete. The geographical coordinates are 38°16'18.26"N and 121°56'25.04"W. Fire Station 1 serves as the structural fire station (non-airfield related) for Travis AFB and houses one fire engine that carries approximately 56 gallons of AFFF. The location of Fire Station 1 is shown on Figures 1.1 and 3.2.

3.2.1.2 Waste Characteristics

At Fire Station 1, the only AFFF storage is in the two tanks of the fire engine. Tank resupplying occurs at the main Fire Station 5, and formerly at Fire Station 2. Cleaning of the fire engine is performed outside the fire station, and because there are no floor drains, any remnant AFFF on the truck or potential spills would be washed out the bay doors to the east or west of the building. After a response requiring the application of AFFF, the worker primarily flushed the nozzle at the scene. The fire engines are then re-serviced from stock supply held at Fire Stations 2 and 5 (Speakman, 2015, personal communication; Appendix C).

3.2.1.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 2,000 feet hydrologically upgradient of Fire Station 1. The other on-Base elementary school is located approximately 4,700 feet hydraulically cross-gradient of Fire Station 1. The nearest on-Base child development center is located approximately 3,150 feet hydrologically cross-gradient of Fire Station 1.

3.2.1.3.1 Groundwater Pathway and Targets

Residual AFFF that may have reached the grassy area adjacent to the building may have infiltrated to groundwater. Groundwater monitoring well MW208NSx18 from ERP Site ST018 is located approximately 130 feet west of Fire Station 1. Groundwater is present at approximately 12 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at Fire Station 1. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of Fire Station 1 is 34,000. The nearest potential drinking well (residential well) is located approximately 8,200 feet cross-gradient (northwest) of this location. The potential exists that within 4 miles downgradient of Building 175, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential wells, one irrigation well, one well for stock, and two monitoring wells. None of the downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.2.1.3.2 Surface Water Pathway and Targets

If AFFF had spilled and was washed out the bay doors, it may migrate to the nearby grassy areas or to a nearby storm drain. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

Fire Station 1 is not located within a flood zone. The nearest body of water is Duck Pond, located 3,500 feet northeast of this building. Duck Pond drains to Union Creek through an open creek channel, and Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles of this location (EDR, 2015; USFWS, 2015b).

3.2.1.3.3 Soil and Air Exposure Pathways and Targets

Fire Station 1 is mostly paved with some landscaped grassy areas. A historical release of AFFF to soil in the grassy areas near the station is possible. Fire Station 1 is located in a populated area of Travis AFB, so if an air pathway were to exist, the most likely receptor would be workers in the near vicinity of this location on Travis AFB. Workers, but no residents, are present within 200 feet and could potentially be exposed to contaminated soil in the area during excavations. The potential of exposure for burrowing animals would also be present. Sensitive environments have been

identified within 2 miles. Base housing is located approximate 300 feet north of Fire Station 1. The nearest on-Base elementary school is located approximately 2,000 feet to the northwest of Fire Station 1. The nearest on-Base child development center is located approximately 3,150 feet to the west.

This area of the installation has residents and workers within 1 mile, and seasonal wetlands are within 2 miles of Fire Station 1. Because the area consists primarily of paved or grassy areas, fugitive dust emissions and potential exposures should be minimal. Construction or other ground-disturbing activities could result in potential worker exposure to dust.

3.2.2 Fire Station 2 (Former Building 560)

3.2.2.1 Description and Operational History

Fire Station 2 was constructed in 1956 and located south of the intersection of Hangar Avenue and Airman Drive on Travis AFB. The building was the main airfield fire station until 2011 when the new Fire Station 5 was built. The geographical coordinates are 38°15'55.96"N and 121°56'37.30"W. Small patches of landscaped grass were located in the northeast and southeast corners. The remaining surrounding areas are paved with asphalt and concrete. During its operation, Fire Station 2 housed up to seven fire engines that carried from 50 to 500 gallons each of AFFF. In addition, AFFF was stored in 55-gallon drums on the west side of the building (Duke, 2015a, personal communication; Appendix C). Fire Station 2 was demolished in 2011-2012; however, the wash rack on the west side remains in place. The location of Fire Station 2 is shown on Figures 1.1 and 3.2.

3.2.2.2 Waste Characteristics

At Fire Station 2, the amount of AFFF stored onsite is unknown; however, based on the number of fire engines, it is assumed that at least 1,000 gallons of AFFF was present during its operation. The vehicles were cleaned in the wash rack adjacent to the fire station where floor drains are present to capture any runoff and feed into the sanitary sewer system. Refilling of vehicle AFFF tanks occurred outdoors near the drum storage area west of the building.

3.2.2.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care

facilities are within a 200 foot radius of this location. The nearest on-Base elementary school is located approximately 3,700 feet hydrologically upgradient of Fire Station 2. The nearest on-Base child development center is located approximately 2,700 feet hydrologically upgradient of Fire Station 2.

3.2.2.3.1 Groundwater Pathway and Targets

Any discharges of AFFF at Fire Station 2 would have been contained in the floor drain system inside the station or wash rack or contained in the storm drains outdoors. However, the possibility of AFFF being washed out and run off to the grassy area to the east exists; therefore, residual AFFF that may have reached the grassy area may have infiltrated to groundwater. Several groundwater monitoring wells associated with ERP Site SS016 are located approximately 300 to 600 feet east of Fire Station 2. Groundwater is present at approximately 7 to 15 feet bgs. Groundwater beneath Fire Station 2 flows southeast and is captured by the Central Groundwater Treatment Plant (CGWTP). The groundwater is currently treated with GAC; however, in the past, ultraviolet oxidation has been used in conjunction with the GAC. The treated water is discharged to a storm drain that ultimately leads to the west branch of Union Creek (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at Fire Station 2. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of Fire Station 2 is 38,410. The nearest potential drinking well (residential well) is located approximately 9,200 feet upgradient (northwest) of the Fire Station 2. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include five residential/commercial wells, one irrigation well, one well for stock, and one monitoring well. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.2.2.3.2 Surface Water Pathway and Targets

If AFFF had spilled in the storage area, it may migrate to a nearby storm drain. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

Fire Station 2 is not located within a flood zone. The nearest body of water is Union Creek, located approximately 3,000 feet southwest of this location. Union Creek connects to Suisun Marsh, which

empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles of this location (EDR, 2015; USFWS, 2015b).

3.2.2.3.3 Soil and Air Exposure Pathways and Targets

Fire Station 2 has been demolished and only the concrete foundation and wash rack remain. This area is mostly paved with some grassy areas. A historical release of AFFF to soil in the grassy/dirt areas near the station is unlikely but possible. Workers, but no residents, are present within 200 feet and could potentially be exposed to contaminated soil in the area during excavations. The potential of exposure for burrowing animals would also be present. Sensitive environments have been identified within 2 miles. The nearest on-Base elementary school is located approximately 3,700 feet to the northwest of Fire Station 2. The nearest on-Base child development center is located approximately 2,700 feet to the northwest.

This area of the installation has residents and workers within 1 mile, and seasonal wetlands are within 2 miles of Fire Station 2. Because the area consists primarily of paved or grassy areas, fugitive dust emissions and potential exposures should be minimal. Construction or other ground-disturbing activities could result in potential worker exposure to dust.

3.2.3 Fire Station 3 (Building 1380)

3.2.3.1 Description and Operational History

Fire Station 3 was constructed in 1995. It is located on a small hill near the northern runway on Collins Drive, north of the intersection of Meridian Road and Perimeter Road on Travis AFB. The fire station consists of a small administrative building and a carport for the fire engine. The building is surrounded by grass except for the asphalt access road and driveway. A small arms firing range is located north of Fire Station 3, and ERP Site FT004 is located approximately 1,000 feet to the southwest. The geographical coordinates are 38°16'27.69"N and 121°54'55.22"W. Fire Station 3 serves as the first responder for the northern runway for Travis AFB and houses one fire engine that carries approximately 500 gallons of AFFF. The location of Fire Station 3 is shown on Figures 1.1 and 3.2.

3.2.3.2 Waste Characteristics

At Fire Station 3, the only storage of AFFF is within the fire engine tank. Tank resupplying occurs at the main Fire Station 5, and formerly at Fire Station 2. Cleaning of the fire engine is performed outside the fire station, and because there are no floor drains, any remnant AFFF on the truck or potential spills would be washed out of the carport and would flow downhill into the grassy area to the south of the building. After a response requiring the application of AFFF, the worker primarily flushed the nozzle at the scene. The fire engines are then re-serviced from stock supply held at Fire Stations 2 and 5. (Speakman, 2015, personal communication; Appendix C). In addition, AFFF has been routinely sprayed from fire trucks for training purposes and system tests onto a grass covered area approximately 150 feet southwest of Building 1380 (SCF, 2015).

3.2.3.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200 foot radius of this location. The nearest on-Base elementary school is located approximately 8,600 feet hydrologically cross-gradient of Fire Station 3. The nearest on-Base child development center is located approximately 10,300 feet hydrologically cross-gradient of Fire Station 3.

3.2.3.3.1 *Groundwater Pathway and Targets*

Residual AFFF that may have reached the grassy area south of the building may have infiltrated to groundwater. Two groundwater monitoring wells associated with ERP Site LF007 and FT004 are located within 500 feet of Fire Station 3. Groundwater is present between 9 and 11 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at Fire Station 3. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of Fire Station 3 is 16,220. The nearest potential drinking well (residential well) is located approximately 13,000 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of Building 1380, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include one residential well, one well for stock, and one monitoring well. None of the downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

In July 2014, groundwater samples from two nearby monitoring wells (MW132x04 and MW267x04) and one DPT location were collected and analyzed for PFOS and PFOA. The monitoring wells and DPT boring were between 300 and 750 feet southwest and downgradient of Building 1380. Concentrations of PFOS and PFOA exceeded the USEPA PHAs. The maximum PFOS and PFOA concentrations were 15 µg/L and 0.53 µg/L, respectively. The results of this sampling indicate that PFOS and PFOA components migrated vertically to groundwater (SCF, 2015).

3.2.3.3.2 Surface Water Pathway and Targets

Because Fire Station 3 has no floor drains, it is assumed that any AFFF that made contact with the ground would be washed away and migrate downhill to the grassy field to the south. In addition, stormwater may facilitate the transport of wash water to a grassy area and infiltrate into the subsurface. No storm drains are within the vicinity of Fire Station 3; therefore, it is unlikely that any AFFF would have run into surface water; most likely, it would infiltrate only into the subsurface. Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

Fire Station 3 is not located within a flood zone. The nearest body of water is Duck Pond, also a designated wetland, located 5,600 feet northwest of this location (EDR, 2015). Duck Pond drains to Union Creek through an open creek channel, and Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 3 miles of this location (EDR, 2015; USFWS, 2015b).

3.2.3.3.3 Soil and Air Exposure Pathways and Targets

Fire Station 3 is mostly paved with some landscaped grassy areas. Because Fire Station 3 has no floor drains, it is assumed that any AFFF that made contact with the ground would be washed away and migrate downhill to the grassy field to the south. Workers, but no residents, are present within 200 feet and could potentially be exposed to contaminated soil in the area during excavations. The potential of exposure for burrowing animals would also be present. Sensitive environments have been identified within 3 miles. The nearest on-Base elementary school is located approximately 8,600 feet to the west of Fire Station 3. The nearest on-Base child development center is located approximately 10,300 feet to the west-southwest.

This area of the installation has residents and workers within 1 mile, and a permanent wetland is within 1 mile of Fire Station 3. Because the area consists primarily of paved or grassy areas, fugitive dust emissions and potential exposures should be minimal. Construction or other ground-disturbing activities could result in potential worker exposure to dust.

In July 2014, seven surface and subsurface soil samples from four locations were collected and analyzed for PFOS and PFOA. Samples were collected from the grassy area immediately south and west of Building 1380. The maximum PFOS and PFOA concentrations were 1,500 µg/kg and 2.7 µg/kg, respectively; however, all soil concentrations were less than RSSLs (SCF, 2015). The results of this sampling indicate that PFOS and PFOA components are present in soil at low concentrations. It appears that PFCs in solution tend to stay in solution and not bond to soil.

3.2.4 Fire Station 4 (Building 895)

3.2.4.1 Description and Operational History

Fire Station 4 was constructed in 1999. It is located near the southern runway and east of the southern tip of Ragsdale Street on Travis AFB. This fire station was closed in the early 2010s and consisted of a small administrative building and a carport for the fire engine. The building is surrounded by grass except for the asphalt access road, driveway, and parking lot. The geographical coordinates are 38°15'7.19"N and 121°57'3.63"W. Fire Station 4 served as the fire responder for the southern runway for Travis AFB and housed one fire engine that carried approximately 500 gallons of AFFF. The location of Fire Station 4 is shown on Figures 1.1 and 3.2.

3.2.4.2 Waste Characteristics

At Fire Station 4, the only storage of AFFF was within the fire engine tank. Tank resupplying occurred at the main Fire Station 5, and formerly at Fire Station 2. Cleaning of the fire engine was performed outside the fire station, and because there are no floor drains, any remnant AFFF on the truck or potential spills would be washed out of the carport and would flow into the surrounding grassy area. After a response that required the application of AFFF, the worker primarily flushed the nozzle at the scene. The fire engines were then re-serviced from stock supply held at Fire Stations 2 and 5 (Speakman, 2015, personal communication; Appendix C).

As discussed in Section 3.4.4, nozzle spray tests where AFFF is sprayed from fire trucks have been routinely performed on the 900 ramp located southeast of Building 895 (Renucci, 2015a, personal communication; Appendix C). In addition, AFFF has been routinely sprayed from fire trucks for training purposes and system tests onto a grass-covered area northeast of the 900 ramp and 500 feet southwest of Building 895 (SCF, 2015). Union Creek is approximately 300 feet to the west of Building 895 and flows from the north to south. This grass-covered area is adjacent to the inlet where Union Creek flows underneath the runway and eventually to Outfalls 1 and 2 (SCF, 2015).

3.2.4.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 7,000 feet hydrologically upgradient of Fire Station 4. The nearest on-Base

child development center is located approximately 6,650 feet hydrologically upgradient of Fire Station 4.

3.2.4.3.1 Groundwater Pathway and Targets

Residual AFFF that may have reached the grassy area surrounding the building may have infiltrated to groundwater. Several groundwater monitoring wells associated with ERP SD033 are located approximately 200 feet north of Fire Station 4. Groundwater is present between 8 and 12 feet bgs (CH2M HILL, 2014). Before the system was taken offline in April 2010, groundwater beneath Fire Station 4 was captured by the West Treatment and Transfer Plant, and transferred to the CGWTP. At the CGWTP, the groundwater was treated with GAC, and the treated water was discharged the west branch of Union Creek. Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at Fire Station 4. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of Fire Station 4 is 47,600. The nearest potential drinking well (residential well) is located approximately 12,200 feet cross-gradient (southeast) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and one monitoring well. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

In July 2014, groundwater samples from three nearby monitoring wells (MW723x37, MW724x37, and MWSIM2x37) were collected and analyzed for PFOS and PFOA. The monitoring wells are located south and downgradient of Building 895 and the test area. Concentrations of PFOS and PFOA exceeded the USEPA PHAs. The maximum PFOS and PFOA concentrations were 34 µg/L and 7.6 µg/L, respectively. The results of this sampling indicate that PFOS and PFOA components migrated vertically to groundwater (SCF, 2015).

3.2.4.3.2 Surface Water Pathway and Targets

Because Fire Station 4 has no floor drains, it is assumed that any AFFF that made contact with the ground was washed away to the surrounding grassy fields. Stormwater may facilitate the transport of wash water to a grassy area and infiltrate into the subsurface or a nearby storm drain. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

Fire Station 4 is not located within a flood zone. The nearest body of water is Union Creek, located approximately 300 feet west of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile to this location (EDR, 2015; USFWS, 2015b).

In July 2014, surface water samples were collected from one location within Union Creek and analyzed for PFOS and PFOA. The samples were located at the inlet approximately 540 feet south-southwest of Building 895 where Union Creek flows underneath the runway to Outfalls 1 and 2. The maximum PFOS and PFOA concentrations were 1.6 µg/L and 0.083 µg/L, respectively, and the PFOS concentrations exceeded the USEPA PHAs (SCF, 2015).

3.2.4.3.3 Soil and Air Exposure Pathways and Targets

Fire Station 4 is mostly paved and has some landscaped grassy areas. Because Fire Station 4 has no floor drains, it is assumed that any AFFF that made contact with the ground was washed away to the surrounding grassy field. There are no workers or residents within 200 feet; however, construction workers could potentially be exposed to contaminated soil in the area during excavations. The potential of exposure for burrowing animals would also be present. Sensitive environments have been identified within 1 mile. The nearest on-Base elementary school is located approximately 7,000 feet to the north of Fire Station 4. The nearest on-Base child development center is located approximately 6,650 feet to the north.

This area of the installation has residents and workers within 1 mile, and seasonal wetlands are within 1 mile of Fire Station 4. Because the area consists primarily of paved or grassy areas, fugitive dust emissions and potential exposures should be minimal. Construction or other ground-disturbing activities could result in potential worker exposure to dust.

In July 2014, surface and subsurface soil samples from four locations and sediment samples from two locations were collected and analyzed for PFOS and PFOA. Soil samples were collected approximately 500 to 600 feet south Building 895, and sediment samples were collected at the same location as the surface water samples within Union Creek. The maximum PFOS and PFOA concentrations were 1,600 µg/kg and 31 µg/kg, respectively; however, all soil and sediment concentrations were less than RSSLs (SCF, 2015). The results of this sampling indicate that PFOS and PFOA components are present in soil/sediment at low concentrations. It appears that PFCs in solution tend to stay in solution and not bond to soil.

3.2.5 Fire Station 5 (Building 38)

3.2.5.1 Description and Operational History

Fire Station 5 is located southwest of the intersection of Hangar Avenue and Dayton Road on Travis AFB. The building has served as the main airfield fire station since 2011 when it was built. The geographical coordinates are 38°15'55.89"N and 121°56'6.41"W. A desert landscape is located north and south of the building, and small patches of landscaped grass are located around the adjacent building to the east. The remaining surrounding areas are paved with asphalt and concrete. Fire Station 5 houses up to five fire engines that carry from 50 to 500 gallons each of AFFF. In addition, a storage area west of the building contains one 1,000-gallon tank of AFFF on a trailer and an open shed with 28 plastic 55-gallon drums and two 5-gallon containers of AFFF.

Several dozen empty 55-gallon drums of AFFF are also stored in this area. Twenty-one 5-gallon containers of AFFF are stored in deployment boxes that can be shipped at a moment's notice. This storage area is also used as a wash area and refill area for AFFF. The location of Fire Station 5 is shown on Figures 1.1 and 3.2.

3.2.5.2 Waste Characteristics

At Fire Station 5, the amount of AFFF stored onsite can be up to 5,000 gallons at any one time. Within the bays, runoff from any spills or discharges of AFFF are captured in the floor drains and are run through the OWS before entering the sanitary sewer system. On the west side in the storage and refilling area, any spills or discharges would flow into the storm drains and eventually into Union Creek. In January 2015, approximately 75 gallons of concentrated AFFF spilled when an internal pipe broke on the P-23 truck while re-servicing foam. Only 10 gallons of AFFF were recovered, and the rest flowed into the storm drain. Absorbent PIG[®] booms were used to contain the spill; however, with AFFF being water-soluble, minimal AFFF was recovered from the Union Creek outfall. Future foam re-servicing will be performed inside the station stalls.

