FINAL

Phase I Environmental Baseline Survey (EBS) in Support of Eliminating Launch Facilities

Launch Facility Sierra-10

F.E. Warren Air Force Base (AFB)

F.E. Warren AFB, Wyoming

AFB Project No. AFGS126001

Prepared for

Air Force Civil Engineer Center (AFCEC)

Joint Base San Antonio-Lackland, Texas

And

F.E. Warren AFB, Wyoming

March 2015

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LIST OF ACRONYMS

° F	Degrees Fahrenheit
ACM	Asbestos-containing material
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AFS	Aerometric Information Retrieval System Facility Subsystem
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERFA	Community Environmental Response Facilitation Act
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CORRACTS	Corrective Action Report
DoD	Department of Defense
EA	EA Engineering, Science, and Technology, Inc., PBC
EBS	Environmental Baseline Survey
EDR	Environmental Data Resources, Inc.
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FINDS	Facility Index System/Facility Registry System
FOIA	Freedom of Information Act
ft	Foot (feet)
FUDS	Formerly Used Defense Site
Herron	Herron Enterprises USA, Inc.
HICS	Hardened Intersite Cable System
ICBM	Intercontinental Ballistic Missile
LBP	Lead-based paint
LF	Launch facility
LUST	Leaking underground storage tank
MBTA	Migratory Bird Treaty Act

NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
PCB	Polychlorinated biphenyl
pCi/L	picoCuries per Liter
POL	Petroleum, oil, and lubricant
RAATS	RCRA Administrative Action Tracking System
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
S-10	Sierra-10
SHWF	Solid and Hazardous Waste Facility
SOW	Statement of Work
SQG	Small Quantity Generator
SWF/LF	Solid Waste Facility Database
TANKS	Storage Tank Listing
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
UIC	Underground Injection Control
USACE	United States Army Corps of Engineering
USAF	United States Air Force
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
VRP	Voluntary Remediation Program
VSI	Visual Site Inspection
WDEQ	Wyoming Department of Environmental Quality

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EXECUTIVE SUMMARY

This Phase I Environmental Baseline Survey (EBS) assesses the environmental conditions of launch facility (LF) Sierra-10 (S-10) (the Subject Property); which has been closed-in-place at F.E. Warren Air Force Base (AFB), Wyoming. This Phase I EBS is being prepared for Headquarters Air Force Civil Engineer Center (AFCEC) located at Joint Base San Antonio-Lackland, Texas and F.E. Warren AFB, Wyoming.

The purpose of a Phase I EBS is to document whether potential environmental impacts to soil or groundwater have resulted from past or current use of the property, including storage of hazardous material, hazardous waste, or petroleum substances.

This Phase I EBS was prepared in accordance with the provisions of Air Force Instruction (AFI 32-7066), *Environmental Baseline Surveys in Real Estate Transactions,* with the American Society for Testing and Materials (ASTM) Standard Designation E1527-93 entitled, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process;* and with the ASTM Standard Designation E1528-93 entitled, *Environmental Site Assessments: Transaction Screen Process*. In accordance with the Statement of Work (SOW), dated 23 August 2013, this EBS relied to the fullest extent possible on previously developed and applicable information for the site related to storage, release, treatment, or disposal of hazardous substances or petroleum substances, as well as on physical reconnaissance of the site and properties within 100 feet (ft) of the Subject Property, and interviews with knowledgeable personnel.

This Phase I EBS has been organized to meet the guiding practices for preparing an EBS, as outlined in AFI 32-7066. This Phase I EBS has been conducted on LF S-10 at F.E. Warren AFB, the Subject Property, as well as on the property within 100 ft of the Subject Property boundaries.

ENVIRONMENTAL CONDITION OF PROPERTY CLASSIFICATIONS

In accordance with the AFI 32-7066, parcels involved in a proposed transaction agreement should be classified into one of seven categories based on the presence of hazardous substances, petroleum substances, or their derivatives. Based upon visual inspections, interviews, and records searches, the following property classifications have been identified for the specific sites/areas which are located at the Subject Property:

- **Category 1** – ***No storage, release or disposal has occurred. Property where no hazardous substances or petroleum products or their derivatives were stored, released into the environment or structures, or disposed on the subject property and where no migration from adjacent areas has occurred*** — No Category 1 areas were identified at LF S-10.

- **Category 2** – ***Only storage has occurred. Property where hazardous or petroleum products or their derivatives were stored, but no release, disposal, or migration from adjacent areas occurred*** — All areas at LF S-10 have been identified as Category 2.

- **Category 3** – ***Contamination below level that do not require any action. Property where contamination is present but falls below established action levels*** — No Category 3 areas were identified at LF S-10.

- **Category 4** – ***Remedial action required and taken. Property where contamination above action levels existed but all remedial actions necessary to protect human health and the environment have been taken to meet the provisions of CERCLA Section 120 (h) (3)*** — No Category 4 areas were identified at LF S-10.

- **Category 5** – ***Remedial or other action underway. Property is undergoing remedial action for known contamination. Remedial systems are partially or entirely in-place, but have not been fully demonstrated*** — No Category 5 areas were identified at LF S-10.

- **Category 6** – ***Required response action not implemented. Property contains known contamination and required remedial systems or other actions have not been selected or implemented —*** No Category 6 areas were identified at LF S-10.

- **Category 7** – ***Further evaluation required. If the existence of contamination or potential for a release of hazardous substances into the environment or structures is indicated, but not well characterized, then further evaluation is required*** — No Category 7 areas were identified at LF S-10.

Table 6-1 lists each property classification (category) and provides additional details. The Subject Property, as categorized above, is further described in Table 6-2. Based on AFI 32-7066, all property in categories 1 through 4 may proceed with any planned transaction without reservation.

Properties surrounding the Subject Property, including those on adjoining parcels and those within 100 ft of the Subject Property boundaries, include the following:

- **North** – The area north of the Subject Property consists of open range
- **South** – The area south of the Subject Property consists of open range
- **East** – The area east of the Subject Property consists of open range
- **West** – Open range and County Road 19 are adjacent to the Subject Property to the west, followed by additional open range.

OTHER AREAS OF CONCERN

Based on the site visual survey, interviews, literature search, and aerial photograph review, other areas of concern were noted at the Subject Property:

- A hazardous materials asbestos-containing material (ACM) survey was conducted prior to demolition of the silo on 18 October 2013. Building materials suspected of containing asbestos tested positive (≥1 percent) in the black and gray fibrous tar in expansion joints throughout the surface of the exterior concrete pads. The ACM was left in place during demolition of the silo in 2014.
- A hazardous materials lead-based paint (LBP) survey was conducted prior to demolition of the silo on 18 October 2013. LBP was found on several materials of the exterior and interior of the silo. The LBP materials were left in place during demolition of the silo in 2014.

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1. PURPOSE OF THE ENVIRONMENTAL BASELINE SURVEY

This Phase I Environmental Baseline Survey (EBS) assesses the environmental conditions of launch facility (LF) Sierra-10 (S-10) (the Subject Property); which has been closed-in-place at F.E. Warren Air Force Base (AFB), Wyoming. It was prepared for, and under the direction of, Air Force Civil Engineer Center (AFCEC) located on Joint Base San Antonio-Lackland, Texas and F.E. Warren AFB, Wyoming. This Phase I EBS is intended to be used for project management and technical performance in support of eliminating LFs located at F.E. Warren AFB, Wyoming.

The purpose of a Phase I EBS is to document whether potential environmental impacts to soil or groundwater have resulted from past or current use of the property, including storage of hazardous material, hazardous waste, or petroleum substances.

This Phase I EBS is a compilation and evaluation of diverse information sources. These sources include, but are not limited to: existing environmental reports, studies, and assessments; interviews; federal, state, and local records; environmental program documents; compliance issues; and site reconnaissance. The level of effort involved in preparing this report conforms to the guiding principle of "reasonably ascertainable" information. For the purpose of the EBS, reasonably ascertainable information is considered publicly available, obtainable from its source within reasonable time and cost constraints, and practically reviewable.

1.1. Boundaries of the Property and Survey Area

F.E. Warren AFB is in Laramie County, in the southeastern portion of Wyoming. Located about 3 miles west of Cheyenne, Wyoming, the area of the installation is approximately 5 square miles. The installation is one of three strategic missile bases in the United States, and is home to the 90th Missile Wing; assigned to the 20th Air Force, Air Force Global Strike Command. Since 1986, F.E. Warren AFB has maintained 150 Minuteman IIIs and was home to the Air Force's only 50 Peacekeeper Intercontinental Ballistic Missiles (ICBMs) as part of the United States strategic defense. The 50 Peacekeeper missiles were deactivated between October 2002 and September 2005. The 50 LFs are located remotely, north of F.E. Warren AFB over an approximately 1,950 square mile area in the Wyoming counties of Goshen, Laramie, and Platte.

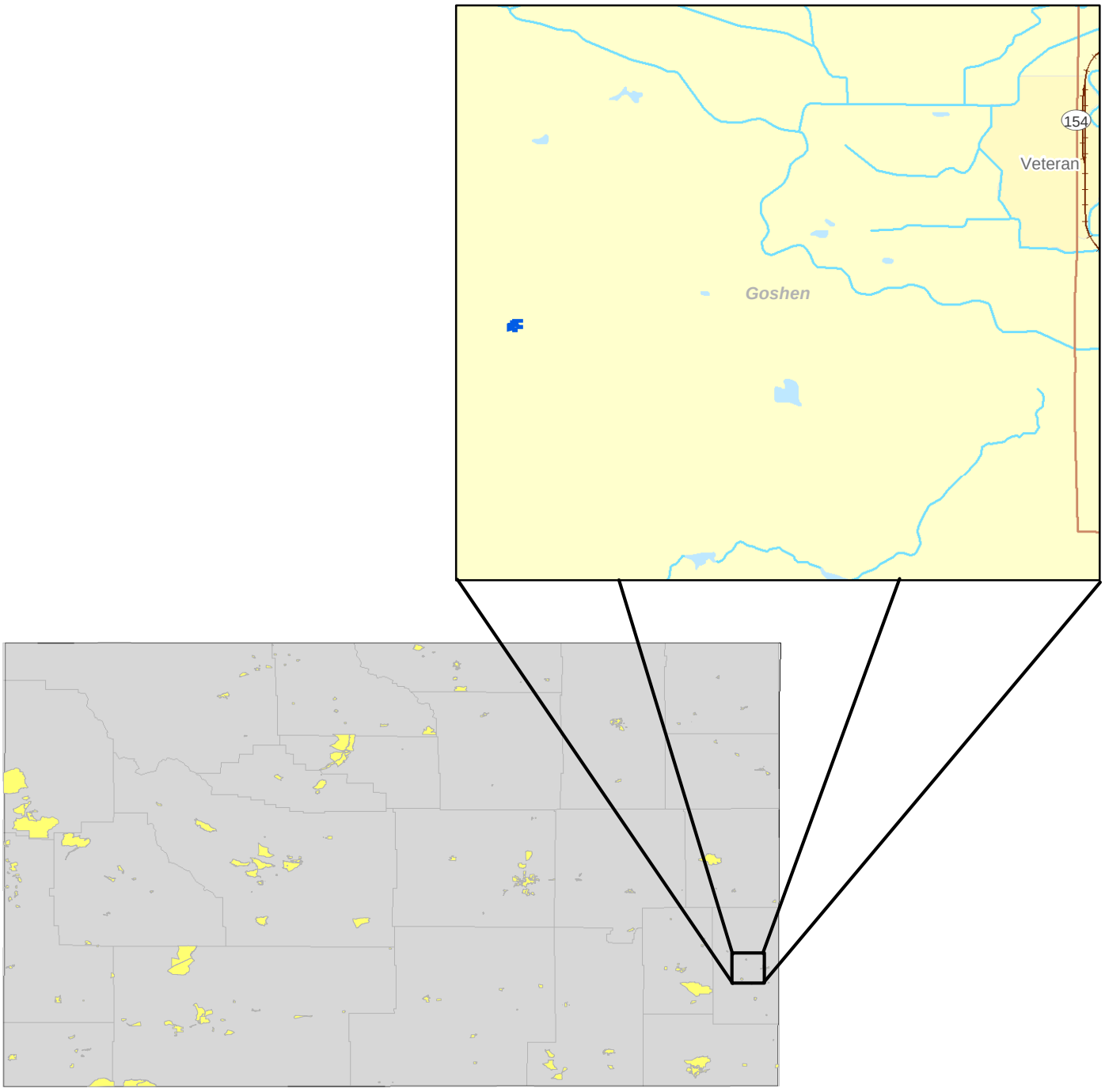
At the time of site reconnaissance, each of the 50 LFs, including LF S-10, had been demolished by Bryan Construction. The launcher and launcher equipment building at the Subject Property were filled in with

rubble, earth, and gravel and covered with cement pads. Soil was brought on site to fill around the cement pads, leaving cement pads and gravel-covered areas enclosed by a fence. The 25-foot (ft) area outside of the fence of the Subject Property was comprised of grassed area. The visual inspection was limited to above-ground areas within the fenced enclosure and the approximate 25 ft around the exterior of the fenced area. Properties immediately adjacent to LF S-10 were visually inspected from the Subject Property.