3.2.5.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 4,700 feet hydrologically upgradient of Fire Station 5. The nearest on-Base child development center is located approximately 4,900 feet hydrologically upgradient of Fire Station 5.

3.2.5.3.1 Groundwater Pathway and Targets

Because it is unlikely that any AFFF penetrated the sealed joints of the concrete around Fire Station 5, groundwater exposure is not likely. In addition, any discharges within Fire Station 5 are contained in the floor drain system and it is unlikely to have impacted groundwater; therefore, the groundwater pathway would be incomplete and is not applicable. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of Fire Station 5 is 31,880. The nearest potential drinking well (residential well) is located approximately 12,200 feet cross-gradient (southeast) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include five residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.2.5.3.2 Surface Water Pathway and Targets

The AFFF spilled in the storage area west of Fire Station 5 flowed into the storm drains. In addition, any AFFF released or spilled on the concrete storage area would migrate with stormwater or wash water into the storm drains. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

Fire Station 5 is not located within a flood zone. The nearest body of water is Union Creek, located approximately 1 mile southwest of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles to this location (EDR, 2015; USFWS, 2015b).

3.2.5.3.3 Soil and Air Exposure Pathways and Targets

Because it is unlikely that any AFFF penetrated the sealed joints of the concrete around Fire Station 5, soil exposure and resulting air pathway are not likely. In addition, any discharges within Fire Station 5 are contained in the floor drain system. Therefore, there would be no soil exposure, and the air pathway would be incomplete and is not applicable.

This area of the installation has residents and workers within 1 mile, and seasonal wetlands and sensitive environments are within 2 miles of Fire Station 5. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 4,700 feet to the northwest of Fire Station 5. The nearest on-Base child development center is located approximately 4,900 feet to the northwest.

3.3 EMERGENCY RESPONSE

3.3.1 1974 DC-8 Fire

3.3.1.1 Description and Operational History

On March 23, 1974, a DC-8 was undergoing a maintenance A-check. Fuel fumes in the number 1 inboard main fuel tank area suddenly exploded (Aviation Safety Network, 2013). The fuel spread throughout aircraft parking spaces 251 and 252. The approximate geographical coordinates are 38°15'56.99"N and 121°55'49.10"W. Several hundred gallons of AFFF were reportedly used to extinguish the fire (Renucci, 2015a, personal communication; Appendix C). The location of the fire is shown on Figures 1.1 and 3.3.

3.3.1.2 Waste Characteristics

The Travis AFB Fire Department responded to the DC-8 fire on the 200 ramp and extinguished the fire with several hundred gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). Concrete joints on the ramp are sealed, and AFFF impacting groundwater, soil, and air is unlikely. Any AFFF applied would have migrated with stormwater runoff to nearby storm drains.

3.3.1.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 5,550 feet hydrologically upgradient of the 1974 DC-8 fire location. The nearest on-Base child development center is located approximately 6,150 feet hydrologically upgradient of the 1974 DC-8 fire location.

3.3.1.3.1 Groundwater Pathway and Targets

Concrete joints on the flightline are sealed, and AFFF impacting groundwater is unlikely. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of 1974 fire is 25,850. The nearest potential drinking well (residential well) is located approximately 11,200 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/ commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.1.3.2 Surface Water Pathway and Targets

If AFFF remained on the parking ramp, it may have migrated with the stormwater from the next rain event into nearby storm drains. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The DC-8 fire location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 3,000 feet south of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles to this location (EDR, 2015; USFWS, 2015b).

3.3.1.3.3 Soil and Air Exposure Pathways and Targets

Concrete joints on the flightline are sealed, and any AFFF applied would have migrated with stormwater runoff into storm drains and not into the soil at the 1974 fire location. Therefore, there would be no soil exposure, and the air pathway would be incomplete and is not applicable.

This area of the installation has residents and workers within 1 mile, and seasonal wetlands are within 2 miles of this location. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 5,550 feet to the northwest of the 1974 fire. The nearest on-Base child development center is located approximately 6,150 feet to the west-northwest.

3.3.2 1982/1983 C-5 Crash

3.3.2.1 Description and Operational History

In the early 1980s, likely around 1982 or 1983, a C-5 crashed on the south side of the northern runway belly up. The aircraft caught on fire and caused a small grass fire off the side of the runway. Fewer than 100 gallons of AFFF were needed to extinguish the aircraft fire. The grass fire was

extinguished with water (Renucci, 2015a, personal communication; Appendix C). The approximate geographical coordinates are 38°15'59.89"N and 121°55'7.68"W. The location of the fire is shown on Figures 1.1 and 3.3.

3.3.2.2 Waste Characteristics

The Travis AFB Fire Department responded to the C-5 fire on the runway and extinguished it with fewer than 100 gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). The grass fire was extinguished with water. Concrete joints on the runway are sealed; however, any AFFF applied would have likely migrated off the runway into the grassy areas.

3.3.2.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 8,250-foot hydrologically upgradient of the 1982/1983 C-5 crash. The nearest on-Base child development center is located approximately 9,350 feet hydrologically upgradient of the 1982/1983 C-5 crash location.

3.3.2.3.1 Groundwater Pathway and Targets

Residual AFFF that reached grass or dirt surfaces adjacent to the runway may have infiltrated to groundwater. No groundwater wells are within the vicinity of this crash location; however, several groundwater monitoring wells associated with ERP Site FT004 are located approximately 2,000 feet to the north. Groundwater is present between 7 and 10 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the 1982/1983 C-5 crash location. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the crash location is 15,190. The nearest potential drinking well (residential well) is located approximately 10,400 feet downgradient (south) of the crash location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for

stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.2.3.2 Surface Water Pathway and Targets

If AFFF remained on the runway, it would migrate with the stormwater off to the sides into the grassy areas. It is unlikely that any AFFF would have run into surface water; most likely, it would have infiltrated into the subsurface. Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The crash location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 2,000 feet southeast of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles to this location (EDR, 2015; USFWS, 2015b).

3.3.2.3.3 Soil and Air Exposure Pathways and Targets

The crash location is mostly paved with some grassy/dirt areas. A release of AFFF to soil in the grassy areas near the crash location is likely. This area of the flightline has no residents within 1 mile; however, it does have workers within 1 mile, and wetlands are within 2 miles of this location. No schools or day care facilities are within a 200-foot radius of this location. The crash location contains a dirt area adjacent to the runway; therefore, fugitive dust emissions and potential exposures are possible. Flightline land use precludes construction activities or other potential worker exposures. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 8,250 feet to the northwest of the 1982/1983 C-5 crash. The nearest on-Base child development center is located approximately 9,350 feet to the west-northwest.

3.3.3 1986 C-141B Fire

3.3.3.1 Description and Operational History

On October 15, 1986, a C-141B made an emergency landing at night due to a bomb threat at the passenger terminal. While being marshalled into a parking spot within walkers near each wing, the aircraft made a hard right turn and the left wing struck a light pole, rupturing the number 1 main tank. Fuel ran down the light pole and into a high-voltage junction box at the base of the pole, igniting a fire that spread back up the pole and onto the wing (Aviation Safety Network, 2013). The approximate geographical coordinates are 38°15'22.00"N and 121°56'54.28"W. Approximately 500 to 1,000 gallons of AFFF were used to extinguish the fire. The fire was fully

contained on the airfield near parking spots 608 and 609; however, two small grassy strips are near the fire location (Renucci, 2015a, personal communication; Appendix C). The location of the fire is shown on Figures 1.1 and 3.4.

3.3.3.2 Waste Characteristics

The Travis AFB Fire Department responded to the C-141B fire on the 600 ramp. The firefighters stood behind the blast shields to the west and extinguished the fire with approximately 500 to 1,000 gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). Concrete joints on the ramp are sealed; however, there is potential for AFFF applied to migrate to nearby storm drains.

3.3.3.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 5,750 feet hydrologically upgradient of the 1986 C-141B fire. The nearest on-Base child development center is located approximately 5,200 feet hydrologically upgradient of the 1986 C-141B fire.

3.3.3.3.1 Groundwater Pathway and Targets

Concrete joints on the flightline are sealed, and AFFF impacting groundwater is unlikely. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the 1986 fire is 27,880. The nearest potential drinking well (residential well) is located approximately 11,500 feet upgradient (north) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/ commercial wells, one irrigation well, one well for stock, and one monitoring well. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A

potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.3.3.2 Surface Water Pathway and Targets

If AFFF remained on the parking ramp, there is potential for it to migrate into the strips of grass near the ramp. However, it is more likely to have migrated with the stormwater from the next rain event into nearby storm drains. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The 1986 fire location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 1,000 feet west of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile to this location (EDR, 2015; USFWS, 2015b).

3.3.3.3.3 Soil and Air Exposure Pathways and Targets

The 1986 C-141B fire location is mostly paved and has some grassy areas nearby to the southwest. If AFFF had been used and spilled onto the ground, it may have migrated off the ramp into the grassy area. This area of the installation has residents and workers within 1 mile, and seasonal wetlands are within 1 mile of this location. The well-vegetated area would preclude any fugitive dust emissions and potential exposures. Flightline land use precludes construction activities or other potential worker exposures. Burrowing animals would have a potential for exposure. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 5,750 feet to the north-northwest of the 1986 fire location. The nearest on-Base child development center is located approximately 5,200 feet to the north.

3.3.4 1987 L-100 Crash

3.3.4.1 Description and Operational History

On April 8, 1987, an L-100 Hercules aircraft was performing a series of local training flights with approaches and landings at McClellan AFB prior to returning to Travis AFB. An approach and full-stop landing was to be made by a 1st officer candidate at Travis AFB. A balked landing forced the captain to take over the controls and initiate a go-around. The No. 1 and No. 2 engines both decelerated when throttles were advanced (Aviation Safety Network, 2013). The aircraft then banked left and struck the Base perimeter fence and crashed in a grass field just beyond the Base boundary (approximately 300 yards from the runway). A crash witness reported a fireball as the aircraft hit the ground and exploded (Associated Press, 1987). If AFFF were used, it is likely that

only a small amount would have been used to extinguish the aircraft fire. The grass fire was extinguished with water (Renucci, 2015a, personal communication; Appendix C). The approximate geographical coordinates are 38°16'8.30"N and 121°54'34.96"W. The location of the fire is shown on Figures 1.1 and 3.3.

3.3.4.2 Waste Characteristics

The Travis AFB Fire Department responded to the L-100 Hercules crash. According to a newspaper clipping, Base firefighters sprayed foam on the smoking debris (Appendix B). The amount of AFFF was unknown; however, the grass fire was extinguished with water (Renucci, 2015a, personal communication; Appendix C). Any AFFF applied would have likely infiltrated into the ground.

3.3.4.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 10,500 feet hydrologically upgradient of the 1987 L-100 crash location. The nearest on-Base child development center is located approximately 11,900 feet hydrologically cross-gradient of the 1987 L-100 crash location.

3.3.4.3.1 *Groundwater Pathway and Targets*

Because the crash occurred in a grassy area, the AFFF used to extinguish the fire would have infiltrated to groundwater. No groundwater wells are within the vicinity of this crash location; however, several groundwater monitoring wells associated with ERP Site FT004 are located approximately 2,500 feet to the northwest. Groundwater is present between 7 and 10 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the 1987 L-100 crash location. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the crash location is 11,970. The nearest potential drinking well (residential well) is located approximately 11,000 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several

off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include one residential wells, one irrigation well, three wells for stock, and three monitoring wells. None of the downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.4.3.2 Surface Water Pathway and Targets

Because the crash occurred in a grassy area, the AFFF would have infiltrated into the subsurface. It is unlikely that any AFFF would have run into surface water because no storm drains are nearby. Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The 1987 crash location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 3,000 feet southwest of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles to this location (EDR, 2015; USFWS, 2015b).

3.3.4.3.3 Soil and Air Exposure Pathways and Targets

The 1987 crash location is a grassland and the release of AFFF to soil is likely. This grassland is used for cattle grazing, which completes the exposure pathway for human ingestion. This area of the flightline has no residents within 1 mile; however, it does have workers within 1 mile, and wetlands are within 2 miles of this location. No schools or day care facilities are within a 200-foot radius of this location. The well-vegetated area would preclude any fugitive dust emissions and potential exposures. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 10,500 feet to the west of the 1987 L-100 crash location. The nearest on-Base child development center is located approximately 11,900 feet to the west.

3.3.5 1988 C-5 Fire

3.3.5.1 Description and Operational History

On January 31, 1988, a C-5 was on a local training flight when it was forced to make an emergency landing after a malfunctioning light warned the crew of trouble. After the C-5 landed and taxied to Taxiway D to south of parking spots 282 and 292, the crew realized that it was a fire. Fire crews responded and used water to extinguish the fire inside the aircraft. It is unknown whether AFFF was used; however, a fire engine carrying AFFF responded to the fire (Appendix B; Renucci, 2015a, personal communication; Appendix C). If AFFF were used, it is likely that only a small

amount would have been used. Water from the fire would have traveled through the aircraft and spilled on the ground. The aircraft location was just off the side of a grassy area (Renucci, 2015a, personal communication; Appendix C). The approximate geographical coordinates are 38°16'2.79"N and 121°55'32.37"W. The location of the fire is shown on Figures 1.1 and 3.3.

3.3.5.2 Waste Characteristics

The Travis AFB Fire Department responded to the C-5 fire near Taxiway D and extinguished it with water. It is unknown whether any AFFF was used. If AFFF had been applied, however, only a small amount would have been used (Renucci, 2015a, personal communication; Appendix C). Although the uncertainty of whether AFFF was used to extinguished the fire and the small quantity of AFFF if used, it is likely that limited environmental media were affected.

3.3.5.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 6,400-feet hydrologically upgradient of the 1992 C-5 fire location. The nearest on-Base child development center is located approximately 7,400 feet hydrologically cross-gradient of the 1992 C-5 fire location.

3.3.5.3.1 *Groundwater Pathway and Targets*

Residual AFFF that reached grass or dirt surfaces adjacent to the 200 ramp may have infiltrated to groundwater. No groundwater wells are within the vicinity of this location; however, several groundwater monitoring wells associated with ERP Site ST028 are located approximately 1,300 feet to the north. Groundwater is present between 3 and 21 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the 1992 C-5 fire location. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of 1988 fire is 23,430. The nearest potential drinking well (residential well) is located approximately 11,200 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base

potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.5.3.2 Surface Water Pathway and Targets

If AFFF had been used and spilled onto the ground, it may have migrated off the ramp into the grassy area or into nearby storm drains from the next rain event. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The 1988 fire location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 3,300 feet south of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles to this location (EDR, 2015; USFWS, 2015b).

3.3.5.3.3 Soil and Air Exposure Pathways and Targets

The 1988 fire location is mostly paved and has some grassy areas. If AFFF had been used and spilled onto the ground, it may have migrated off the ramp into the grassy area. This area of the flightline has residents and workers within 1 mile, and wetlands are within 2 miles of this location. No schools or day care facilities are within a 200-foot radius of this location. The well-vegetated area would preclude any fugitive dust emissions and potential exposures. Flightline land use precludes construction activities or other potential worker exposures. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 6,400 feet to the west of the 1988 C-5 fire location. The nearest on-Base child development center is located approximately 7,400 feet to the west.

3.3.6 Late 1980s C-141B Crash

3.3.6.1 Description and Operational History

In the late 1980s, a C-141B crash landed due to a nose gear problem on the south end of the runway near Taxiway J and Taxiway S. Approximately 60 gallons of AFFF may have been used to extinguish the fire (Renucci, 2015a, personal communication; Appendix C). The approximate

geographical coordinates are 38°15'11.79"N and 121°56'34.71"W. The location of the fire is shown on Figures 1.1 and 3.4.

3.3.6.2 Waste Characteristics

The Travis AFB Fire Department responded to the C-141B fire on the runway and extinguished it with approximately 60 gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). Concrete joints on the runway are sealed; however, any AFFF applied would have likely migrated off the runway into the grassy areas.

3.3.6.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 7,400 feet hydrologically upgradient of the late 1980s C-141B crash location. The nearest on-Base child development center is located approximately 6,600 feet hydrologically upgradient of the late 1980s C-141B crash location.

3.3.6.3.1 *Groundwater Pathway and Targets*

Residual AFFF that reached grass or dirt surfaces adjacent to the runway may have infiltrated to groundwater. No groundwater wells are within the vicinity of this crash location; however, groundwater monitoring well MW2048x27 associated with ERP Site ST027 is located approximately 600 feet to the north. Groundwater is present at approximately 10 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the late 1980s C-141B crash location. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the crash location is 29,570. The nearest potential drinking well (residential well) is located approximately 10,400 feet cross-gradient (southeast) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include three residential/commercial wells, one irrigation well, one well for stock, and one monitoring well. The commercial well serves approximately 375 people; none of

the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.6.3.2 Surface Water Pathway and Targets

If AFFF remained on the runway, it would migrate with the stormwater off to the sides into the grassy areas. It is unlikely that any AFFF would have run into surface water; most likely, it would have infiltrated into the subsurface. Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The crash location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 1,800 feet south of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 miles to this location (EDR, 2015; USFWS, 2015b).

3.3.6.3.3 Soil and Air Exposure Pathways and Targets

The crash location is mostly paved with some grassy areas. A release of AFFF to soil in the grassy areas near the crash location is likely. This area of the flightline has residents and workers within 1 mile, and wetlands are within 2 miles of this location. No schools or day care facilities are within a 200-foot radius of this location. The well-vegetated area would preclude any fugitive dust emissions and potential exposures. Flightline land use precludes construction activities or other potential worker exposures. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 7,400 feet to the north of the late 1980s C-141B crash location. The nearest on-Base child development center is located approximately 6,600 feet to the north.

3.3.7 1993 C-141B Fire

3.3.7.1 Description and Operational History

On October 7, 1993, a C-141B was undergoing fuel tank and electrical maintenance on the 500 ramp. The right wing exploded and the flames eventually engulfed the entire aircraft (Aviation Safety Network, 2013). Jet Propellant Fuel Number 4 spilled out of the aircraft and flowed south toward a storm drain and beneath another parked C-141B, which suffered minor damage. More than 1,000 gallons of AFFF were used to extinguish the aircraft fire (Renucci, 2015a, personal communication; Appendix C). The approximate geographical coordinates are 38°15'34.92"N and 121°56'45.85"W. The fire was fully contained on the airfield near parking spots 512 and 513. The location of the fire is shown on Figures 1.1 and 3.4.

3.3.7.2 Waste Characteristics

The Travis AFB Fire Department responded to the C-141B fire on the 500 ramp. The firefighters managed the fire and kept it from spreading to other aircraft. Some fuel flowed south toward a storm drain and another parked C-141B; however, firefighters were able to stop fire from spreading before the fuel entered the storm drain. Eventually, the fire was extinguished with more than 1,000 gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). Concrete joints on the ramp are sealed; however, it is likely that the AFFF that was applied migrated into nearby storm drains. The storm drains located on the 500 ramp are discharged into the west branch of Union Creek.

3.3.7.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 5,000 feet hydrologically upgradient of the 1993 C-141B fire location. The nearest on-Base child development center is located approximately 4,100 feet hydrologically upgradient of the 1993 C-141B fire location.