Properties surrounding the Subject Property, including those within 100 ft of the Subject Property boundaries, include the following:

- **North** – The area north of the Subject Property consists of open range
- **South** – The area south of the Subject Property consists of open range
- **East** – The area east of the Subject Property consists of open range
- **West** – Open range and County Road 19 are adjacent to the Subject Property to the west, followed by additional open range.

This Phase I EBS was performed on both the Subject Property and the property within 100 ft of the Subject Property boundaries.



Data Source: ESRI, 2014

N

0 40 80 160 Miles

Legend

- Approximate Subject Property Boundary
- Cities
- Wyoming County Boundaries
- Wyoming State Boundary

PHASE I ENVIRONMENTAL BASELINE SURVEY
IN SUPPORT OF ELIMINATING LAUNCH FACILITIES
F.E. WARREN AFB, WYOMING
GOSHEN COUNTY, WYOMING

FIGURE 1-1
LOCATION MAP
LAUNCH FACILITY S-10

Document Path: F:\Federal\DOD\AFCEC\Projects\1456036 - FE Warren EBS 2013\Figures\GIS\S10\MXD\Figure 1-1 Location Map.mxd

Data Source: ESRI, 2014

N

0 500 1,000 2,000 Feet

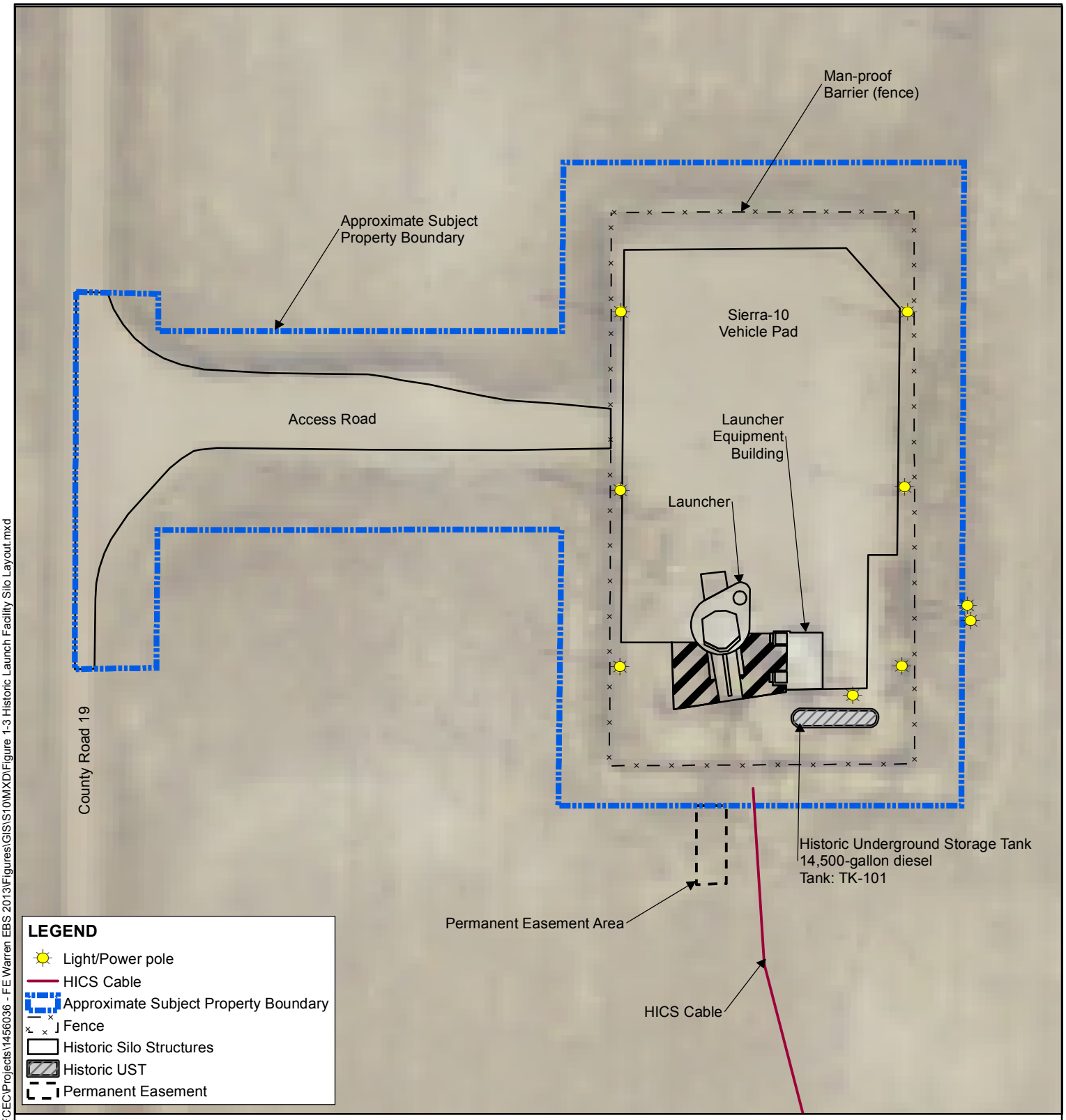
Legend

Approximate Subject Property Boundary

PHASE I ENVIRONMENTAL BASELINE SURVEY
IN SUPPORT OF ELIMINATING LAUNCH FACILITIES
F.E. WARREN AFB, WYOMING
GOSHEN COUNTY, WYOMING

FIGURE 1-2
SITE LOCATION MAP
LAUNCH FACILITY S-10

Document Path: \\Lincoln\Projects\Federal\DOD\AFCEC\Projects\1456036 - F.E Warren EBS 2013\Figures\GIS\S10\MXD\Figure 1-2 Site Location.mxd



Data Source: ESRI, 2014; TolTest, 2008

N

0 50 100 200 Feet

PHASE I ENVIRONMENTAL BASELINE SURVEY
IN SUPPORT OF ELIMINATING LAUNCH FACILITIES
F.E. WARREN AFB, WYOMING
GOSHEN COUNTY, WYOMING

FIGURE 1-3
HISTORIC LAUNCH FACILITY LAYOUT AND
UNDERGROUND STORAGE TANK LOCATION
LAUNCH FACILITY S-10

Document Path: \\Lincoln\Projects\Federal\DOD\AFCEC\Projects\1456036 - F.E Warren EBS 2013\Figures\GIS\S10\MXD\Figure 1-3 Historic Launch Facility Silo Layout.mxd

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2. SURVEY METHODOLOGY

2.1. Approach and Rationale

This Phase I EBS was conducted in accordance with the investigation procedures outlined in Air Force Instruction (AFI) 32-7066 *Environmental Baseline Surveys in Real Estate Transactions* (United States Air Force [USAF] 1994), as well as conditions and applicable federal, state, and local laws and regulations; including American Society for Testing and Materials (ASTM) Designation E1527-93 and 1528-93 applicable standards. The methods used to evaluate environmental conditions at LF S-10 included visual inspections, records review (including environmental records), interviews, and a review of available historical aerial photographs and topographic maps. Adjacent properties were also visually inspected to determine the extent to which they could adversely impact LF S-10. The information contained in this Phase I EBS will be used by F.E. Warren AFB to document whether potential environmental impacts to soil or groundwater have resulted from past or current use of the property—including storage of hazardous material, hazardous waste, or petroleum substances—and to identify areas of concern. Specifically, this Phase I EBS will:

- Identify areas of concern requiring additional evaluation
- Evaluate the potential for adjacent properties to impact LF S-10 from off-site sources
- Identify compliance issues.

2.1.1. Descriptions of Documents Reviewed

This Phase I EBS included review of documents maintained by F.E. Warren AFB. These documents are listed in Appendix H: Table H-1, and sections H.2, H.3, and H.4.

A search of commercially-available federal, state, and tribal regulatory databases was conducted to determine the possible presence of hazardous or petroleum substances at the Subject Property, or within a designated search radius from the Subject Property. The database search was provided on 9 July 2014, by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut (Appendix F). The EDR report provides a search of database records on LF S-10 and the adjacent properties within the radii specified in ASTM E1527-93 (EDR 2014). Topographic maps and historic aerial photographs were also obtained as part of the EDR database search (tables 3-2 and 3-3; appendices B and C).

2.1.2. Property Inspections

A visual inspection of the Subject Property, including adjoining properties, was conducted by an EBS field team on 19 August 2014. This Visual Site Inspection (VSI) was used to record current

environmental conditions and provide information on the operations at the Subject Property as well as visual evidence of potential environmental impact(s) and/or potential areas of concern. The visual inspection of the adjoining properties included only the exterior of structures and properties adjacent to the Subject Property.

2.1.3. Personnel Interviews

In addition to the available data provided by F.E. Warren AFB and the VSI results, the EBS field team interviewed F.E. Warren AFB personnel to document the current and historic conditions of the Subject Property. The objective of the interviews was to obtain information on actual knowledge regarding recognized environmental conditions in connection with the Subject Property. Appendix E includes a summary of the F.E. Warren AFB personnel interviewed during the VSI and a copy of the interview records. The information obtained during these interviews is referenced throughout this EBS.

Interviewees for the Subject Property and adjacent properties included:

- Mr. Travis Beckwith – F.E. Warren AFB
- Mr. Bill Goings – F.E. Warren AFB
- Mr. Nick Lumbreraz – F.E. Warren AFB
- Mr. Galen Frahm – F.E. Warren AFB
- Mr. Russell Lincoln – F. E. Warren AFB
- Mr. Timothy Grosch – F.E. Warren AFB

2.1.4. Sampling

No sampling of soil, surface water, groundwater, or other media was performed as part of this EBS.

3. FINDINGS FOR THE SUBJECT PROPERTY

3.1. History and Current Use

The summary of the history of F.E. Warren AFB is based upon interviews and a review of historical information as referenced in the following sections.

F.E. Warren AFB is in Laramie County, in the southeastern portion of Wyoming. Located about 3 miles west of Cheyenne, Wyoming, the installation's area is approximately 5 square miles. The installation is one of three strategic missile bases in the United States and is home to the 90th Missile Wing; assigned to the 20th Air Force, Air Force Global Strike Command. Since 1986, F.E. Warren AFB has maintained 150 Minuteman IIIs, and was home to the Air Force's only 50 Peacekeeper Intercontinental Ballistic Missiles (ICBMs) as part of the United States strategic defense. The 50 Peacekeeper missiles were deactivated between October 2002 and September 2005. The 50 LFs are located remotely, north of F.E. Warren AFB over an approximately 1,950 square mile area in the Wyoming counties of Goshen, Laramie, and Platte.

In 2014, LF S-10 was demolished by Bryan Construction. The launcher and launcher equipment building were filled in with rubble, earth, and gravel and covered with cement pads. Soil was brought on site to fill around the cement pads, leaving cement pads and gravel-covered areas enclosed by a fence.

3.1.1. Land Use and Zoning

The Goshen County Planning and GIS department was contacted and indicated Goshen County is not currently zoned.

3.1.2. Title and Deed Search

On 31 May 1963, tracts FS-1000E-1 to FS-1000E-9 of land in the northwest ¼ of Section 30, Township 23 North, Range 63 West in Goshen County, Wyoming—consisting of approximately 68.20 acres—were leased to the United States of America by Lillian J. Rutherford, also known as Lillian Rutherford. Additionally, tract FS-1001E of the land in the east ½ of the northeast ¼ of Section 25, Township 23 North, Range 64 West in Goshen County, Wyoming—consisting of approximately 33.88 acres—were leased to the United States of America by Kenneth H. Yorges, also known as Kenneth Yorges, and Berneice Yorges on 1 August 1963. Tract FS-1002E of the land in the southeast ¼ of the southeast ¼ of Section 24, and Lot 4 of Section 19, Township 23 North, Range 63 West in Goshen County, Wyoming—consisting of approximately 1.77 acres—were also leased to the United States of America by Eugene Denney, also known as Eugene A. Denney, and Hazel V. Denney on 6 January 1964. A summary of

lease agreement information for LF S-10 is included in Table 3-1, and copies are provided in Appendix G.