3.3.7.3.1 *Groundwater Pathway and Targets*

Concrete joints on the flightline are sealed, and AFFF impacting groundwater is unlikely. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the 1993 fire is 27,880. The nearest potential drinking well (residential well) is located approximately 10,600 feet cross-gradient (northwest) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/ commercial wells, one irrigation well, one well for stock, and one monitoring well. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A

potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.7.3.2 Surface Water Pathway and Targets

If any AFFF remained on the parking ramp, it is likely to have migrated with the stormwater from the next rain event into nearby storm drains. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The 1993 fire location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 1,800 feet west of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile to this location (EDR, 2015; USFWS, 2015b).

3.3.7.3.3 Soil and Air Exposure Pathways and Targets

Concrete joints on the flightline are sealed, and any AFFF applied would have migrated with stormwater runoff into storm drains and not into the soil. This area of the installation has residents and workers within 1 mile, and seasonal wetlands are within 1 mile of this location. No schools or day care facilities are within a 200-foot radius of this location.

3.3.8 2001 Aircraft Crash

3.3.8.1 Description and Operational History

In 2001, a small aircraft crash landed on the northern runway. The aircraft caught on fire; however, fewer than 5 gallons of AFFF were needed to extinguish the fire (Renucci, 2015a, personal communication; Appendix C). The approximate geographical coordinates are 38°16'8.01"N and 121°54'58.27"W. The location of the fire is shown on Figures 1.1 and 3.3.

3.3.8.2 Waste Characteristics

The Travis AFB Fire Department responded to the aircraft fire on the runway and extinguished it with fewer than 5 gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). Concrete joints on the runway are sealed; however, any AFFF applied would have likely migrated off the runway into the grassy areas.

3.3.8.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. In addition, not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 8,700 feet hydrologically upgradient of the 2001 aircraft crash. The nearest on-Base child development center is located approximately 10,000 feet hydrologically cross-gradient of the 2001 aircraft crash location.

3.3.8.3.1 *Groundwater Pathway and Targets*

Residual AFFF that reached grass or dirt surfaces adjacent to the runway may have infiltrated to groundwater. No groundwater wells are within the vicinity of this crash location; however, several groundwater monitoring wells associated with ERP Site FT004 are located approximately 1,200 feet to the north. Groundwater is present between 7 and 10 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the 2001 crash location. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the crash location is 15,190. The nearest potential drinking well (residential well) is located approximately 11,000 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include three residential wells, one irrigation well, three wells for stock, and two monitoring wells. None of the downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.8.3.2 *Surface Water Pathway and Targets*

If AFFF remained on the runway, it would migrate with the stormwater off to the sides into the grassy areas. It is unlikely that any AFFF would have run into surface water; most likely, it would have infiltrated into the subsurface. Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents

or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The 2001 crash location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 2,000 feet south of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 2 miles to this location (EDR, 2015; USFWS, 2015b).

3.3.8.3.3 Soil and Air Exposure Pathways and Targets

The 2001 crash location is mostly paved and has some grassy areas. A release of AFFF to soil in the grassy areas near the crash location is likely. This area of the flightline has residents and workers within 1 mile, and wetlands are within 2 miles of this location. No schools or day care facilities are within a 200-foot radius of this location. This location contains a dirt area adjacent to the runway; therefore, fugitive dust emissions and potential exposures are possible. Flightline land use precludes construction activities or other potential worker exposures. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 8,700 feet to the west of the 2001 aircraft crash. The nearest on-Base child development center is located approximately 10,000 feet to the west.

3.3.9 2014 Boeing E75 Crash (Air Show)

3.3.9.1 Description and Operational History

On May 4, 2014, a Boeing E75 Stearman was performing an aerial demonstration at the Travis Air Show. The aircraft contacted the runway, slid inverted, and came to a stop several hundred feet later. Preliminary examination of the wreckage indicated that most of the fabric covering on the fuselage was damaged or consumed by fire. The right wing and cockpit furnishings were almost completely consumed by fire, as were some of the aluminum flight control tubes (National Transportation Safety Board, 2014). The aircraft fire was extinguished with less than 5 gallons of AFFF (Renucci, 2015a, personal communication; Appendix C). The approximate geographical coordinates are 38°15'40.19"N and 121°55'53.63"W. The location of the fire is shown on Figures 1.1 and 3.3.

3.3.9.2 Waste Characteristics

The Travis AFB Fire Department responded to the crash on the runway and extinguished it with fewer than 5 gallons of AFFF. A small grass fire southeast of the crash was extinguished with water (Renucci, 2015a, personal communication; Appendix C). Concrete joints on the runway are sealed; however, any AFFF applied would have likely migrated off the runway into the grassy areas.

3.3.9.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 6,550 feet hydrologically upgradient of the 2014 air show crash. The nearest on-Base child development center is located approximately 6,450 feet hydrologically upgradient of the 2014 air show crash.

3.3.9.3.1 *Groundwater Pathway and Targets*

Residual AFFF that reached grass or dirt surfaces adjacent to the runway may have infiltrated to groundwater. Several groundwater monitoring wells associated with ERP Site ST032 are located just south of this location. Groundwater is present between 11 and 15 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the 2014 air show crash location. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the crash location is 25,850. The nearest potential drinking well (residential well) is located approximately 10,000 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.3.9.3.2 *Surface Water Pathway and Targets*

If AFFF had been used and spilled onto the ground, it may have migrated off the runway into the grassy area or into nearby storm drains from the next rain event. The storm drains lead to Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB

drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The 2014 crash location is not located within a flood zone. The nearest body of water is Union Creek, located approximately 1,500 feet south of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile to this location (EDR, 2015; USFWS, 2015b).

3.3.9.3.3 Soil and Air Exposure Pathways and Targets

The 2014 crash location is mostly paved and has some grassy areas. A release of AFFF to soil in the grassy areas near the crash location is likely. This area of the flightline has residents and workers within 1 mile, and wetlands are within 1 mile of this location. No schools or day care facilities are within a 200-foot radius of this location. The well-vegetated area would preclude any fugitive dust emissions and potential exposures. Flightline land use precludes construction activities or other potential worker exposures. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 6,550 feet to the northwest of the 2014 air show crash. The nearest on-Base child development center is located approximately 6,450 feet to the northwest.

3.4 OTHER

3.4.1 60th Logistic Readiness Squadron Base Supply (Building 549)

3.4.1.1 Description and Operational History

The 60th Logistics Readiness Squadron (LRS) Base Supply is located on the north side of Hangar Avenue between Ragsdale Street and Lane Street on Travis AFB. During this PA visit on February 3, 2015, 80 sealed AFFF 55-gallon drums were staged on pallets within Base Supply. Normally, 82 drums of AFFF are stored in the warehouse that the CE Utility Shop uses to service the fire suppression systems.

In September 2014, 40 steel 55-gallon drums of expired AFFF were stored inside the warehouse. Twenty-one of the drums were deteriorated from corrosion and were required to be overpacked (Franklin, 2015, personal communication; Appendix C). These drums were stored in a separate location in the warehouse separate from the current storage location. Occasionally, these drums were stored across the street in an open shed. No spills of AFFF were reported. The warehouse sits on 8 feet of concrete with no floor drains within the building (Todd, 2015, personal communication; Appendix C). The geographical coordinates are 38°16'0.56"N and 121°56'47.87"W. The location of LRS Base Supply is shown on Figures 1.1 and 3.5.

3.4.1.2 Waste Characteristics

Not applicable.

3.4.1.3 Pathway and Environmental Hazard Assessment

Not applicable.

3.4.1.3.1 *Groundwater Pathway and Targets*

Not applicable.

3.4.1.3.2 *Surface Water Pathway and Targets*

Not applicable.

3.4.1.3.3 *Soil and Air Exposure Pathways and Targets*

Not applicable.

3.4.2 CE Utility Shop (Building 176)

3.4.2.1 Description and Operational History

Building 176 is located west of First Street between Travis Avenue and Hickam Avenue. Empty 55-gallon drums of AFFF were formerly stored in the mechanical room of Building 811. The drums were later moved to the CE Utility Shop laydown yard just west of the shop. Approximately 25 AFFF empty drums are staged in the yard and are intermixed with empty 55-gallon high-expansion foam drums. There are currently no plans to remove or discard the drums (Medeiros, 2015, personal communication; Appendix C). The geographical coordinates are 38°16'9.24"N and 121°56'27.38"W. The location of LRS Base Supply is shown on Figures 1.1 and 3.5.

3.4.2.2 Waste Characteristics

Not applicable.

3.4.2.3 Pathway and Environmental Hazard Assessment

Not applicable.

3.4.2.3.1 *Groundwater Pathway and Targets*

Not applicable.

3.4.2.3.2 *Surface Water Pathway and Targets*

Not applicable.

3.4.2.3.3 *Soil and Air Exposure Pathways and Targets*

Not applicable.

3.4.3 Hazardous Waste Treatment Storage and Disposal Facility (Building 1365)

3.4.3.1 Description and Operational History

The Treatment Storage and Disposal Facility (TSDF) in Building 1365 is located in the northeast corner of the Base off Collins Drive. The 40 expired 55-gallon drums of AFFF that were formerly staged at the Base Supply were moved to TSDF for disposal. No spills or discharges were reported. In addition, six 55-gallon drums of high-expansion foam were placed in old AFFF 55-gallon drums by the CE Utility Shop while repairing the high-expansion foam system from Building 818. Although the drums are still labeled as AFFF, the actual content is high-expansion foam (Delmundo and Medeiros, 2015, personal communication; Appendix C). The geographical coordinates are 38°16'38.04"N and 121°55'12.33"W. The location of LRS Base Supply is shown on Figures 1.1 and 3.5.

3.4.3.2 Waste Characteristics

Not applicable.

3.4.3.3 Pathway and Environmental Hazard Assessment

Not applicable.

3.4.3.3.1 *Groundwater Pathway and Targets*

Not applicable.

3.4.3.3.2 *Surface Water Pathway and Targets*

Not applicable.

3.4.3.3.3 *Soil and Air Exposure Pathways and Targets*

Not applicable.

3.4.4 Nozzle Spray Test Area (900 Ramp)

3.4.4.1 Description and Operational History

The 900 ramp is a paved aircraft parking areas surrounded by grass on the south, east, and west sides. An annual nozzle spray test is performed to check equipment and evaluate the chemical balance of the AFFF. Typically, fire engines are parked on space 903 and AFFF is sprayed toward space 904. Approximately 10 to 15 gallons of AFFF are used per test per fire engine. The AFFF and water are left in place on the 900 ramp (Jones, 2015, personal communication; Appendix C). The geographical coordinates are 38°14'53.93"N and 121°57'19.93"W. The location of Fire Station 4 is shown on Figures 1.1 and 3.2.

3.4.4.2 Waste Characteristics

The Travis AFB Fire Department performed nozzle spray tests on the 900 ramp. The foam was allowed to dry up and left in place. The spray test area was used for many years; therefore, the volume of AFFF applied to the area cannot be estimated.

Two incidents occurred in 2004 and 2007 when a fire engine was tested on the north side of the 900 ramp and foam was sprayed onto the grass and into the west branch of Union Creek. Approximately 10 to 15 gallons of AFFF were used during that test (Renucci, 2015a, personal communication; Appendix C; SCF, 2015). The geographical coordinates of the incident are 38°15'4.55"N and 121°57'9.54"W.

3.4.4.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 8,100 feet hydrologically upgradient of the nozzle spray test area. The nearest on-Base child development center is located approximately 8,100 feet hydrologically upgradient of the nozzle spray test area.

3.4.4.3.1 *Groundwater Pathway and Targets*

Residual AFFF on the pavement would run off to the grassy area to the southwest or southeast and infiltrate to groundwater. In addition, the water and foam from the 2004 incident that did not run off into the creek likely infiltrated to groundwater. Several groundwater monitoring wells associated with ERP SS014 and SD037 are located near the 2004 nozzle spray test area incident. Groundwater is present between 9 and 12 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the nozzle spray test areas. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the nozzle spray test area is 47,600. The nearest potential drinking well (residential well) is located approximately 11,700 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient

groundwater wells include five residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.4.4.3.2 Surface Water Pathway and Targets

During normal nozzle spray test activities, any AFFF that remained on the ramp would migrate with the stormwater off to the sides into the grassy areas. Because there are no storm drains in the southern portion of the ramp, the AFFF would most likely have infiltrated into the subsurface. During the 2004 incident, AFFF was sprayed directly into Union Creek, which flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The nozzle spray test area is not located within a flood zone. The nearest body of water is Union Creek, located immediately east of the 900 ramp. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile to this location (EDR, 2015; USFWS, 2015b).

3.4.4.3.3 Soil and Air Exposure Pathways and Targets

The nozzle spray test area is mostly paved and surrounded by grassy areas. The AFFF that was sprayed onto the ramp will likely wash away to the surrounding grassy fields. In addition, AFFF was sprayed directly onto the grass on the northeast side of the 900 ramp. This area of the flightline has residents and workers within 1 mile, and wetlands are within 1 mile of this location. No schools or day care facilities are within a 200-foot radius of this location. Because the area consists primarily of paved or grassy areas, fugitive dust emissions and potential exposures should be minimal. Construction or other ground-disturbing activities could result in potential worker exposure to dust. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 8,100 feet to the north of the nozzle spray test area. The nearest on-Base child development center is located approximately 8,100 feet to the north.

3.4.5 Former Sewage Treatment Plant and Sludge Disposal Area

3.4.5.1 Description and Operational History

The former STP was located in the southeastern portion of Travis AFB and east of FT005 and Carson Road. The STP operated from the early 1950s until the late 1970s. The STP included a settling basin, oxidation ponds, and a chlorine contact chamber. The oxidation ponds were

constructed of soils with a high clay content and were reported to retain water without any apparent losses. The STP was used to treat primarily domestic and some industrial waste generated at the Base. Although no AFFF was released directly to the ground at the STP, any AFFF that may have entered the floor drains/sewer would likely have been treated at the STP. The effluent from the STP was discharged to Union Creek. Sludge from the settling basin was pumped to a digester system. Digested sludge was spread over areas located adjacent to the STP. It has been estimated that approximately 100 cubic yards of digested sludge were disposed of annually. During the late 1970s, Travis AFB began pumping its domestic waste to the Fairfield-Suisun Sewer District Treatment Plant (Engineering-Science, 1983). The geographical coordinates are 38°15'21.21"N and 121°55'36.26"W. The location of the former STP is shown on Figures 1.1 and 3.6.

3.4.5.2 Waste Characteristics

The STP operated until the late 1970s; therefore, any AFFF that may have entered the floor drains would likely have been treated at the STP. Building 811 was constructed in 1979 and Building 14 in 1996; therefore, it is unlikely that these two hangars were a source of AFFF. Fire Station 2 was built in 1956, and vehicles were frequently washed in the wash rack adjacent to the station. In addition, if any of the fire engines leaked or spilled AFFF within the fire station, the AFFF would have entered the floor drains and entered the sanitary sewer and eventually reached the STP. Because a majority of the STP was lined, the sludge disposal areas, the oxidation ponds, and the outfall from the STP to Union Creek are the likely locations contaminated with AFFF.

3.4.5.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 9,000 feet hydrologically upgradient of the former STP. The nearest on-Base child development center is located approximately 8,700 feet hydrologically upgradient of the former STP.

3.4.5.3.1 *Groundwater Pathway and Targets*

The oxidation ponds were considered to retain water without losses; however, over a long period of time, it is possible that some water infiltrated to groundwater. The treated effluent was discharged into the main branch of Union Creek and at that point, AFFF may have infiltrated into

the subsurface. Groundwater monitoring well MW123x05 associated with ERP Site FT005 is located within this location. Groundwater is present at approximately 13 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the STP. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the former STP is 22,080. The nearest potential drinking well (residential well) is located approximately 7,000 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include four residential/commercial wells, one irrigation well, one well for stock, and two monitoring wells. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

3.4.5.3.2 Surface Water Pathway and Targets

Following the treatment system, final effluent likely containing AFFF was discharged to the main branch of Union Creek. The creek flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The former STP is not located within a flood zone. The nearest body of water is Union Creek, located immediately northwest of this location. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). One wetland is located within the STP, and sensitive environments are adjacent to this location (EDR, 2015; USFWS, 2015b).

3.4.5.3.3 Soil and Air Exposure Pathways and Targets

Any AFFF that flowed into a floor drain in the 1970s would have likely ended up at the STP. The digested sludge from the STP was land spread around the STP. If any of the AFFF was bound to soil, it may also be found in the digested sludge. This area has residents and workers within 1 mile, and a wetland is within this location. No schools or day care facilities are within a 200-foot radius of this location. The former STP contains dirt sludge drying beds; therefore, fugitive dust emissions and potential exposures are possible. Construction or other ground-disturbing activities could result in potential worker exposure to dust. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 8,100 feet to the north

of the STP. The nearest on-Base child development center is located approximately 8,100 feet to the north.

3.4.6 Union Creek Outfalls 1 and 2

3.4.6.1 Description and Operational History

Outfall 1 is located at the southern tip of Travis AFB near Perimeter Road and the southwest end of the runway. Outfall 2 is located approximately 2,200 feet southeast of Building 895 and 2,800 feet southwest of the current FTA.

As discussed in Section 1.3.3, Union Creek is the primary surface water pathway for runoff at Travis AFB. The western branch of Union Creek is located near the 800 row of buildings, including Buildings 811 and 895. This branch flows north to south and underneath the runway to Outfall 2 where it connects with the main branch of Union Creek. From there, Union Creek turns to the southwest and flows through Outfall 1. All surface water from the Base flows through Outfall 1 before moving off Base. Many releases of AFFF at Travis AFB may have migrated into Union Creek as discussed in the previous sections; therefore, AFFF may be present at Outfalls 1 and 2 (SCF, 2015). The geographical coordinates of Outfall 1 are 38°14'17.93"N and 121°57'30.20"W and Outfall 2 are 38°14'47.64"N and 121°56'49.89"W. The locations of Outfalls 1 and 2 are shown on Figures 1.1 and 3.6.

3.4.6.2 Waste Characteristics

Many releases of AFFF were reported on Base, and AFFF likely migrated with stormwater into Union Creek. The likely accumulation points within Union Creek are Outfall 2, where the west branch meets up with the main branch, and Outfall 1, the location before surface water leaves the Base. The amount of AFFF released to Union Creek and the outfalls over the years is unknown.

3.4.6.3 Pathway and Environmental Hazard Assessment

A complete exposure pathway typically includes the following components: 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.

Database research (EDR, 2015) shows 329 day care facilities, 1 nursing home, 39 schools, 30 hospitals, clinics, and medical offices and 1 college within the potential migration area of 4 miles from any given potential release location of PFCs. Two on-Base elementary schools were included in the EDR; however, one was not. Also not included in the EDR report are two on-Base day care facilities (child development center) and one on-Base hospital. No schools or day care facilities are within a 200-foot radius of this location. The nearest on-Base elementary school is located approximately 9,100 feet hydrologically upgradient of Outfall 2. The nearest on-Base child development center is located approximately 8,700 feet hydrologically upgradient of the Outfall 2.

3.4.6.3.1 Groundwater Pathway and Targets

Any AFFF released onto the ground may migrate to a storm drain or directly into Union Creek. Some water would flow past Outfalls 1 and/or 2, and some water may infiltrate to groundwater. Groundwater monitoring well MW270x33 associated with ERP SD033 is located between Outfall 1 and Outfall 2. Groundwater is present at approximately 13.7 feet bgs (CH2M HILL, 2014). Because of the shallow groundwater depth, a complete exposure pathway is present for construction workers at the outfalls. As described in Section 1.3.2, the fact that Travis does not use the aquifer below the Base as a supply of drinking water would render this exposure pathway incomplete for Travis AFB workers and residents.