Table 3-1: Lease Agreement Summary

Property Description	Acres	Tract No.	Seller/Lessor	Lease Agreement
NW ¼ S30 T23N R63W	1.53	FS-1000	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Fee
Lot 1 S30 T23N R63W	0.64	FS-1000E-1	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Permanent Access Road and Utility Easement
NW ¼ S30 T23N R63W	66.67	FS-1000E-2 (Includes entire acreage of tracts FS-1000E-1, FS-1000E-3, FS-1000E-4, FS-1000E-5, FS-1000E-6, FS-1000E-7, FS-1000E-8, FS-1000E-9)	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Permanent Restrictive Area Easement
Lot 1 S30 T23N R63W	0.11	FS-1000E-3	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Permanent Line of Sight and Azimuth Marker Easement
NW ¼ NW ¼ S30 T23N R63W & Lot 1 S30 T23N R63W	0.10	FS-1000E-4	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Permanent Line of Sight and Azimuth Marker Easement
NW ¼ NW ¼ S30 T23N R63W & Lot 1 S30 T23N R63W	0.16	FS-1000E-5	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Permanent Line of Sight Easement
Lot 1 S30 T23N R63W	0.02	FS-1000E-6	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Permanent Drainage Ditch Easement
Lot 1 S30 T23N R63W	2.59	FS-1000E-7	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Temporary Work Area Easement
Lot 1 S30 T23N R63W	0.01	FS-1000E-8	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Temporary Work Area Easement
NW ¼ NW ¼ S30 T23N R63W	0.01	FS-1000E-9	Lillian J. Rutherford, a.k.a. Lillian Rutherford	Temporary Work Area Easement
Lot 4 S19 T23N R63W & SE ¼ SE ¼ S24 T23N R64W	1.77	FS-1001E	Kenneth H. Yorges, a.k.a., Kenneth Yorges and Berneice Yorges	Permanent Restrictive Area Easement
E ½ NE ¼ S25 T23N R64W	33.88	FS-1002E	Eugene Denney, a.k.a. Eugene A. Denney and Hazel V. Denney	Permanent Restrictive Area Easement

Source: F.E. Warren AFB

3.1.3. Sanborn Fire Insurance Maps

The Subject Property is located in a rural, remote area northeast of F.E. Warren AFB in Goshen County, Wyoming. Sanborn Fire Insurance Maps were originally mapped only to assess fire insurance liability in urbanized areas. EDR identified that there are no Sanborn Fire Insurance Maps for the area of the Subject Property in the EDR Sanborn collection (EDR 2014).

3.1.4. City Directories

The Subject Property is located in a rural, remote area north of F.E. Warren AFB in Goshen County, Wyoming. EDR identified that there is no historic city directory coverage for the Subject Property (EDR 2014).

3.1.5. Historical Topographic Map Review

Historic topographic maps, as provided by EDR, and dated 1899, 1960, 1990, and 1993 were obtained as part of the Phase I EBS. Copies of the reviewed historic topographic maps are presented in Appendix B. Observations made from the reviewed historic topographic maps are presented in the Table 3-2 below:

Table 3-2: Historic Topographic Map Review

Date	LF S-10	Adjacent Properties
1899	The topographic map shows that the Subject Property is undeveloped.	The adjacent properties appear undeveloped with the exception that the present day County Road 19 is adjacent to the west.
1960	The Subject Property appears similar to the 1899 topographic map.	The adjacent properties appear undeveloped with the exception that the present day County Road 19 is adjacent to the west.. An unnamed pipeline is identified approximately 1 mile east of the Subject Property. Several unnamed depressional ponds are identified within 2 miles of the Subject Property.
1990	The Subject Property is not identified, although it would have been developed at this time.	The adjacent properties appear similar to the 1960 topographic map.
1993	The Subject Property appears similar to the 1990 topographic map.	The adjacent properties appear similar to the 1990 topographic map.

3.1.6. Historical Site Plans and Aerial Photographs

Aerial photographs dated 1948, 1971, 1994, 2001, 2006, and 2009 were obtained from EDR. Copies of reviewed aerial photographs are presented in Appendix C. Observations made from the reviewed aerial photographs are summarized in Table 3-3.

Table 3-3: Aerial Photograph Review		
Date	**LF S-10**	**Adjacent Properties**
1948	The Subject Property has not been developed at this time, and the land is utilized as cropland.	With the exception of the present day County Road 19 along the west side of the Subject Property, the adjacent land appears to be cropland.
1971	The Subject Property is developed; however, due to the quality of the aerial, specific site structures are indiscernible.	The adjacent properties appear similar to the 1948 aerial photograph.
1994	The Subject Property appears similar to the 1971 aerial photograph.	The adjacent properties appear similar to the 1971 aerial photograph.
2001	The Subject Property appears similar to the 1994 aerial photograph.	The adjacent properties appear similar to the 1994 aerial photograph.
2006	The Subject Property is developed and the launcher equipment building and launcher are visible.	The adjacent properties appear similar to the 2001 aerial photograph.
2009	The Subject Property appears similar to the 2006 aerial photograph.	The adjacent properties appear similar to the 2006 aerial photograph.

3.1.7. Local Government Offices

A Freedom of Information Act (FOIA) request was made to the Wyoming Department of Environmental Quality (WDEQ) regarding environmental information related to the Subject Property. Information was also obtained from a review of United States Environmental Protection Agency (USEPA) websites.

Review of the Subject Property files identified information regarding a former underground storage tank (UST). Documentation of the FOIA request and response are presented in Appendix E. Information resulting as a review of this file information is contained in Section 3.4.2.

3.2. Environmental Setting

The environmental setting of the Subject Property is presented through discussions of climate, topography, geology, hydrogeology, and surface water. Information and results from this and previous investigations, where applicable, have been used to describe the environmental setting of the Subject Property.

3.2.1. Climate

Due to its elevation, the climate of Wyoming is relatively cool. The Continental Divide splits the State from the northwest corner to the center of the southern border. Mountain ranges and rangelands of the Rocky Mountains divide Wyoming in a general north-south direction, providing an effective barrier that

forces air currents moving from the west to rise and drop much of their moisture along the western slopes. East of the mountains, the State is considered semiarid. The warmest parts of the State are found in the lower portions of the Big Horn Basin, the lower elevations of the central and northeast portions, and along the eastern border. Mean maximum temperatures range from 85 to 95 degrees Fahrenheit (°F) in the summer months to 5 to 10° F in the winter months (Wyoming State Climate Office 2014).

Precipitation in the State varies greatly from location to location. Maximum precipitation occurs in the spring and early summer for most of the State. Greater amounts of precipitation occur over the mountain ranges and usually at higher elevations. Annual precipitation varies from 7 to 10 inches where the elevation ranges from 6,500 to 8,500 ft. At lower elevations over the northeast portion and along the eastern border, where elevations range from 4,000 to 5,500 ft, annual precipitation averages are from 12 to 16 inches. High precipitation events in the summer are often associated with thunderstorms covering a few square miles. Snowfall and drifting is frequent from November through May, and is light to moderate at lower elevations. Snowfall events with totals exceeding 5 inches occur at lower elevations about five times a year. Of the storm systems occurring in Wyoming, hailstorms are the most destructive. Tornadoes also occur in the spring and summer months, but are much less frequent and destructive than those that occur in the Midwest (Wyoming State Climate Office 2014).

3.2.2. Topography

Topography surrounding LF S-10 is generally flat. Topography surrounding the Subject Property generally consists of rolling hills with intermittent flat topography. The local elevation at the Subject Property is approximately 4,343 ft above National Geodetic Vertical Datum of 1929 (NGVD) (EDR 2014).

3.2.3. Soils

The Subject Property is comprised of Anselmo and Shingle soils with 3 to 10 percent slopes. These soils consist of deep, well-drained, nearly level to moderately steep soils on uplands. The native vegetation in this soil complex is blue grama and needle and thread. These soils are predominately suited for areas of dryland hay and pasture, close-growing irrigated crops, and wildlife habitat (United States Department of Agriculture [USDA] 1971 and 2014).

3.2.4. Geology

Goshen County is located in the southeastern part of Wyoming, lying between the Southern Rocky Mountains and the Great Plains physiographic regions. The soils in the region developed in three main

kinds of parent material: residuum, eolian deposits, and alluvium. In the early geological time, the county was sporadically covered by the sea, followed by periods of deposition and erosion. Sedimentary rock formed in this process and eventually covered the basal Precambrian rock to several thousand feet. The Lance, Chadron, Brule, and Arikaree formations were formed by the sedimentary rock of the geologic cycles. In recent times, the deposition and erosion formed the present day topography, leaving eolian and alluvial deposits and re-exposing parts of the underlying formations. The eolian deposits in this area are coarse textured, moderately coarse textured, and medium textured. The alluvium deposits are classified as general and local, consisting of the clay, silt, sand, and gravel deposited by perennial streams. The local alluvium occurs in swales and shallow drainageways, on fans and foot slopes, and on flood plains of some of the intermittent and small perennial streams (USDA 1971).

3.2.5. Hydrogeology

Goshen County is drained predominantly by the North Platte River and its tributaries. The Goshen Hole Lowland, near the Subject Property, is a widening of the North Platte Valley. The area is characterized by an undulating to rolling plain that has gentle to moderately steep foot slopes along the base of the rim. The relief of the area is broken by several buttes and outliers, the most prominent being Table Mountain. Locally, the area is drained by Horse Creek and its tributaries, the northern part of Cherry Creek, and the northeastern part by Katzer Drain (USDA 1971).

3.2.6. Surface Water and Floodplains

The nearest surface water feature is Fort Laramie Canal, located approximately 2.25 miles (11,860 ft) northeast of the Subject Property. According to the United States Geological Survey (USGS) Veteran 7.5 minute topographic quadrangle map, there are no other identified surface water bodies at, or adjacent to, the Subject Property (USGS 2014).

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program. The program is designed to provide flood insurance for existing properties and to discourage additional development within 100-year floodplains. The Subject Property is not located in an area designated as a floodplain, as indicated on the Goshen County Flood Insurance Rate Map, Panel 560022B dated 1 March 1986 (Appendix G) (FEMA 2014).

3.3. Hazardous Substances

Hazardous materials are defined as “substances with strong physical properties of flammability, corrosivity, reactivity, or toxicity that may cause an increase in mortality, a serious irreversible illness,

incapacitating reversible illness, or pose a substantial threat to human health or the environment." Hazardous wastes are a subset of hazardous materials that pose a substantial threat or potential hazard to human health or the environment.

The generation, use, storage, and/or disposal of hazardous substances including petroleum, oil, and lubricant (POL); pesticides; and medical/biohazardous, ordnance, radioactive and solid wastes are discussed in this section. Environmental Restoration Program sites and wastewater treatment, collection, and discharge system operations are also discussed in this section.

3.3.1. Hazardous Materials and Petroleum Substances

No hazardous materials or petroleum products were identified at the Subject Property during the VSI.

Interviews with F.E. Warren AFB missile control personnel revealed that when the Subject Property was in operation, most LF maintenance was done off-site; however, there were several hazardous materials and petroleum substances that were utilized or stored at the Subject Property. Grease and lubricating oil were used for LF maintenance. Sodium chromate for the cooling system and ethylene glycol for the brine chiller were stored onsite in metal reservoirs in quantities of less than 55 gallons. Additionally, oil in the generator and an associated generator battery bank were present. According to the Tank Removal and Closure Project Summary Report completed March 2008 by TolTest, Inc., each of the 50 LFs had a 60-gallon lube oil tank and a 360-gallon day tank located in its missile silo. During UST excavation activities in 2006, the tanks at the Subject Property were removed, decommissioned, and recycled (TolTest, Inc. 2008).