The estimated population within 4 miles of the outfalls is 47,600. The nearest potential drinking well (residential well) is located approximately 7,300 feet downgradient (south) of this location. The potential exists that within 4 miles downgradient of this location, there are several off-Base potential receptors because of their use of groundwater. The downgradient groundwater wells include five residential/commercial wells, one irrigation well, and one well for stock. The commercial well serves approximately 375 people; none of the other downgradient wells have reported populations served (EDR, 2015). Based on how the water may be used, as a source for irrigation, a potential for dermal contact of the groundwater also exists. A potential also exists for dermal contact and/or ingestion for livestock exposed to water from the stock well.

In July 2014, one groundwater sample from monitoring well MW270x33 was collected and analyzed for PFOS and PFOA. The PFOS and PFOA concentrations were 0.089 µg/L and 0.034 µg/L, respectively, which were less than the USEPA PHAs (SCF, 2015).

3.4.6.3.2 Surface Water Pathway and Targets

Any AFFF released onto the ground may migrate to a storm drain or directly into Union Creek. Some water would flow past Outfalls 1 and/or 2, and some water may infiltrate to groundwater. Union Creek flows southwest off Base into Hill Slough, a seasonally and semi-permanently flooded wetland from which water flows into Suisun Marsh (CH2M HILL, 2014). Travis AFB drinking water comes from a surface water source approximately 15 miles upstream, so there is no exposure pathway for surface water to residents or workers through domestic drinking water. The potential migration of surface contamination into nearby surface water is likely, which could provide a complete exposure pathway for non-ingestion exposures, such as dermal exposure to humans. In addition, local waterways are used for recreational fishing, which completes the exposure pathway for human ingestion. Ingestion by aquatic or other animals is also a potential pathway for ecological receptors.

The outfalls are not located within a flood zone. The nearest body of water is Union Creek at the outfalls. Union Creek connects to Suisun Marsh, which empties into Suisun Bay approximately 10 miles downstream from the Base. No national fish hatcheries are within 15 miles of Travis AFB (USFWS, 2015a). Several wetlands and sensitive environments are located within 1 mile of the outfalls (EDR, 2015; USFWS, 2015b).

In July 2014, surface water samples were collected from two locations within Union Creek at Outfalls 1 and 2 and analyzed for PFOS and PFOA. The maximum PFOS and PFOA concentrations were 2.9 µg/L and 0.14 µg/L, respectively, and the PFOS concentrations exceeded the USEPA PHAs (SCF, 2015).

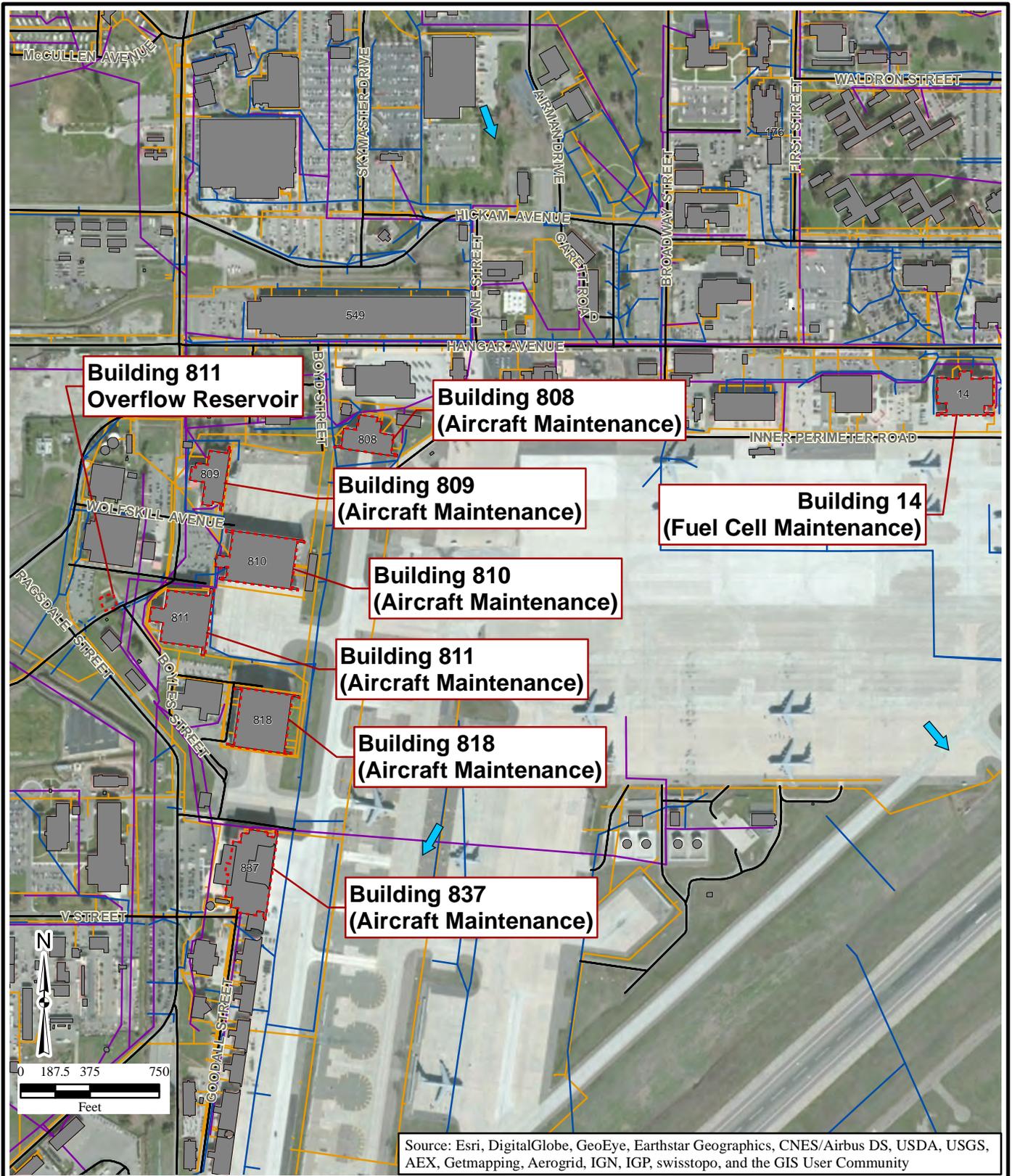
3.4.6.3.3 Soil and Air Exposure Pathways and Targets

Outfalls 1 and 2 are underlain by soil and sediment. Any AFFF in the surface water may infiltrate into the subsurface. This area of the Base has residents and workers within 1 mile, and wetlands are within 1 mile of these locations. No schools or day care facilities are within a 200-foot radius of these locations. Because the area consists primarily of paved or grassy areas, fugitive dust emissions and potential exposures should be minimal. Construction or other ground-disturbing activities could result in potential worker exposure to dust. Burrowing animals would have a potential for exposure. The nearest on-Base elementary school is located approximately 9,100 feet to the north of Outfall 2. The nearest on-Base child development center is located approximately 8,700 feet to the north.

In July 2014, sediment samples from two locations were collected and analyzed for PFOS and PFOA. Sediment samples were collected within Union Creek at Outfalls 1 and 2. The maximum PFOS and PFOA concentrations were 31 µg/kg and 0.48 µg/kg, respectively; however, all sediment concentrations were less than RSSLs (SCF, 2015). The results of this sampling indicate that PFOS and PFOA components are present in sediment at low concentrations. It appears that PFCs in solution tend to stay in solution and not bond to soil.

FIGURES

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Figure_3.1.mxd
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Source: Wetland, National Wetlands Inventory - Wetland Polygons. Published
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and Resource Conservation, Washington, D.C.
<http://www.fws.gov/wetlands/>

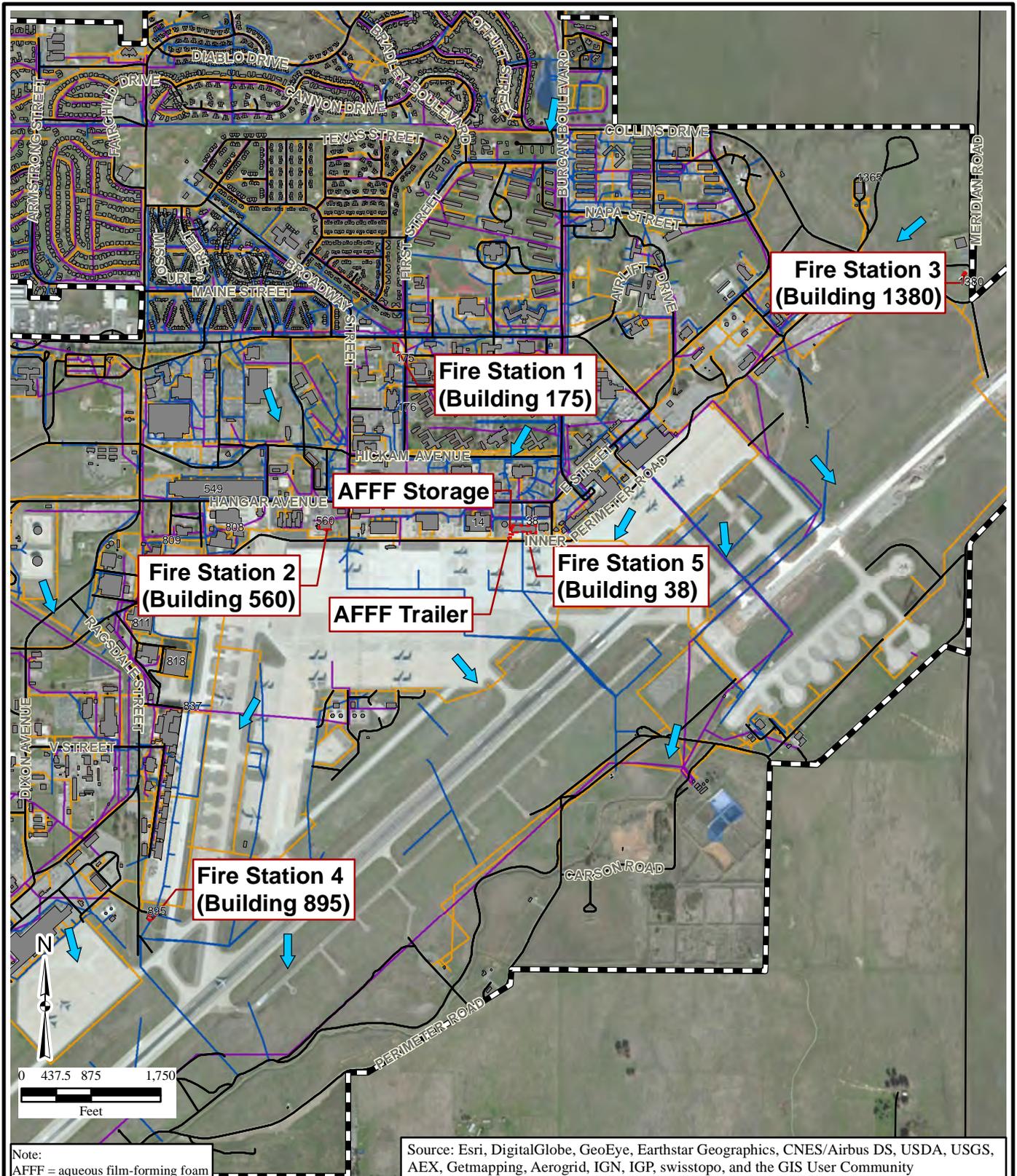
CH2MHILL.

Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building

**Figure 3.1
Aircraft Hangars
Travis AFB,
California**

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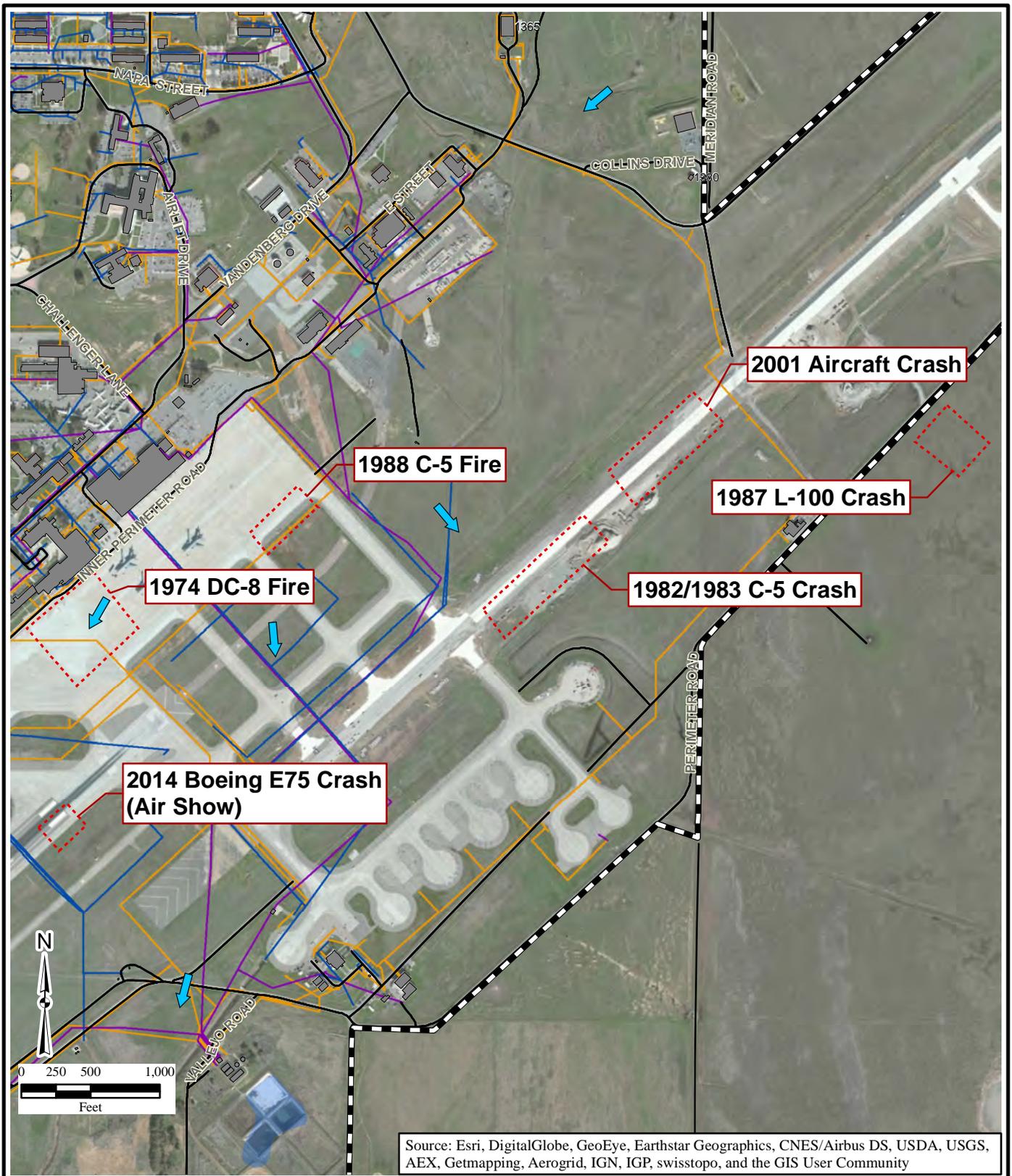
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Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building
- Wetland**
- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Figure 3.2
Fire Stations and Aqueous Film-forming Foam Locations, Travis AFB, California

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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 Source: Wetland, National Wetlands Inventory - Wetland Polygons. Published September 2012. U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Washington, D.C.
<http://www.fws.gov/wetlands/>

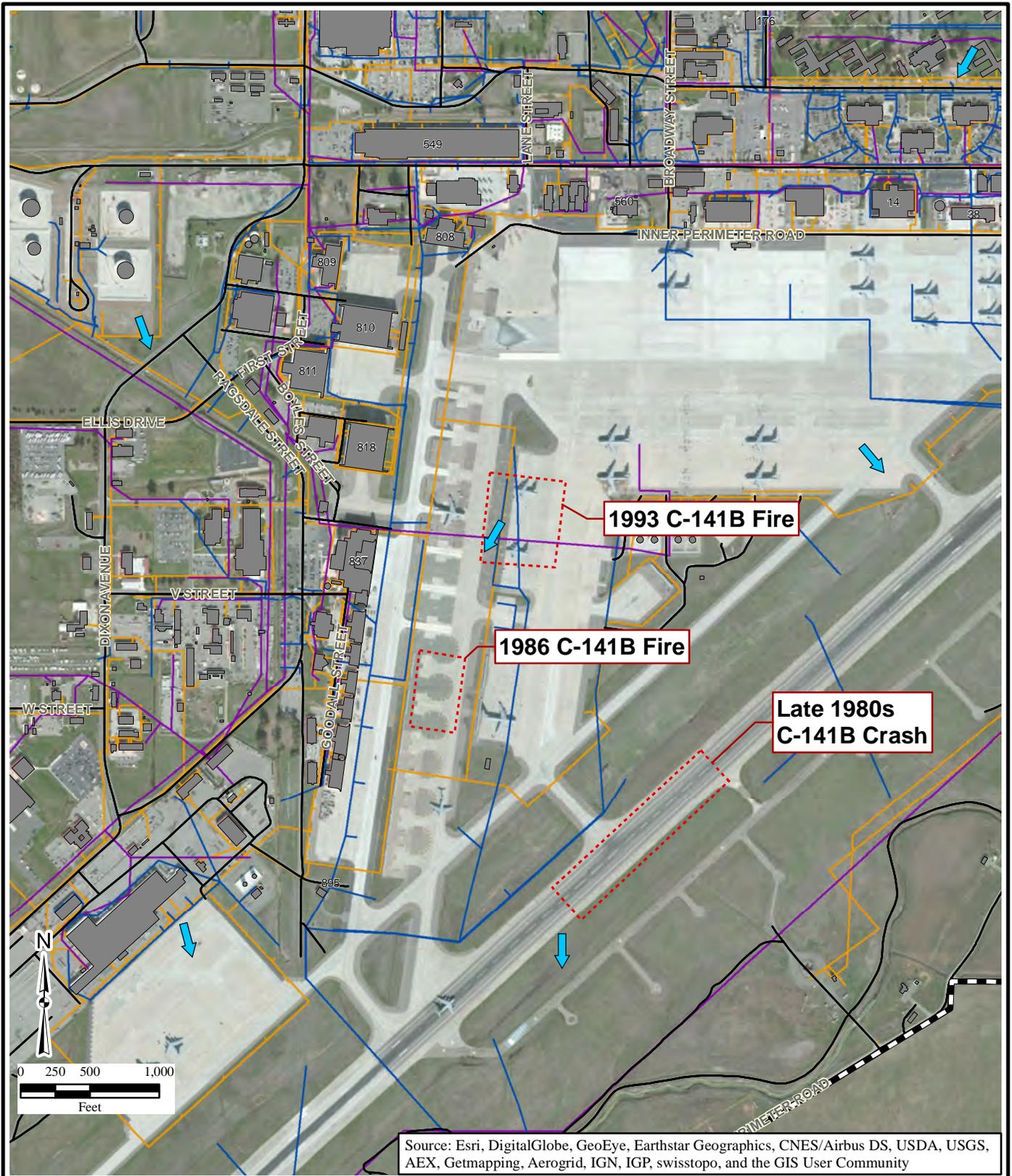
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Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building
- Wetland**
- Freshwater Pond

Figure 3.3
Emergency Response (Fires and Crashes), Northeastern Part of Travis AFB, California

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 Source: Wetland, National Wetlands Inventory - Wetland Polygons. Published September 2012. U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Washington, D.C.
<http://www.fws.gov/wetlands/>

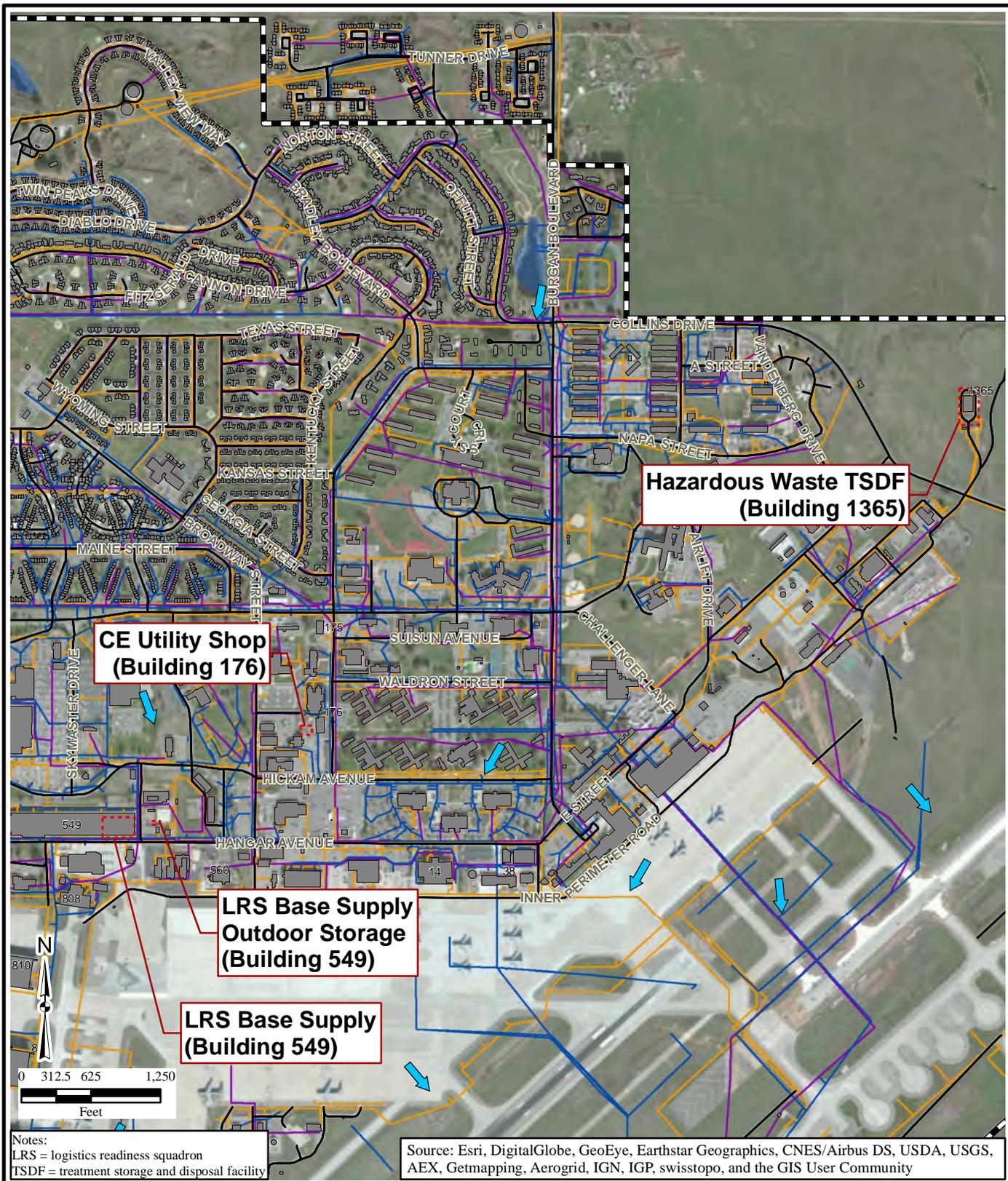
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Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building
- Wetland**
- Riverine

Figure 3.4
Emergency Response
(Fires and Crashes),
South-central Part
of Travis AFB,
California

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 Source: Wetland, National Wetlands Inventory - Wetland Polygons, Published September 2012, U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Washington, D.C.
<http://www.fws.gov/wetlands/>

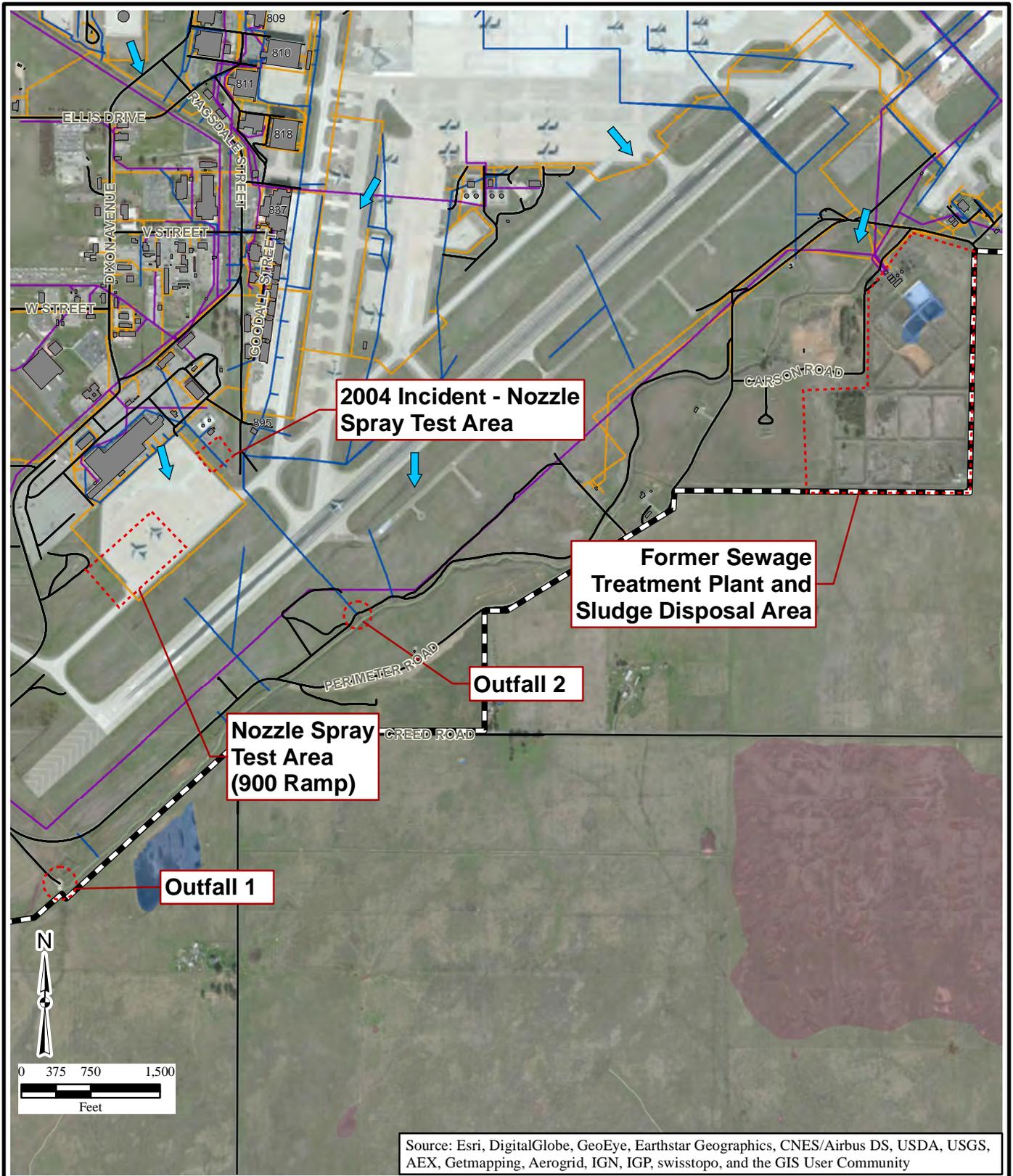
CH2MHILL.

Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building
- Wetland**
- Freshwater Pond

Figure 3.5
Other Potential Release Locations, Northern Part of Travis AFB, California

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 Source: Wetland, National Wetlands Inventory - Wetland Polygons. Published September 2012. U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Washington, D.C.
<http://www.fws.gov/wetlands/>

CH2MHILL.

Legend

- Approximate Shallow Groundwater Flow Direction
- Storm Sewer
- Wastewater Line
- Water Line
- Road
- Approximate Location
- Base Boundary
- Building
- Wetland**
- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Figure 3.6
Other Potential Release Locations, Southern Part of Travis AFB, California

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4.0 SUMMARY AND CONCLUSIONS

The following sections summarize the findings of the preliminary assessment for AFFF on Travis AFB and provide conclusions based on those findings.

4.1 SUMMARY

4.1.1 Fire Training Areas

4.1.1.1 Fire Training Areas Closed Prior to 1970

FTAs that were closed prior to 1970 would not have had AFFF applied for firefighting and are not considered to have been impacted by PFOA or PFOS from AFFF use. FT002 was closed in 1950; FT003 was closed in 1952; and FT004 was closed in 1962.

4.1.1.2 Fire Training Areas Operational After 1970

The FTA used after 1970 (FT005) could contain PFOA- and PFOS-impacted media. Since the FTA closure in 1986, the site was excavated between 1 and 8 feet bgs. However, contamination may have migrated offsite or into the groundwater.

4.1.1.3 Current Fire Training Areas

The current operating FTA at Travis AFB was constructed with a berm and liner and uses propane as a fuel source. Both the pit and structural trainer are considered closed systems, capturing and re-using the extinguishing agents. Before the existing FTA was in place, a fire training pit was used with diesel as the fuel source. Water, AFFF, and dry chemical have been used at this location as extinguishing agents. The current FTA is likely to have impacted media.

4.1.2 Non-Fire Training Areas

4.1.2.1 Hangars

Only two hangars (Buildings 14 and 811) had and currently have AFFF fire suppressions systems at Travis AFB. Both hangars have had system activations at some point in the past, and it is likely that the AFFF was contained in the floor drain system. At Building 14, the floor drains lead to a holding tank before it is pumped out. At Building 811, the floor drains are connected to the sanitary sewer system. However, when the fire suppression system is activated, some of the drain water is diverted to the overflow reservoir. Based on the engineered containment of limited discharges, these hangars have a low likelihood of impacted media. However, the Building 811 concrete overflow reservoir is reported to have cracks and may have likely impacted media beneath the reservoir.

4.1.2.2 Fire Stations

Travis AFB has had five fire stations on Base. All five fire stations have had fire engines that hold AFFF. All fire trucks that need to be refilled with AFFF went to Fire Station 2; since 2011, they are refilled at Fire Station 5. At Fire Stations 1, 3, and 4, there was limited local handling of AFFF;

however, vehicles were washed onsite, and there is a low likelihood that PFC-impacted media would be present at these fire stations. Fire Station 2 was the main station that housed the most fire engines that held AFFF and also housed the AFFF trailer, contained a storage yard for AFFF drums, performed a majority of the vehicle washing, and was the principal location for refilling all fire engines. Currently, Fire Station 5 serves as the main station and conducts the same activities that were performed at Fire Station 2. Therefore, Fire Stations 2 and 5 could have impacted media. It was also reported that an AFFF spill occurred in the storage area of Fire Station 5, and AFFF was released into the storm drains.

4.1.2.3 Emergency Response

The Travis AFB Fire Department has responded to multiple fire emergencies requiring the application of AFFF to suppress fires. The fire department's response has ranged from fewer than 5 gallons to well over 1,000 gallons of AFFF. The presence of impacted media cannot be ruled out from any of the emergency response locations; however, it is unlikely that these locations with lower volumes would have a significant amount of impacted media. Overall, these locations are likely to have impacted media.

4.1.2.4 Other

Other identified areas include the Base Supply where AFFF is stored in 55-gallon drums (Building 549), the CE Utility Shop yard where empty drums are stored (Building 176), TSDF where waste is staged for disposal (Building 1365), the nozzle spray test area on the 900 ramp, and the former STP.

The three AFFF drum storage areas (Buildings 549, 176, and 1365) have not reported any spills or discharges of AFFF. Therefore, there is a low likelihood that PFC-impacted media would be present at any of the storage locations.

The nozzle spray test area had AFFF applied several times a year to check the fire engine equipment and evaluate the chemical balance of the AFFF. The tests performed on the paved 900 ramp, and the water and foam were allowed to dry up or run off into the grassy areas nearby. In 2004, foam was sprayed directly onto a grassy area and into Union Creek during a nozzle spray test on the north side of the 900 ramp.

Because historical use and discharges of AFFF may have entered the sanitary sewer system from Fire Station 2 and Hangar 811, and the former STP and sludge disposal areas may have been exposed to water containing AFFF, there is a likelihood that PFC-impacted media would be present.

4.2 CONCLUSIONS

Table 4.1 summarizes the findings from this PA Report and presents possible future location management decisions. The identified locations are categorized by group as follows:

- Group 1 – High mass of AFFF released and probability of groundwater contamination.
- Group 2 – Unknown mass or medium mass of AFFF released.

- Group 3 – Low mass of AFFF released.
- Group 4 – No AFFF released.

Based on the group designation and rationale for each site, recommendations are provided in Table 4.1. In accordance with the USEPA CERCLA Preliminary Assessment and Site Inspection (SI) guidance documents (USEPA, 1991; USEPA, 1992), each identified location is recommended for one of the following actions: Implement removal action due to imminent threat; Close out due to no release; or Initiate an SI.

- Removal actions, as defined in CERCLA Section 104, are actions taken to eliminate, control, or otherwise mitigate a threat posed to public health or the environment due to a release or threatened release of hazardous substances (USEPA, 1991).
- Close out or no further remedial action planned is defined as a disposition decision that further response under the federal Superfund is not necessary (USEPA, 1991).
- SI is defined as an investigation to collect and analyze waste and environmental samples to support a site evaluation (USEPA, 1992).

Table 4.1
Preliminary Assessment Report Summary and Findings
Travis Air Force Base, California

Locations	Group	Rationale	Recommendation
FT002, FT003, FT004	Group 4	<ul style="list-style-type: none"> • Former FTAs closed prior to 1970. 	Close out with no additional investigation.
FT005	Group 1	<ul style="list-style-type: none"> • AFFF used until it closed in 1986. • No containment. • Unknown amounts of AFFF released. • Some remediation (excavation) performed. 	Initiate SI.
Current FTA	Group 1	<ul style="list-style-type: none"> • Previous fire training pit was not a closed system. • AFFF used as extinguishing agent. • Containment present but possible spills/leaks outside containment. • Unknown amount of AFFF used. 	Initiate SI.
Hangars (Buildings 808, 809, 810, 818, and 837)	Group 4	<ul style="list-style-type: none"> • No AFFF usage. 	Close out with no additional investigation.
Hangar (Building 14)	Group 3	<ul style="list-style-type: none"> • Current AFFF system. • Activations have occurred in past, but no specific dates. • Foam captured in holding tank. 	Close out with no additional investigation.

Table 4.1
Preliminary Assessment Report Summary and Findings
Travis Air Force Base, California

Locations	Group	Rationale	Recommendation
Hangar (Building 811)	Group 3	<ul style="list-style-type: none"> • Current AFFF system. • Multiple activations have occurred in the past, but no specific dates. • Accidental activation in 2011 and AFFF released outside the hangar onto grassy area. • Foam in floor drains that lead to sanitary sewer or overflow reservoir. • Possible leaks from cracked overflow reservoir. • Confirmed contamination in groundwater. 	Initiate SI.
Fire Station 1	Group 3	<ul style="list-style-type: none"> • One fire engine with 56 gallons of AFFF onboard. • No confirmed releases. 	Initiate SI.
Fire Station 2	Group 3	<ul style="list-style-type: none"> • Known AFFF storage (drums and tank). • Several fire engines carrying 50 to 500 gallons of AFFF each. • Refilling trucks with AFFF. • Wash rack. • Unknown amounts of AFFF released. 	Initiate SI.
Fire Station 3	Group 3	<ul style="list-style-type: none"> • One fire engine with 500 gallons of AFFF onboard. • No floor drains; carport only. • Confirmed releases for spray test and training. • Confirmed contamination in groundwater. 	Initiate SI.
Fire Station 4	Group 3	<ul style="list-style-type: none"> • One fire engine with 500 gallons of AFFF onboard. • No floor drains; carport only. • Confirmed releases nearby from nozzle spray test. • Confirmed contamination in surface water and groundwater. 	Initiate SI.

**Table 4.1
Preliminary Assessment Report Summary and Findings
Travis Air Force Base, California**

Locations	Group	Rationale	Recommendation
Fire Station 5	Group 3	<ul style="list-style-type: none"> • Known AFFF storage (drums and tank). • Several fire engines carrying 50 to 500 gallons of AFFF each. • Refilling trucks with AFFF. • Vehicle washing. • At least one confirmed release of 75 gallons of AFFF to storm drain. • Unknown amounts of AFFF released. 	Initiate SI.
1974 DC-8 Fire	Group 3	<ul style="list-style-type: none"> • Several hundred gallons of AFFF used. • Located on pavement (200 ramp). • Foam allowed to dissipate in place or run off into storm drain. • One-time event. 	Initiate SI.
1982/1983 C-5 Crash	Group 3	<ul style="list-style-type: none"> • Less than 100 gallons of AFFF used. • Located on runway. • Foam likely washed onto grassy area. • One-time event. 	Initiate SI.
1986 C-141B Accident	Group 3	<ul style="list-style-type: none"> • 500 to 1,000 gallons of AFFF used. • Located on pavement (600 ramp). • Foam allowed to dissipate in place, run off into storm drain, or run off onto grassy area. • One-time event. 	Initiate SI.
1987 L-100 Crash	Group 3	<ul style="list-style-type: none"> • Unknown amount of AFFF used. • Fire in grass field approximately 300 yards from runway; foam infiltrated into subsurface. • One-time event. 	Initiate SI.
1988 C-5 Fire	Group 3	<ul style="list-style-type: none"> • Unknown amount or whether AFFF was used. • Fire within aircraft located on pavement (200 ramp). • If foam used, allowed to dissipate in place or run off into grassy area. • One-time event. 	Initiate SI.
Late 1980s C-141B Crash	Group 3	<ul style="list-style-type: none"> • Approximately 60 gallons of AFFF used. • Located on runway. • Foam likely washed onto grassy area. • One-time event. 	Initiate SI.
1993 C-141B Fire	Group 3	<ul style="list-style-type: none"> • More than 1,000 gallons of AFFF used. • Located on pavement (500 Ramp). • Foam allowed to dissipate in place or runoff into storm drain. • One-time event. 	Initiate SI.