A hazardous materials survey was conducted at the Subject Property prior to demolition of the silo on 18 October 2013 by Herron Enterprises USA, Inc. (Herron). The hazardous materials report indicated that a strong odor of ethylene glycol was present throughout the silo. Ethylene glycol labeled lines, which had been cut and were corroding, were noted and likely the source of the odor. The lines were historically associated with the less-than 55 gallon metal reservoir of ethylene glycol which had been used at the site while in operation (Herron 2013). The ethylene glycol lines were left in place during demolition of the silo in 2014, and the observed odor does not present an environmental concern at the Subject Property.

3.3.2. Hazardous and Petroleum Wastes

No hazardous or petroleum wastes were identified at the Subject Property.

3.3.3. Historical Releases

According to available F.E. Warren AFB records and interviews with base personnel no historical release of hazardous waste or petroleum products has occurred at the Subject Property. No evidence of hazardous waste or petroleum releases related to the historical activities of the Subject Property was observed during the VSI.

3.4. Storage Tanks

3.4.1. Aboveground Storage Tanks

No evidence of current aboveground storage tanks (ASTs) was identified at the Subject Property. Information on historic ASTs was obtained from information provided by F.E. Warren AFB.

According to the Tank Removal and Closure Project Summary Report completed March 2008 by TolTest, Inc., the Subject Property historically contained a 60-gallon lube oil tank and a 360-gallon day tank located in its missile silo. The exact historic locations of these ASTs within the silo are unknown; however, according to Base personnel, the tanks were located in the launcher equipment building. During UST excavation activities in 2006, the ASTs at the Subject Property were removed, decommissioned, and recycled (TolTest, Inc. 2008). Table 3-4 summarizes the available information for the historic ASTs.

Table 3-4: Summary of Historic ASTs

Capacity (Gallons)	Stored Product	Status	Container Material
60	Lube Oil	Removed 9/13/06	Metal
360	Diesel	Removed 9/13/06	Metal

3.4.2. Underground Storage Tanks

Currently there are no USTs at the Subject Property. Information on historic USTs was obtained from multiple sources, including:

- EDR report
- WDEQ FOIA request
- Information provided by F.E. Warren AFB.

A Tank Closure Report prepared by TolTest, Inc. in June 2007 for WDEQ was provided by F.E. Warren AFB (TolTest, Inc. 2007). According to the report, a 14,500-gallon diesel UST and associated piping located at LF S-10, State Identification Number 0-002635, were removed on 13 September 2006. The UST was approximately 8 ft in diameter and approximately 38 ft long, and was located approximately 4 ft below grade. Prior to excavation, fuel was removed by an F.E. Warren AFB contractor, and a small

amount of residual fuel in the tank was removed with a vacuum truck by Tri State Oil Reclaimers, and recycled. At the time of excavation the tank was noted to be in good condition with no visible or olfactory signs of product release. A WDEQ employee took closure samples following excavation, and submitted the samples to Kemron Environmental Services for analysis. Following excavation activities the cavity was backfilled with 72 cubic yards of imported fill material and restored to grade (TolTest, Inc. 2007). On 24 January 2008, a letter was issued by WDEQ indicating that LF S-10 was classified as closed with No Further Action (NFA) required. A copy of the Tank Closure Report and WDEQ closure letter are provided as part of Appendix G. The location of the historic UST is shown on Figure 1-3. Table 3-5 summarizes the available information for the historic UST.

Table 3-5: Summary of Historic USTs

Tank State ID Number	Capacity (Gallons)	Stored Product	Status	Year Installed
0-002635	14,500	Diesel	Removed 9/13/06	Unknown

3.4.3. Pipelines, Hydrant Fueling, and Transfer Systems

According to the Tank Removal and Closure Project Summary Report completed March 2008 by TolTest, Inc., prior to UST removal on 13 September 2006, the associated piping was disconnected and removed (TolTest, Inc. 2008). The properties of the historic UST are provided in Table 3-5 and its location is illustrated on Figure 1-3.

3.5. Oil/Water Separators

No evidence of current or historic oil/water separators was identified at the Subject Property.

3.6. Pesticides and Herbicides

According to interviews with F.E. Warren AFB personnel, during active operation of the LF, the Subject Property was kept sterile via the use of common pesticides and herbicides. Pesticides have been used to control various pests (e.g., bees, ants, spiders, flies, and mice). Herbicides were used to eliminate grass and weeds (e.g., crab grasses, dandelions, and poison ivy). Following the end of the Vietnam War in 1975, Agent Orange broadleaf control was used as an herbicide for approximately 2 years. After approximately 1977, F.E. Warren AFB used Krovar® or Bromacil, a soil sterilant, and Roundup™ broadleaf control for weed management. These herbicides were used on an "as-needed" basis and were not stored on the Subject Property. According to F.E. Warren AFB personnel, the Subject Property has not been sprayed with herbicides or pesticides since it was deactivated in 2004. Since 2004, weeds and grass have been mechanically controlled with occasional mowing.

3.7. Medical or Biohazardous Waste

No evidence of current or historical medical/biohazardous wastes was identified at the Subject Property.

3.8. Ordnance

The Subject Property historically contained a Peacekeeper (LGM-118) missile that was capable of delivering 10 independently-targeted reentry vehicles (USAF 2014). The ICBM was removed following deactivation in 2004.

3.9. Radioactive Wastes

No evidence of existing or historical radioactive waste was identified at the Subject Property.

3.10. Solid Waste

There is no existing or historical evidence of solid wastes being generated, stored, or disposed at the Subject Property.

3.11. Ground Water

According to USGS, groundwater at the Subject Property has been identified at approximately 31 ft below ground surface (EDR 2014).

3.12. Wastewater Treatment, Collection and Discharge

No wastewater treatment, collection or discharge occurs or has historically occurred at the Subject Property.

3.13. Drinking Water Quality

Drinking water is currently not supplied to the Subject Property.

3.14. Asbestos

The Department of Defense (DoD) policy with regard to asbestos-containing material (ACM) is to manage the protection of human health and the environment and to comply with all applicable federal, state, and local laws and regulations. AFI 32-1052, *Facility Asbestos Management,* outlines the requirements and responsibilities for the management of asbestos (USAF 2013). The AFB has primary responsibility for implementing an asbestos program to ensure that the health and welfare of all personnel are protected from the potentially harmful effects of friable ACM.

Common categories of friable ACM include:

- Thermal insulation, including pipe block insulation, mudded elbow and joint compound, boiler block insulation, and heat exchanger tank insulation
- Surfacing materials, including fireproofing and spray-applied ceiling materials
- Ceiling tiles.