**Table 4.1
Preliminary Assessment Report Summary and Findings
Travis Air Force Base, California**

Locations	Group	Rationale	Recommendation
2001 Aircraft Crash	Group 3	<ul style="list-style-type: none"> • Approximately 5 gallons of AFFF used. • Located on runway. • Foam likely washed onto grassy area. • One-time event. 	Initiate SI.
2014 E75 Air Show Crash	Group 3	<ul style="list-style-type: none"> • Approximately 5 gallons of AFFF used. • Located on runway. • Foam likely washed onto grassy area. • One-time event. 	Initiate SI.
LRS Base Supply (Building 549)	Group 3	<ul style="list-style-type: none"> • Storage of AFFF drums. • 40 corroded steel drums or expired AFFF stored in warehouse and outdoors open shed. • No reported leaks or spills. • Concrete foundation is 8 feet thick with no floor drains. 	Close out with no additional investigation.
CE Utility Shop (Building 176)	Group 4	<ul style="list-style-type: none"> • Storage of empty AFFF drums. • No reported leaks or spills. 	Close out with no additional investigation.
TSDF (Building 1365)	Group 4	<ul style="list-style-type: none"> • Storage of expired AFFF drums for disposal. 	Close out with no additional investigation.
Nozzle Spray Test Area (900 Ramp)	Group 2	<ul style="list-style-type: none"> • Repeated application of AFFF onto pavement (900 ramp). • Each test used 10 to 15 gallons of AFFF. • Foam allowed to dissipate in place or run off onto grassy area. • One-time application directly onto the grassy area and into Union Creek. 	Initiate SI.
Former Sewer Treatment Plant and Sludge Disposal Area	Group 3	<ul style="list-style-type: none"> • Potentially received wastewater from Fire Station 2 and Building 811 containing AFFF. • Possible AFFF in sludge from STP. • Possible AFFF in oxidation ponds. • Possible AFFF in outfall from STP. 	Initiate SI.
Union Creek Outfalls1 and 2	Group 3	<ul style="list-style-type: none"> • Union Creek received stormwater runoff containing AFFF. • Outfalls are sediment accumulation locations. • Confirmed contamination in surface water. 	Initiate SI.

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APPENDIX A
PHOTO DOCUMENTATION

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PHOTOGRAPH LOG

Team: <u>Travis AFB</u>		Date: <u>2/3/15 - 2/4/15</u>	
Project Number:		Observation Period: Start: <u>2/3/15</u> Stop: <u>2/4/15</u>	
Weather: <u>50s-60s, Sunny/Partly Cloudy</u>			
Photo No.	Time	View Direction	Location/Description
1	1045	Inside Bldg	Base Supply, 80x55-gal drums Ansulite 3% AFFF
2	1048	"	Base Supply, storage location of 40x55-gal steel drums, some rusted.
3	1049	NE	Base Supply, out door storage of same 40 drums. AFFF expired.
4	1337	Inside Bldg	Bldg 808 400-gal HEF tank (Chemguard C2)
5	1337	Inside Bldg	Bldg 808 Tank plate (HEF/Chemguard C2)
6	1348	"	Bldg 809 500-gal HEF tank (Chemguard C2)
7	1348	"	Bldg 809 Fire suppression system Schematic Diagram
8	1405	"	Bldg 811 AFFF cannon
9	1406	"	"
10	1406	"	"
11	1406	"	Bldg 811 Control Panel
12	1410	"	Bldg 811-Mech room 2x1500 gal AFFF Tanks
13	1410	"	Bldg 811-55-gal AFFF drum to refill tanks (Ansulite 3%)
14	1410	"	Bldg 811-1500-gal AFFF Tank
15	1410	"	Bldg 811-Extra 55-gal drum storage
16	1425	"	Bldg 818-HEF tank, 500 gal, Chemguard C2
17	1425	"	Bldg 818-Tank disassembled, pump need replace Inside tank
18	1426	"	Bldg 818- Stained concrete from HEF spill inside.
19	1427	SE	Bldg 818- HEF from tank pumped into 55-gal AFFF drum.
20	1452	SE SW	900 Ramp - Nozzle spray test area.
21	1453	South	900 Ramp - Nozzle spray test area (~ space 903)
22	1454	SE SW	Grassy area SE of 900 ramp where water would flow + pond.
23	1514	SE SW	Former FTA-4
24	1514	"	"
25	1514	South	"
26	1519	SE	Former Sanitary sewer Plant (sludge drying bed)
27	1519	North	"
28	1519	West	"
29	1520	South	"
30	1525	East	Former Sanitary Plant - Concrete holding tank.
31	1525	North	Former Sanitary Plant.
32	1528	South	Former "
33	1536	North	B1380 - Fire Station #3, Crash truck in carport
34	1550	East	Former FTA-3
35	1551	SE	Former FTA-2
36	1557	West	Former FTA-1
37	1605	Inside Bldg	B14- AFFF MSDS - Chemguard 3% AFFF
38	1606	"	B14-mech room, 2x1400 gal AFFF tanks (~ 75)
39	1610	NW	B14- outside mech room. If tank AFFF, would flow out to storm drain
40	1214	Inside bldg	Tsdf (Haz Waste storage) - HEF placed in AFFF drums.
41	1215	"	"
42	1215	North	Tsdf-Empty drum storage area. No known AFFF drums.
43	1308	West	B176, Empty AFFF/HEF drum storage area.
44	1308	North	"
45	1333	SE	Sweeper material dump area @ B872

2/3/15

2/4/15



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

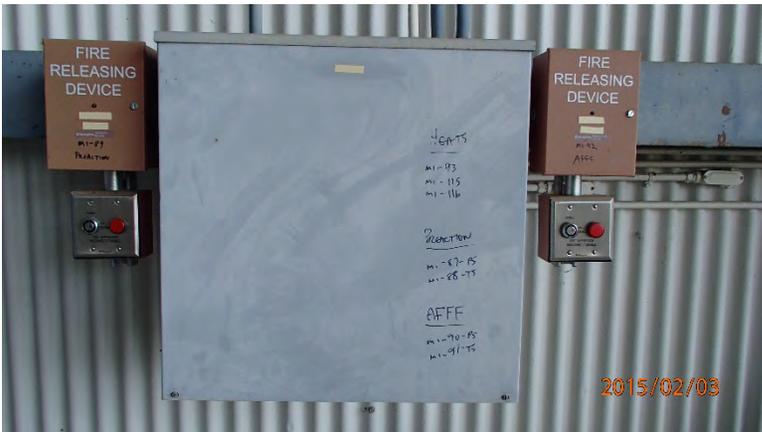


Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25



Photo 26



Photo 27



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Photo 33



Photo 34



Photo 35



Photo 36

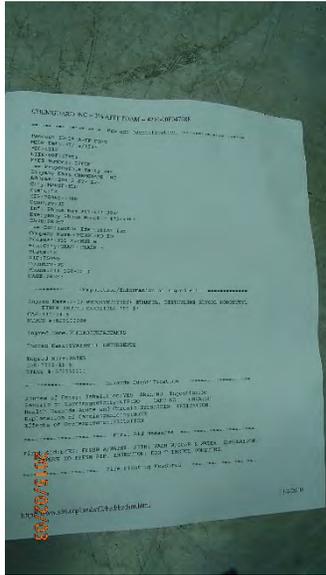


Photo 37



Photo 38



Photo 39



Photo 40



Photo 41



Photo 42



Photo 43



Photo 44



Photo 45



Photo 46



Photo 47



Photo 48

APPENDIX B
FIELD DOCUMENTATION

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APPENDIX B.1
POTENTIAL HAZARDOUS WASTE SITE FORMS

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7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>7,700</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>22,080</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>10-20</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>500</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 22,080

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile Wetlands _____

>1/4-1/2 Mile Wetlands _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'1.58"	Longitude: 121°56'19.90"	Approximate Area of Site: 5.5 Acres		Status of Site:	
		Square Ft		<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Not Specified
				<input type="checkbox"/> Inactive	<input type="checkbox"/> NA (GW plume, etc.)

Site Name: Current Fire Training Area

Site Description: Fire training activities water, AFFF, and dry chemicals as extinguishing agent. Previously training exercises used diesel fuel and a training pit. Currently, FTA contains a training pit and structural trainer that is a closed system capturing all extinguishing agent.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership:			Type of Ownership:		
<input type="checkbox"/> Private <input checked="" type="checkbox"/> Federal Agency Name: <u>DOD</u> <input type="checkbox"/> State <input type="checkbox"/> Indian			<input type="checkbox"/> Private <input type="checkbox"/> Federal Agency Name: _____ <input type="checkbox"/> State <input type="checkbox"/> Indian		
<input type="checkbox"/> County <input type="checkbox"/> Municipal <input type="checkbox"/> Not Specified <input type="checkbox"/> Other _____			<input type="checkbox"/> County <input type="checkbox"/> Municipal <input type="checkbox"/> Not Specified <input type="checkbox"/> Other _____		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL		Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600		City: Sacramento		State: CA
Name of EPA or State Agency Contact:		Street Address:		
City:	State:	Telephone:		

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>8,900</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>29,570</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>14-18</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>300</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 29,570

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile Wetlands _____

>1/4-1/2 Mile Wetlands _____

*Refer to PA Table 10 for calculations on air pathway exposures

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>12,000</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>31,880</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>9</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>3,500</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 31,880

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'44.56"	Longitude: 121°57'5.39"	Approximate Area of Site: 4 Acres Square Ft		Status of Site: <input checked="" type="checkbox"/> Active <input type="checkbox"/> Not Specified <input type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: Building 811 (Aircraft Maintenance)

Site Description: Aircraft hangar contains AFFF fire suppression system. The fire suppression system consists of two plastic tanks containing AFFF with a capacity of 1,500-gallon each. There are several floor drains located within the fire suppression room; therefore, when the leak occurred in the early 2010s, the AFFF entered the sanitary sewer drains. When the fire suppression system activates, some water likely flows to a concrete overflow reservoir located west of the building. There may be minor cracks in the concrete, AFFF could be released to the subsurface.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL		Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600		City: Sacramento		State: CA
Name of EPA or State Agency Contact:		Street Address:		
City:	State:	Telephone:		

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>9,200</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>44,040</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>9-11</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>460</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 44,040

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>8,200</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>34,000</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>12</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>3,500</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 34,000

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'55.96"	Longitude: 121°56'37.30"	Approximate Area of Site: 1.5 Acres		Status of Site:	
		Square Ft		<input type="checkbox"/> Active	<input type="checkbox"/> Not Specified
				<input checked="" type="checkbox"/> Inactive	<input type="checkbox"/> NA (GW plume, etc.)

Site Name: Fire Station 2 (Former Building 560)

Site Description: Fire Station 2 was the main airfield fire station until 2011. During its operation, Fire Station 2 housed up to seven fire engines that carried from 50 to 500 gallons each of AFFF. In addition, AFFF was stored in 55-gallon drums on the west side of the building.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership:			Type of Ownership:		
<input type="checkbox"/> Private <input checked="" type="checkbox"/> Federal Agency Name: <u>DOD</u> <input type="checkbox"/> State <input type="checkbox"/> Indian			<input type="checkbox"/> Private <input type="checkbox"/> Federal Agency Name: _____ <input type="checkbox"/> State <input type="checkbox"/> Indian		
<input type="checkbox"/> County <input type="checkbox"/> Municipal <input type="checkbox"/> Not Specified <input type="checkbox"/> Other _____			<input type="checkbox"/> County <input type="checkbox"/> Municipal <input type="checkbox"/> Not Specified <input type="checkbox"/> Other _____		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern	Agency/Organization: CH2M HILL	Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600	City: Sacramento	State: CA
Name of EPA or State Agency Contact:	Street Address:	
City:	State:	Telephone:

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>9,200</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>38,410</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>7-15</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>3,000</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 38,410

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>13,000</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>16,220</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>9-11</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>5,600</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 16,220

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form						Identification	
						State: CA	CERCLIS #:
						CERCLIS Discovery Date:	
1. General Site Information							
Name: Travis Air Force Base			Street Address:				
City: Travis Air Force Base		State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:	
Latitude: 38°15'7.19"	Longitude: 121°57'3.63"	Approximate Area of Site: 0.3 Acres		Status of Site:			
		Square Ft		<input type="checkbox"/> Active	<input type="checkbox"/> Not Specified		
				<input checked="" type="checkbox"/> Inactive	<input type="checkbox"/> NA (GW plume, etc.)		
Site Name: Fire Station 4 (Building 895)							
Site Description: Fire Station 4 served as the fire responders for the southern runway for Travis AFB and housed one fire engine that carries approximately 500 gallons of AFFF.							
2. Owner/Operator Information							
Owner: Travis Air Force Base				Operator: Same as owner			
Street Address:				Street Address:			
City: Travis Air Force Base				City:			
State: CA	Zip Code: 94535	Telephone:		State:	Zip Code:	Telephone:	
Type of Ownership:				Type of Ownership:			
<input type="checkbox"/> Private		<input type="checkbox"/> County		<input type="checkbox"/> Private		<input type="checkbox"/> County	
<input checked="" type="checkbox"/> Federal Agency		<input type="checkbox"/> Municipal		<input type="checkbox"/> Federal Agency		<input type="checkbox"/> Municipal	
Name: <u>DOD</u>		<input type="checkbox"/> Not Specified		Name: _____		<input type="checkbox"/> Not Specified	
<input type="checkbox"/> State		<input type="checkbox"/> Other _____		<input type="checkbox"/> State		<input type="checkbox"/> Other _____	
<input type="checkbox"/> Indian				<input type="checkbox"/> Indian			
3. Site Evaluator Information							
Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL			Date Prepared: 3/2/15		
Street Address: 2485 Natomas Park Dr. Ste 600				City: Sacramento		State: CA	
Name of EPA or State Agency Contact:				Street Address:			
City:		State:		Telephone:			
4. Site Disposition (for EPA use only)							
Emergency Response/Removal Assessment Recommendation:				CERCLIS Recommendation:		Signature:	
<input type="checkbox"/> Yes				<input type="checkbox"/> Higher Priority SI		Name (typed):	
<input type="checkbox"/> No				<input type="checkbox"/> Lower Priority SI			
Date: _____				<input type="checkbox"/> NFRAP		Position:	
				<input type="checkbox"/> RCRA			
				<input type="checkbox"/> Other: _____			
				Date: _____			

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>12,200</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile <u> </u></p> <p>>1/4 - 1/2 Mile <u> </u></p> <p>>1/2 - 1 Mile <u> </u></p> <p>>1 - 2 Mile <u> </u></p> <p>>2 - 3 Mile <u> </u></p> <p>>3 - 4 Mile <u> </u></p> <p>Total Within 4 Miles⁴ <u>47,600</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>8-12</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other <u> </u></p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>300</u> Feet <u> </u> Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : <u> </u> Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p><u> </u> <u> </u> <u> </u> <u> </u></p> <p style="text-align: right;">Total within 15 Miles ⁴ <u> </u></p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: <u> </u> Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p><u> </u> <u> </u></p> <p><u> </u> <u> </u></p> <p><u> </u> <u> </u></p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 47,600

Wetlands Located Within 4 Miles of the Site⁶:

Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>10,900</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>31,880</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>9</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p>_____ Feet <u>1.0</u> Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 31,880

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'56.99"	Longitude: 121°55'49.10"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: 1974 DC-8 Fire

Site Description: On March 23, 1974, a DC-8 was undergoing a maintenance A-check. Suddenly fuel fumes in the number 1 inboard main fuel tank area exploded. The Travis AFB Fire Department responded to the DC-8 fire on the 200 ramp and extinguished it with several hundred gallons of AFFF.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL		Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600		City: Sacramento		State: CA
Name of EPA or State Agency Contact:		Street Address:		
City:	State:	Telephone:		

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>11,200</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>25,850</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>13</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>3,000</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 25,850

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>10,400</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>15,190</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>7-10</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>2,000</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 15,190

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'22.00"	Longitude: 121°56'54.28"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: 1986 C-141B Fire

Site Description: On October 15, 1986, a C-141B struck a light pole while taxiing and igniting a fire. The Travis AFB Fire Department responded to the C-141B fire on the 600 ramp. The firefighters stood behind the blast shields to the west and extinguished the fire with approximately 500 to 1,000-gallons of AFFF. Concrete joints on the ramp are sealed; however, there is potential for AFFF applied to migrate to nearby storm drains.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern	Agency/Organization: CH2M HILL	Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600	City: Sacramento	State: CA
Name of EPA or State Agency Contact:	Street Address:	
City:	State:	Telephone:

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>11,500</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>27,880</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>11</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>1,000</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 27,880

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°16'8.30"	Longitude: 121°54'34.96"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: 1987 L-100 Crash

Site Description: On April 8, 1987, a L-100 Hercules aircraft was performing a series of local training flights with approach and landings. During a takeoff, the No. 1 and No. 2 engines both decelerated when throttles were advanced and the aircraft banked left and struck the Base perimeter fence. It crashed in a grass field just beyond the Base boundary approximately 300 yards away from the runway. Base firefighters sprayed foam on the smoking debris.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL		Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600		City: Sacramento		State: CA
Name of EPA or State Agency Contact:		Street Address:		
City:	State:	Telephone:		

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>11,000</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>11,970</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>7-10</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>3,000</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 11,970

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°16'2.79"	Longitude: 121°55'32.37"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: 1988 C-5 Fire

Site Description: On January 31, 1988, a C-5 was on a local training flight when it was forced to make an emergency landing after a malfunctioned light warned the crew there was trouble. After the C-5 landed and taxied to Taxiway D to south of parking spots 282 and 292, the crew realized that it was a fire. Fire crews responded and extinguished the fire inside the aircraft with water. It is unknown if AFFF was used; however, Crash-4, a fire engine that carried AFFF, responded to the fire.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern	Agency/Organization: CH2M HILL	Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600	City: Sacramento	State: CA
Name of EPA or State Agency Contact:	Street Address:	
City:	State:	Telephone:

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>11,200</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>23,430</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>13-15</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>3,300</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 23,430

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form						Identification	
						State: CA	CERCLIS #:
						CERCLIS Discovery Date:	
1. General Site Information							
Name: Travis Air Force Base			Street Address:				
City: Travis Air Force Base		State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:	
Latitude: 38°15'11.79"	Longitude: 121°56'34.71"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)			
Site Name: Late 1980s C-141B Crash							
Site Description: In the late 1980s, a C-141B crash landed due to nose gear problem on south end of the runway near Taxiway J and Taxiway S. Approximately 60 gal of AFFF may have been used to put out the fire.							
2. Owner/Operator Information							
Owner: Travis Air Force Base				Operator: Same as owner			
Street Address:				Street Address:			
City: Travis Air Force Base				City:			
State: CA	Zip Code: 94535	Telephone:		State:	Zip Code:	Telephone:	
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian				Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			
3. Site Evaluator Information							
Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL			Date Prepared: 3/2/15		
Street Address: 2485 Natomas Park Dr. Ste 600				City: Sacramento		State: CA	
Name of EPA or State Agency Contact:				Street Address:			
City:		State:		Telephone:			
4. Site Disposition (for EPA use only)							
Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____				CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____		Signature: Name (typed): Position:	

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>10,400</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>29,570</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>~10</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>1,800</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 29,570

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile Wetland _____

*Refer to PA Table 10 for calculations on air pathway exposures

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>10,600</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>27,880</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>13</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>1,800</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 27,880

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°16'8.01"	Longitude: 121°54'58.27"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: 2001 Aircraft Crash

Site Description: In 2001, a small aircraft crash landed on the northern runway. The aircraft caught on fire; however, less than 5 gallons of AFFF were needed to put the fire out.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL		Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600		City: Sacramento		State: CA
Name of EPA or State Agency Contact:		Street Address:		
City:	State:	Telephone:		

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>11,000</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>15,190</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>7-10</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>2,000</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 15,190

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'40.19"	Longitude: 121°55'53.63"	Approximate Area of Site: _____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: 2014 Boeing E75 Crash (Air Show)

Site Description: On May 4, 2014, a Boeing E75 Stearman was performing an aerial demonstration at the Travis Air Show. The aircraft contacted the runway, slid inverted, and came to a stop several hundred feet later. Preliminary examination of the wreckage indicated that most of the fabric covering on the fuselage was damaged or consumed by fire. The Travis AFB Fire Department responded to the crash on the runway and extinguished it with less than 5 gallons of AFFF. A small grass fire southeast of the crash was put out with water.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern	Agency/Organization: CH2M HILL	Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600	City: Sacramento	State: CA
Name of EPA or State Agency Contact:	Street Address:	
City:	State:	Telephone:

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>10,000</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>25,850</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>11-15</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>1,500</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 25,850

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile Wetland _____

*Refer to PA Table 10 for calculations on air pathway exposures

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>11,700</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>47,600</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>9-12</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>0</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p align="right">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 47,600

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile Wetland _____

*Refer to PA Table 10 for calculations on air pathway exposures

Potential Hazardous Waste Site Preliminary Assessment Form	Identification	
	State: CA	CERCLIS #:
	CERCLIS Discovery Date:	

1. General Site Information

Name: Travis Air Force Base		Street Address:			
City: Travis Air Force Base	State: CA	Zip Code: 94535	County: Solano	Co. Code:	Cong. Dist:
Latitude: 38°15'21.21"	Longitude: 121°55'36.26"	Approximate Area of Site: <u>72</u> ____ Acres _____ Square Ft		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

Site Name: Former Sewage Treatment Plant and Sludge Disposal Area

Site Description: The former sewage treatment system comprised of a settling basin, oxidation ponds and a chlorine contact chamber. The system was used to treat primarily domestic and some industrial waste generated at the base. The effluent from the STP was discharged to Union Creek. Any AFFF that may have entered the floor drains would likely have been treated at the STP.

2. Owner/Operator Information

Owner: Travis Air Force Base			Operator: Same as owner		
Street Address:			Street Address:		
City: Travis Air Force Base			City:		
State: CA	Zip Code: 94535	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input checked="" type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <u>DOD</u> <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian			Type of Ownership: <input type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: _____ <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other _____ <input type="checkbox"/> Indian		

3. Site Evaluator Information

Name of Evaluator: Daniel Chern		Agency/Organization: CH2M HILL		Date Prepared: 3/2/15
Street Address: 2485 Natomas Park Dr. Ste 600		City: Sacramento		State: CA
Name of EPA or State Agency Contact:		Street Address:		
City:	State:	Telephone:		

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: _____ Date: _____	Signature:
		Name (typed):
		Position:

7. Ground Water Pathway

<p>Is Ground Water Used for Drinking Within 4 Miles:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, Distance to nearest Drinking Well: <u>7,000</u> Feet</p> <p>Type of Drinking Water Wells Within 4 Miles (check all that apply):</p> <p><input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Private <input type="checkbox"/> None</p>	<p>Is There a Suspected Release to Ground Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>Have Primary Target Drinking Water Wells Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Primary Target Population: <u> </u> People³</p>	<p>List Secondary Target Population Served by Ground Water Withdrawn From:</p> <p>0 - 1/4 Mile _____</p> <p>>1/4 - 1/2 Mile _____</p> <p>>1/2 - 1 Mile _____</p> <p>>1 - 2 Mile _____</p> <p>>2 - 3 Mile _____</p> <p>>3 - 4 Mile _____</p> <p>Total Within 4 Miles⁴ <u>22,080</u></p> <p><small>*Use population #s for PA Table 2 *Note nearest well for #5 on GW Pathway Scoresheet</small></p>
<p>Depth to Shallowest Aquifer: <u>13</u> Feet</p> <p>Karst Terrain/Aquifer Present:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Nearest Designated Wellhead Protection Area⁶:</p> <p><input type="checkbox"/> Underlies Site <input checked="" type="checkbox"/> >0-4 Miles <input type="checkbox"/> None Within 4 Miles</p>	

8. Surface Water Pathway

<p>Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):</p> <p><input checked="" type="checkbox"/> Stream <input type="checkbox"/> River <input type="checkbox"/> Pond <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Bay <input type="checkbox"/> Ocean <input type="checkbox"/> Other _____</p>	<p>Shortest Overland Distance From Any Source to Surface Water:</p> <p><u>150</u> Feet _____ Miles</p>
<p>Is There a Suspected Release to Surface Water¹:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Site is Located in:</p> <p><input type="checkbox"/> Annual - 10 yr Floodplain <input type="checkbox"/> >10yr - 100yr Floodplain <input type="checkbox"/> >100yr - 500yr Floodplain <input checked="" type="checkbox"/> >500yr Floodplain</p>
<p>Drinking Water Intake Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Have Primary Target Drinking Water Intakes Been Identified:</p> <p><input type="checkbox"/> Yes If Yes, Distance to Nearest Drinking Water Intake : _____ Miles⁶ <input checked="" type="checkbox"/> No</p> <p>If Yes, Enter Population Served by Target Intake: <u> </u> People⁴</p>	<p>List All Secondary Target Drinking Water Intakes:</p> <p><u>Name:</u> <u>Water Body:</u> <u>Flow (cfs):</u> <u>Population Served:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">Total within 15 Miles ⁴ _____</p>
<p>Fisheries Located Along the Surface Water Migration Path:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Distance to Nearest Fishery: _____ Miles</p>	<p>List All Secondary Target Fisheries¹⁰:</p> <p><u>Water Body/ Fishery Name :</u> <u>Flow (cfs):</u></p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Have Primary Target Fisheries Been Identified:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	

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:

Other Sensitive Environments Located Along the Surface Water Migration Path:

- Yes
 No

If Yes, Distance to Nearest Sensitive Environment: _____ Miles

Have Primary Target Sensitive Environments Been Identified:

- Yes
 No

List All Sensitive Environments¹¹:

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:

_____ People²

Number of Workers Onsite⁴:

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

Population Within 1 Mile:

_____ People⁷

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 Environment⁵:

*Refer to PA Table 7 for environment types

10. Air Pathway

Is there a Suspected Release to Air¹:

- Yes
 No

Enter Total Population on or Within:

Onsite _____

0-1/4 Mile _____

>1/4-1/2 Mile _____

>1/2-1 Mile _____

>1-2 Miles _____

>2-3 Miles _____

>3-4 Miles _____

Total Within 4 Miles³⁻⁵ 22,080

Wetlands Located Within 4 Miles of the Site⁶:

- Yes
 No

If Yes, How Many Acres: _____ Acres

Other Sensitive Environments Located Within 4 Miles of the Site:

- Yes
 No

List All Sensitive Environments Within 1/2 Mile of the Site⁶:

Distance: Sensitive Environment Type/Wetlands Area (acres):

Onsite Wetland _____

0-1/4 Mile Wetland _____

>1/4-1/2 Mile Wetland _____

*Refer to PA Table 10 for calculations on air pathway exposures

APPENDIX B.2
OTHER INFORMATION

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TRAVIS FIRE & EMERGENCY SERVICES
AGENT INVENTORY

Updated

AFFF Inventory

AFFF on Apparatus		Gallons
Crash-9		420
Crash-10		500
Crash-11		500
Crash-12		500
Crash-13		500
P-45		56
P-245		56
Sub-total		2532
AFFF In Reserve		Gallons
Foam-3		1000
55 gal drums	28	1495
Sub-total		1000
AFFF in Base Supply		Gallons
55	82	4510
AFFF Required For Resupply		Gallons
Resupply all ARFF Vehicles		2532
To Meet 100% for C-5		1920
Summary		Gallons
Apparatus		2532
Reserve		2495
Base Supply		4510
Total AFFF		9537

Dry Chemical Inventory

Dry Chem on Apparatus		Pounds (lbs)
Crash-9		450
Crash-10		500
Crash-11		500
Crash-12		500
Crash-13		500
Sub-total		2450
Dry Chem In Reserve		Pounds (lbs)
54 lb pails	4	216
45 lb pails	49	2205
Sub-total		2421
Dry Chem in Base Supply		Pounds (lbs)
		None
Required For Resupply		Pounds (lbs)
Resupply all ARFF Vehicles		2450
To Meet 100% for C-5		1950
Summary		Pounds (lbs)
Apparatus		2450
Reserve		2421
Base Supply		N/A
Total Dry Chem		4871

AFFF to Order		Gallons
Resupply all ARFF Vehicles		
To Meet 100% for C-5		None

Dry Chem to Order		Pounds (lbs)
Resupply all ARFF Vehicles		29
To Meet 100% for C-5		None

INSPECTION DATE _____

INSPECTED BY _____

HAZARDOUS MATERIAL SPILL REPORT

Complete this form and email to arvey.andrews@travis.af.mil Note: All times to be entered as military time (24 hour clock)

NOTIFICATION/DESCRIPTION

1. INFORMATION SUPPLIED BY (Name, Rank, Duty, Phone) Oden, Tyrone MSgt 424-3886		2. ORGANIZATION (Office Symbol, Address) 60th CES/CEF 38 Hanger Ave	
3. DATE, TIME OF SPILL - 30 September 1830			
4. LOCATION OF SPILL - Bld 38 Flight line side of building			
5. TYPE OF MATERIAL SPILLED (JP-8, Oil, Solvent, Etc) AFFF		6. QUANTITY (Estimate) 75 Gal	7. SPILL CLASS (I, II, III) I
8. DESCRIPTION OF INCIDENT INCLUDING CAUSE OF SPILL: Reserving of a P-23 with foam an internal pipe broke causing the loss of foam.			
RESPONSE			
9. FIRE DEPARTMENT ARRIVAL TIME 1830	10. FIRE DEPARTMENT DEPARTURE TIME 2000	11. INCIDENT COMMANDER MSgt Oden	
12. BIOENVIRONMENTAL None	13. ENVIRONMENTAL THREAT None	14. OTHER CE Spill response team	
15. SPILL CLEANUP TEAM SUPERVISOR SrA Henery	16. SPILL CLEANUP START TIME 1900	17. SPILL CLEANUP COMPLETION TIME 1930	
18. MATERIALS USED FOR CLEANUP Boom/Pigs	19. SPILL QUANTITY RECOVERED 10 gal	20. QUANTITY NOT RECOVERED unk	
21. DESCRIBE CLEANUP ACTIONS TAKEN (Use attached continuation sheet if necessary) Boom and pigs placed down to contain spill. FD used squeegees and dust pans to reclaim foam			
22. DESCRIBE ANY UTILITY (Storm Sewer, Drain, SOIL, OR WATER) IMPACTED (Use attached continuation sheet if necessary) Foam did enter storm drain. Out fall one closed with booms across. CE spill team monitored outfall one for 4 hours. Absorbent booms placed in drain.			
23. TOTAL QUANTITY OF WASTE DISPOSED	24. DISPOSAL LOCATION	25. NAME (S) OF ANY INJURED PERSONNEL none	
26. DESCRIBE ANY OCCURRENCES OF INJURIES OR EXPOSURE (Use attached continuation sheet if necessary) none			
27. DESCRIBE CORRECTIVE AND PREVENTIVE ACTIONS TAKEN (Use attached continuation sheet if necessary). Corrective action all foam reserving will be conducted in the stalls or North side of the station. All P-23 will be taken to vehicle maint to have their foam systems checked.			

Plane catches fire



DR Photo by Gary Goldsmith

Travis Air Force Base emergency crews check over a C-5 transport plane that caught fire late Friday morning. The plane, which was on a local training flight, made a forced landing after a malfunction light warned the crew there was trouble. One of the eight crew members was treated for smoke inhalation.

Giant Air Force plane catches fire, lands safely

By Cathy Pool
Daily Republic Staff Writer

TRAVIS AFB — An Air Force C-5 transport plane had to cut short a local training flight Friday morning when a malfunction light signaled trouble, but it was not until the giant cargo plane touched down on the Travis Air Force Base runway that its occupants realized it was on fire.

One of the eight crew members, Technical Sgt. Dirk C. Grenwelge, was treated for

smoke inhalation at David Grant USAF Medical Center. No other injuries resulted from the fire which occurred at about 11:15 a.m. The crew was part of the 22nd Military Airlift Squadron.

The fire did not affect base operations and the runways remained open throughout the day, said Staff Sgt. Keith Myhre.

Neither the cause of the mishap nor extent of damages were released to the press Friday evening. It is not known if any cargo

was on board.

The C-5, the nation's largest military aircraft, measures 247 feet long and has a wing span of 222 feet, and is second in size only to the Soviet An-124, which was first manufactured in 1966. With a fuel capacity of 51,155 gallons, the C-5 has a maximum takeoff weight of 769,000 pounds.

Investigation of the blaze will be handled by a group of local officers, said Master Sgt. Richard Castillo of the Travis public affairs

office.

He said the fire reportedly started in the avionics bay, or nose section, of the craft, though the plane's midsection is damaged.

The base's emergency response team brought the blaze under control, though Fairfield firefighters were on standby. Castillo said the fire was under control shortly after the blaze was identified.

See Plane, Back of Section

Five killed in tragedy near Travis runway



Section of a Southern Air Transport civilian cargo plane, above, rests in a field just west of Travis Air Force Base after it crashed and exploded about 5:30 p.m. Wednesday, killing

all five crew members. Below, base firefighters spray foam on smoking debris from the Lockheed L-100. A propeller is visible in the foreground.

DR Photos by Michael

APPENDIX C
RECORDS OF COMMUNICATION

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ANDREWS, ARVEY I GS-11 USAF AMC 60 CES/CEAN

From: DE BERNARDI, THOMAS R GS-12 USAF AMC 60 CES/CEPM
At: Wednesday, January 25, 2012 1:35 PM
: ANDREWS, ARVEY I GS-11 USAF AMC 60 CES/CEAN; HERMSDORF, REUBEN D SSgt
USAF AMC 60 CES/CEF
Subject: RE: AFFF and Chemguard C2 Tank Locations

Hangar 808 now has Chemguard C2 also. The tank at Hangar 808 is 400 gallons.

Rick

-----Original Message-----

From: ANDREWS, ARVEY I GS-11 USAF AMC 60 CES/CEAN
Sent: Wednesday, January 25, 2012 8:40 AM
To: DE BERNARDI, THOMAS R GS-12 USAF AMC 60 CES/CEPM; HERMSDORF, REUBEN D SSgt USAF AMC 60 CES/CEF
Subject: AFFF and Chemguard C2 Tank Locations

As far as I know, Buildings 14 and 811 are still the only locations on base that have AFFF tanks (1400 gallon tanks at Bldg 14 and 1500 gallons tanks at Bldg 811), and Bldg 837 is the only location that has an 800 gallon Chemguard C2 tank. Is this correct? Please write back to let me know.

Thanks

ZMAT Program Manager, 60 CES



Date: 2/4/15
Time: 1230

COMMUNICATION RECORD

Name of Base, State: Travis AFB

Interviewer: Dan Chern

Organization: CH2M HILL

Phone: 916-286-0339

Position/role on this project:

Email: dachern@ch2m.com

Interviewee: Sonny Delmundo

Organization: AF Civil Eng. Dept.

Phone:

Position/Job Title: Haz waste Management

Email:

How Long in this Position?

How long at this Base in current and previous positions?

Have you held similar positions at other bases?

Which bases?

How long?

Discussion: - Outside Bldg 818, there were 7 drums of AFFF?
 - 6 Drums were moved & stored @ hazwaste area (TSDF)
 - 1 Drum still @ B 818 due to loose cap.
 - 40 Drums stored @ TSDF in Sept 2014 before removed/disposed off site
 - Leaky drums were overpacked @ B549 prior to transport, so no leaks/spills.
 - All empty ~~at~~ drums are stored out side.
 - No known AFFF drums stored on site.



Date: 2/3/14
Time: 1300

COMMUNICATION RECORD

Name of Base, State: Travis AFB, CA

Interviewer: Dan Chern

Organization: CH2M HILL

Phone: 916-286-0339

Position/role on this project:

Email: dchern@ch2m.com

Interviewee: Lonnie Duke

Organization: AFCEC

Phone:

Position/Job Title: Restoration Prog Man.

Email:

How Long in this Position?

How long at this Base in current and previous positions?

Have you held similar positions at other bases?

Which bases?

How long?

Discussion: old fire station B560 (#2)

- Washrack to west of AFFF storage.
- Bldg demolished, wash rack still in place.
- OWS on west side.
- Flows toward SW corner.

Other fire stations:

- #1 - B175 active (structural)
- #2 - B1380 active (north runway)
- #3 - B895 closed (south runway)
- #4 - B386 main active (built 2011)

Sprink test near B895, foam entered Union Creek.

- FTA-4, designed for diesel fuel.

(DC)

- OWS & membrane placed, but didn't work properly.
- Retrofitted w/ propane.
- Some excavations performed (ITSL)

- Former sanitary sewer plant near FTA-4, closed in 1970s.

Sweepings were dumped on site after FTA-4 closed.

- Most soil spread then excavated
- Flows towards creek but also radially from center of FTA.

(DC) B560 - Hazmat Pharmacy - No AFFF stored on site.

B576

B549 - Base Supply - May store some AFFF?

B811 - 7 cannons for AFFF on ground.

- French drains through out.
- 2 x 1500-gal tanks (full)
- 3 x 55-gal drums.
- Floor drains inside mech room.
- Wash rack outside.
- OWS N/W corner → sanitary sewer.
- Overflow reservoir / holding / retention tank.
if fire supp. went off, will divert to reservoir.

B14 - OWS on each side.

- 2 tanks x 1400 gal each (75% full)
- Chemguard 3% AFFF
- No drains inside mech room
- If ~~fuel~~ release, would flow out to storm drain.
- No access to hangar (fuel cell repair)

Current FTA - Designed for diesel w/ membrane.

- Drains to OWS then Sanitary
- Diesel system never worked, retrofit to propane
- Built mid 1980s

FT005 (FTA-4) - Dumped waste fuel/oils

- Excavations - 2010 by ITSI
- Also dumped street sweepings until 2008.
- Surface flow radial + towards Union Creek

Sewage Treatment Plant - Sludge drying beds.

- Plant shut down in 1970s

2/5/15 Spoke w/ Rob LaPlante / Facility Manager for B14, there are trench drains inside Bldg 14. Dye test performed several months ago shows that water flows to holding tank. Unknown what happens to content from tank or capacity.

2/6/15 Lonnie Duke - Production wells located 7 miles north of Base @ Cypress Lakes Golf Course.

From: [DUKE, LONNIE A GS-12 AFCEC CZOW](#)
To: [Chern, Daniel/SAC](#)
Subject: RE: Hangar 14
Date: Wednesday, February 11, 2015 4:33:08 PM

Well, the program manager that oversees the contract that would pump out the tank also thought it was blocked off so it hasn't been pumped out in years. We asked for and should see the drawings soon as we also want to know how big it is, I don't currently know. In theory, it would be tested and then pumped out but no one knows the last time it was actually done.

Lonnie A. Duke
Restoration Project Manager
Installation Support Team
AFCEC/CZOW
Travis AFB, CA

-----Original Message-----

From: Daniel.Chern@CH2M.com [<mailto:Daniel.Chern@CH2M.com>]
Sent: Wednesday, February 11, 2015 4:24 PM
To: DUKE, LONNIE A GS-12 AFCEC CZOW
Subject: RE: Hangar 14

Thank you very much for the information. Do you have any idea how large the holding tank is? What happens to the content within the tank? Does it get pumped out periodically? Or does it get tested than pumped into the sanitary sewer?

When you say that all the drains are tied together, does that mean they all lead to the holding tank?

Thanks for getting the GIS files for me.
Dan

-----Original Message-----

From: DUKE, LONNIE A GS-12 AFCEC CZOW
Sent: Wednesday, February 11, 2015 4:11 PM
To: Chern, Daniel/SAC
Subject: RE: Hangar 14

Hello Dan,

It would appear that the large holding tank is still connected to the large floor trench drains within Hangar 14. We also heard that the AFFF system has been activated before meaning the tank most likely has held AFFF at some point.

There is a trench drain just inside the large hangar door which collects rain water when it rains and all of the drains in the hangar are tied together.

I have the GIS files and will try to send a link to you so you can download

them as they are large files. If I can't get them transferred I can have someone pick up a disc and bring it up to you.

Lonnie A. Duke
Restoration Project Manager
Installation Support Team
AFCEC/CZOW
Travis AFB, CA

-----Original Message-----

From: Daniel.Chern@CH2M.com [<mailto:Daniel.Chern@CH2M.com>]
Sent: Monday, February 09, 2015 10:13 AM
To: DUKE, LONNIE A GS-12 AFCEC CZOW
Cc: SMITH, MARK H GS-13 USAF AFCEC CZOW; TETIRICK, LUANN R GS-11 USAF AMC 60 CES/CEIEC
Subject: RE: Hangar 14

Hi Lonnie,
I was just giving this holding tank some more thought. Do you think the holding tank is part of the OWS?
Thanks.
Dan

-----Original Message-----

From: DUKE, LONNIE A GS-12 AFCEC CZOW
Sent: Friday, February 06, 2015 3:51 PM
To: Chern, Daniel/SAC
Cc: SMITH, MARK H GS-13 USAF AFCEC CZOW; TETIRICK, LUANN R GS-11 USAF AMC 60 CES/CEIEC
Subject: RE: Hangar 14

Dan,

We'll have to follow up on this and get back to you. I had thought the drains to this tank were blocked off but it sounds like it may still be connected? More to follow...

Lonnie A. Duke
Restoration Project Manager
Installation Support Team
AFCEC/CZOW
Travis AFB, CA

-----Original Message-----

From: Daniel.Chern@CH2M.com [<mailto:Daniel.Chern@CH2M.com>]
Sent: Friday, February 06, 2015 2:50 PM
To: SMITH, MARK H GS-13 USAF AFCEC CZOW; DUKE, LONNIE A GS-12 AFCEC CZOW; TETIRICK, LUANN R GS-11 USAF AMC 60 CES/CEIEC
Subject: Hangar 14

Hi,

I just spoke with Mr. Rob LaPlante (facility manager), and he confirmed with me that Hangar 14 contains trench drains within the building. He remembers a dye test being performed several months ago and the trench drains lead to a holding tank. Do you have any information what happens to the content in the tank? Is it tested? then pumped out to sanitary sewer or storm sewer?

Lonnie,

When we get the GIS layers, it may help us figure out if the tank is connected to the sanitary sewer somehow.

Thanks,

Dan Chern

Environmental Engineer

CH2M HILL

2485 Natomas Park Dr. Suite 600

Sacramento, CA 95833

Tel: 916-286-0339

Fax: 916-920-8463

Mobile: 201-563-5912

From: [DUKE, LONNIE A GS-12 AFCEC CZOW](#)
To: [Chern, Daniel/SAC](#)
Subject: RE: Hangar 14
Date: Wednesday, February 25, 2015 4:38:35 PM

The tank is not pumped out and from what we've been told, is still connected to the floor drains inside hangar 14. No one knows when the tank was last pumped. The floor drains are a distance away from the doors so there is no storm drainage into the floor drains. The only way the tank should fill up is from the floor drains or what little what may run in past the manhole covers above the tank.

Lonnie A. Duke
Restoration Project Manager
Installation Support Team
AFCEC/CZOW
Travis AFB, CA

-----Original Message-----

From: Daniel.Chern@CH2M.com [<mailto:Daniel.Chern@CH2M.com>]
Sent: Wednesday, February 25, 2015 4:24 PM
To: DUKE, LONNIE A GS-12 AFCEC CZOW
Subject: RE: Hangar 14

Hi Lonnie,
Did you ever get a response from Luann on the details of the tank? If it was ever pumped out and when. Also, seems like it would fill up with the rain water with a big storm. Thanks!!!
Dan

-----Original Message-----

From: DUKE, LONNIE A GS-12 AFCEC CZOW
Sent: Friday, February 06, 2015 3:31 PM
To: TETIRICK, LUANN R GS-11 USAF AMC 60 CES/CEIEC
Cc: SMITH, MARK H GS-13 USAF AFCEC CZOW; Chern, Daniel/SAC
Subject: RE: Hangar 14

Luann,

Do you happen to remember the details of this holding tank? From what I can remember this tank was not permitted and is not sealed up. I believe it filled up with groundwater in the past. Do they service this tank and keep it pumped out? I thought it was supposed to be pulled out but I haven't hear anything about this tank for years.

Lonnie A. Duke
Restoration Project Manager
Installation Support Team
AFCEC/CZOW
Travis AFB, CA

-----Original Message-----

From: Daniel.Chern@CH2M.com [<mailto:Daniel.Chern@CH2M.com>]

Sent: Friday, February 06, 2015 2:50 PM

To: SMITH, MARK H GS-13 USAF AFCEC CZOW; DUKE, LONNIE A GS-12 AFCEC CZOW;
TETIRICK, LUANN R GS-11 USAF AMC 60 CES/CEIEC

Subject: Hangar 14

Hi,

I just spoke with Mr. Rob LaPlante (facility manager), and he confirmed with me that Hangar 14 contains trench drains within the building. He remembers a dye test being performed several months ago and the trench drains lead to a holding tank. Do you have any information what happens to the content in the tank? Is it tested? then pumped out to sanitary sewer or storm sewer?

Lonnie,

When we get the GIS layers, it may help us figure out if the tank is connected to the sanitary sewer somehow.

Thanks,

Dan Chern

Environmental Engineer

CH2M HILL

2485 Natomas Park Dr. Suite 600

Sacramento, CA 95833

Tel: 916-286-0339

Fax: 916-920-8463

Mobile: 201-563-5912

From: [FRANKLIN, MILEA A GS-12 USAF AMC 60 CES/CEIE](#)
To: [Chern, Daniel/SAC](#)
Cc: [DUKE, LONNIE A GS-12 AFCEC CZOW](#)
Subject: FW: //INFO/ROUTINE//Expired AFFF Mismanaged
Date: Monday, February 02, 2015 1:35:34 PM
Attachments: [20140916_155135.jpg](#)

//SIGNED//

Milea Franklin, E.I.T.
Chief, Environmental Element
Travis AFB, CA

-----Original Message-----

From: FRANKLIN, MILEA A GS-12 USAF AMC 60 CES/CEIE
Sent: Friday, September 19, 2014 4:28 PM
To: CARLEY, PATRICK J Lt Col USAF AMC 60 CES/CC
Cc: SASSAMAN, BRIAN L GS-13 USAF AMC 60 CES/CEI; MILLER, MERLIN J GS-14 USAF AMC 60 CES/CD
Subject: //INFO/ROUTINE//Expired AFFF Mismanaged

Sir,

For your situational awareness -

60 CES/CEIE, Environmental, was contacted regarding forty 55 gallon drums of expired Aqueous Fire Fighting Foam (AFFF) from the LRS warehouse located at building 549. The material was approximately 20 years old (shelf-life of AFFF). On 11 September 60 CES/CEIE (Environmental) shipped off nineteen of the forty drums as Non-RCRA (California) Hazardous Waste. The other 21 drums were so deteriorated from corrosion (see attached for example) that the transporter, Double Barrel Environmental, refused to transport them. The only option for removal of these deteriorated drums was to have them over packed (placing each 55 gallon drum into a 95 gallon container). The pickup for these over pack drums was 19 September. Due to this event, Environmental has a few concerns for leadership awareness.

1. This waste is not part of normal operations therefore Environmental was not budgeted for the disposal costs (approximately \$6000). Also, since several of the drums were unsafe to transport, an additional cost (approximately \$4000) was incurred for the over pack drums, associated management and expedited pick-up (necessary for compliance). As there were end of year funds still available, Environmental was able to absorb this cost.

2. Due to the corrosion of the containers and no secondary containment, Travis could have received several hazardous waste compliance findings if found by a regulatory agency. Specifically:

a. 22 CCR 66265.31 Facilities shall be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or

surface water which could threaten human health or the environment.

b. 22 CCR 66265.171. If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects), or if it begins to leak, the owner or operator shall transfer the hazardous waste from this container to a container that is in good condition...

c. 22 CCR 66265.173(a) A container holding hazardous waste shall always be closed during transfer and storage, except when it is necessary to add or remove waste.

Environmental does have inspections for hazardous waste sites, however, these drums were not considered waste until they expired and, as they were not a part of a normal operational site, they would not have been caught by these inspections. All drums have been properly disposed of and Environmental will continue to work with shops to ensure wastes are properly managed. We are also working on implementing inspections for hazardous materials storage sites with our new Fence to Fence contractor. While this is a success in regards to proper actions for disposal, these drums should not have been allowed to deteriorate to the condition they were in.

If you have any questions, please let me know.

//SIGNED//

Milea Franklin, E.I.T.

Chief, Environmental Element

Travis AFB, CA

	Date: 2/2/15 Time: 1400	COMMUNICATION RECORD
Name of Base, State: Travis AFB, CA		
Interviewer: Dan Chern		
Organization: CH2M HILL	Phone: 916-286-0339	
Position/role on this project:	Email: dchern@ch2m.com	
Interviewee: Rob Jones		
Organization: Fire Dept.	Phone:	
Position/Job Title: Asst. Fire Chief	Email:	
How Long in this Position? Since 2000		
How long at this Base in current and previous positions?	Since 2001	
Have you held similar positions at other bases?		
Which bases?		
How long?		
Discussion: Main FD (Bldg 38)		
- Print out inventory of AFFF		
- Trailer on west side (1,000 gal capacity, 900 gal in tank)		
- Also, west side of B38 used as service area.		
- All refills take place here.		
- Spills go into storm drain → Union Creek		
- Storage of empty 55-gal drums + 28x55 gal 3% Ansulite + 2x5 gal jugs.		
- Also storage for deployment		
- 21x5-gal jugs.		
- Inside Bays - drains/grates along bay door. ows in NW corner		
- Any spills go into drains → OWS → Sewer		
- Occasional spillage after hose removal.		
- Crash-9 - 470 gal AFFF		
Crash-10 - 500 gal		
Crash-11 - 500 gal		
Crash-12 - Decommissioned.		
P-45 - 56 gal		
P-245 - 56 gal		
- B1380 (Fire Station) → 1 truck - 500 gal (Crash-13)		
- B175 (Structural FD) - 2 trucks → 50 gal each.		
- Base suppl B549 will store enough to resupply all containers		
- Jan 2015 - Spilled ~70 gal AFFF on west side of Bldg in service area.		
- Annual spray test (Taxiway N / 900 ramp near 903)		
- Attempt to keep AFFF on pavement + let evaporate.		



Date: 2/5/15
Time: 1500

COMMUNICATION RECORD

Name of Base, State: Travis AFB, CA

Interviewer: Dan Chern

Organization: CH2M HILL

Phone: 916-286-0339

Position/role on this project:

Email: dchern@ch2m.com

Interviewee: Robert Laplante

Organization: AF 60 MX6

Phone:

Position/Job Title: Facility Manager

Email:

How Long in this Position?

How long at this Base in current and previous positions?

Have you held similar positions at other bases?

Which bases?

How long?

Discussion: Building 14 - Dye test performed several months ago to determine where drains (floor) went. It showed that it went to a holding tank. The capacity of the tank is unknown. Also unknown what happens after it goes to tank, does it get pumped out? or released to sanitary sewer?

- Releases of AFFF in past. Most recently was several years ago. Date unknown, but released did occur. Early 2010?

Bldg 811 - Water from trench drains lead to sanitary sewer (wash rack). Some water does enter the holding pond/ overflow reservoir.

- Mr. Laplante unsure of bldg drain system.

- Most recent release 2 weeks ago + 1.5 - 2 months ago.

- Several AFFF releases have occurred in past.



Date: 2/4/15
Time: 1400

COMMUNICATION RECORD

Name of Base, State: Travis AFB, CA

Interviewer: Dan Chern

Organization: CHEM MILL

Phone: 916-286-0339

Position/role on this project:

Email: dchern@chem.com

Interviewee: James Medeiros

Organization: AF Civil Eng. Dept

Phone:

Position/Job Title: Utility Shop Foreman

Email:

How Long in this Position?

How long at this Base in current and previous positions?

Have you held similar positions at other bases?

Which bases?

How long?

- Discussion:
- 7 drums @ B818 were HEF, not AFFF.
 - Used AFFF empty drums to store HEF from B818 tank that needed to be repaired due to foam pump failure.
 - HEF labels not placed on drum, only original AFFF label.
 - All empty AFFF + HEF drums stored outside CE B176
 - No plans to remove empty drums or relocate them



Date: 2/4/15
Time: 1000

COMMUNICATION RECORD

Name of Base, State: Travis AFB, CA

Interviewer: Dan Chern

Organization: CH2M HILL

Phone: 916-286-0339

Position/role on this project:

Email: dchern@ch2m.com

Interviewee: Chief Renucci, Marc

Organization: Fire Dept

Phone:

Position/Job Title: Asst Chief

Email:

How Long in this Position?

How long at this Base in current and previous positions? 1977

Have you held similar positions at other bases?

Which bases?

How long?

Discussion: other attendees: Lonnie Duke / AFCEC; Rob Jones / Asst Fire Chief; John Speakman / Fire Chief

- 900 Ramp - Nozzle Spray Test

- Normally near parking spots 903 + 904, + flows to SW.
- One occurrence NE of ramp in grassy area into creek. (~2004, 10-15 gallon AFFP sprayed).
- Subcontractor removed foam from creek.

Crashes

- 4/8/87 - C-130/L-100 - Crash somersault off runway south past the base boundary (fence) into field.

- Low fuel, plane crashed.
- Limited fire, so unknown if AFFP used. If used, not much.

- May 2001 - Small crash on runway.

- ~5 gal AFFP used

1982-1983 - C-5 doing touch + go, on 19th landing, landing gear not lowered

- C-5 landed belly up. - C-5 painted white + gray.
- Crash visible from old fire station.
- Less than 100 gal AFFP used.

1/31/88 - C-5 was on smoke upon landing, taxi to safe location.

- Smoke from inside aircraft.
- Sprayed water + foam? May have leaked out near space 282 + 283.

3/23/74 - DC-8 undergoing maintenance @ night. Fire broke out in parking space 251/252.

- 100s of gal AFFP used.

- 5/4/14 - Travis Air Show - Plane crashed on runway.
- Small air craft, only ~5 gal AFFF used.
- 10/7/93 - Fuel tank maintenance on C-141B.
- In parking space - 512/513.
- Fuel flowing south towards storm drain
- Flow beneath other parked C-141, did some damage but minor.
- AFFF used ~>1000 gal + to control fire.
- 10/15/86 - C-141B taxiing + hit light pole, fuel flowed down to power box + left wing damaged w/ fire.
- estimated 500-1000 gal AFFF used.
- late 80s - C-141 had problem w/ nose landing gear so during landing, aircraft skid on runway w/ small fire beneath nose.
- ~60 gal AFFF used.

AFFF all 6% until mid 1990s then converted to 3%

Former FIA (FTA-1 / FT002) in corner of Airman Dr + Travis Ave
(SE corner)

* ~~1988/1989 fire~~ on 1992 based on newspaper clipping, it occurred on Friday, Jan 31. In 1992, Jan 31 was a Friday. SD

From: RENUCCI, MARC D GS-08 USAF AMC 60 CES/CEF
To: Chern, Daniel/SAC
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- When was the FTA retrofitted with propane (previously used diesel)?
- What fire extinguishing agents have been used at the FTA? AFFF, protein foam, water?
- Has the building structure been used during fire training exercises? Also, as AFFF, protein foam, water been used on that building?
- Where does the extinguishing agent go from the building structure?

Hangars

- Has AFFF ever been released (accidental or intentional) at Buildings 14 or 811? If so, do you have a list of dates or approximate dates/years?

Fire Stations

- Were any of the fire engines/crash trucks cleaned/washed at Building 560, 175, 1380, 895, or 38? Are there any reported accidental spills or release of AFFF at those locations (including minor drips from the system)?
- After AFFF is used at a scene, where were the nozzles flushed? Is flushing ever performed at any of the fire stations?
- Where are/were the trucks refilled with AFFF? B560 (outside or inside) and B38 (inside)? Refilled at other fire stations?
- When did B895 stop being used? Which crash truck was stationed there, and how much AFFF was on board? Any other AFFF stored there?

Crashes/Fires

- I do not recall which aircraft crashed around May 2001. From our discussions, only about 5 gal of AFFF may have been used. Do you have any other details on that crash?
- The C-141B crash on the runway in the late 1980s near taxiway S and J, was that due to an issue with the landing gear? I believe it was mentioned that ~ 60 gal of AFFF may have been used.

Thank you very much again for your help.

Dan Chern

Environmental Engineer

CH2M HILL

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Date: 2/4/15
Time: 1130

COMMUNICATION RECORD

Name of Base, State: Travis AFB, CA

Interviewer: Dan Chern

Organization: CH2M HILL

Phone: 916-286-0339

Position/role on this project:

Email: dchern@ch2m.com

Interviewee: Lynn Tetrick

Organization: AF Civil Engineer

Phone:

Position/Job Title: Storm/Sanitary Sewer

Email:

How Long in this Position?

How long at this Base in current and previous positions?

Have you held similar positions at other bases?

Which bases?

How long?

Discussion:

- At Bldg 811 - Lots of drums were stored w/in mechanical room. Some empty AFFF, some were full.
 - The storage tanks were leaking
 - Drums were removed
 - Floor drains in mech room, so leaked AFFF likely went into floor drains + into holding tank/area west of hangar
 - That retention tank/area is said to be cracked
 - The concrete is supposed to hold water when fire suppression goes off if sanitary sewer can't take all liquid, it goes to holding/retention area.
 - When holding tank fills up, it gets pumped out after it has been sampled
 - Water is pumped into sewer (sanitary)
 - Sediment, sludge may be removed but unknown.
 - Some liquid does escape through cracks in concrete holding tank.



Date: 2/3/15
Time: 1045

COMMUNICATION RECORD

Name of Base, State: Travis AFB, CA

Interviewer: Dan Chern

Organization: CH2M HILL

Phone: 916-286-0339

Position/role on this project:

Email: dchern@ch2m.com

Interviewee: Michael Todd

Organization: LRS Base Supply

Phone:

Position/Job Title: Base Supply Manager

Email:

How Long in this Position?

How long at this Base in current and previous positions?

Have you held similar positions at other bases?

Which bases?

How long?

Discussion: Showed me location of drums of AFFF.

- 80 in stock
- 2 drums on back order, as CE took some recently.
- In Sept. 2014, 40 drums removed b/c they were expired
- Drums were steel and rusty.
- Some drums required to be overpacked, performed w/in warehouse.
- Showed me storage location of those 40 drums.
- They were occasionally moved around.
- Some times they were stored outside under open shed.
- No reported spills or leaks.
- Concrete foundation is 8 feet thick.
- No floor drains inside warehouse.