Common categories of non-friable ACM include:

- Vinyl and asphalt floor tiles, mastics, and associated baseboard adhesives
- Linoleum and fibrous backing
- Cement pipes and wall tiles
- Mechanical sealant
- Roofing materials, including flashing compounds, tar, felt shingles, membrane, and paint emulsions.

A hazardous materials ACM survey was conducted prior to demolition of the silo on 18 October 2013. Building materials suspected of containing asbestos tested positive (≥1 percent) in one material summarized in Table 3-6 (Herron 2013). The ACM was left in place during demolition of the silo in 2014.

Table 3-6: Hazardous Materials Survey Data - ACM, 2013

Location	Recommended Action [(a)]	Material Identified
Exterior concrete pads	No immediate action required	Black and gray fibrous tar in expansion joints throughout the surface

(a) Immediate action = ACM in need of repair and poses a threat;
No immediate action required = ACM in good condition and does not pose an immediate threat.

Source: (Herron 2013)

3.15. Polychlorinated Biphenyls

Due to the high dielectric constant, polychlorinated biphenyls (PCBs) were used as an oil constituent in transformers, capacitors, hydraulic systems, oil-cooled breakers, switches, etc. PCBs are currently regulated under the Toxic Substances Control Act (TSCA). The implementing regulations under this act are codified at 40 Code of Federal Regulations (CFR) 761; which was promulgated in 1976. The TSCA regulates manufacturing, processing, distribution, storage, and disposal of PCBs or oils containing greater than 50 parts per billion of PCBs.

According to F.E. Warren AFB missile control personnel, all PCB filter and transformer liquid were replaced in the 1980s; however, all of the transformers were removed during demolition of the Subject Property in 2014. During the UST excavation on 13 September 2006, TolTest, Inc. conducted PCB sampling of the tank coating material and all results were below the method reporting limit (TolTest, Inc. 2007). The pre-demolition S-10 Launch Facility Hazmat Survey, conducted on 18 October 2013 by Herron, indicated that no evidence of PCBs were observed in the LF Silo, although there was a sign on the silo door that noted PCBs existed inside (Herron 2013).

3.16. Radon

Radon is a naturally occurring, colorless, odorless radioactive gas that is produced by the radioactive decay of naturally occurring uranium. Uranium decays to radium and then to radon. Radon that is present in soil can enter a building though small spaces, cracks, or other openings and can accumulate in enclosed areas such as basements. According to USEPA guidance, residential homes with radon levels below 4 picoCuries per liter (pCi/L) require NFA. Mitigation is recommended if radon levels exceed 4 pCi/L.

A radon assessment was not completed prior to demolition of the Subject Property silo. During demolition activities the LF silo was filled in with rubble, earth, and gravel, leaving the Subject Property as gravel covered sites with no underground or basement areas. Therefore, radon is not considered an environmental or health concern at the Subject Property.

3.17. Lead-Based Paint

The use of lead-based paint (LBP) was common practice from the 1800s through the 1970s. LBP was used as a primer for metals and maintenance painting into the 1970s. In 1973, the Consumer Product Safety Commission established a maximum lead content in paint of 0.5 percent by weight. In 1978, this

threshold was lowered to 0.06 percent by weight. It is assumed that buildings constructed/painted prior to 1978 contain LBP.

A hazardous materials LBP survey was conducted prior to demolition of the silo on 18 October 2013. LBP was found on several building materials summarized in Table 3-7 (Herron 2013). The LBP containing materials were left in place during demolition of the silo in 2014.

Table 3-7: Hazardous Materials Survey Data - LBP, 2013

Location	Substrate	Condition	Material Identified
North Side Exterior	Metal	Peeling	Green Hatch
North Side Exterior	Metal	Intact	White Pole
West 1B Equipment Room	Concrete	Intact	Silver Ceiling
West 1B Equipment Room	Metal	Intact	Red Floor
North 1B Equipment Room	Metal	Intact	Red Floor Lift
South 1B Catwalk	Concrete	Intact	White Wall
North 1B Catwalk	Metal	Intact	Grey Floor
South 2B Below Catwalk	Metal	Intact	Green Cabinet
West 2B Below Catwalk	Concrete	Intact	Grey Floor
West 2B Below Catwalk	Concrete	Intact	Yellow Floor
South 2B Below Catwalk	Concrete	Intact	White Wall

Source: (Herron 2013)

3.18. Historical and Cultural Resources

Cultural resources—consisting of archaeological resources, architectural resources, and traditional cultural resources—are resources that represent and document the activities, accomplishments, or traditions of earlier nations, states, and communities, and help to understand the present culture. Archaeological resources are areas where previous human activities have altered the earth, or where physical remains (e.g., pottery shards, projectile points, or human skeletal remains) are located. To be considered for inclusion in the National Register of Historic Places, architectural resources generally are required to be at least 50 years old. Traditional cultural resources can include prominent topographic features (e.g., habitats, plants, animals, and other resources) that Native American or other ethnic or cultural groups consider essential for the continuation of traditional culture.

According to F.E. Warren AFB missile control personnel, a cultural survey was completed on the Subject Property post-construction. During LF construction, a very deep basin was excavated and a large radius of land was disturbed in the process, therefore it is unknown if cultural resources existed at the Subject Property prior to construction.

3.19. Natural Resources

The Endangered Species Act (ESA) as amended requires that any action authorized or funded by a federal agency is not likely to jeopardize the continued existence of any threatened or endangered species or result in the modification of critical habitat of such a species.

EA requested that the United States Fish and Wildlife Service (USFWS) conduct a records review and provide any information concerning the presence of rare or endangered species, significant natural communities, or other significant habitats on, or in the vicinity of, the Subject Property. According to Mr. Timothy Grosch with the USFWS, the Mountain Plover (*Charadrius montanus*), a migratory nesting bird with a nesting season between 10 April and 10 July, is in the general area and was given special consideration during the VSI of the LFs and the Hardened Intersite Cable System (HICS) cable. The species is not currently proposed for listing under the federally-threatened and endangered species list; however it is protected under the Migratory Bird Treaty Act (MBTA) and continues to be classified as a Migratory Bird of High Federal Interest by the USFWS in Wyoming. EA was not performing demolition or construction activities, and therefore was not required to notify USFWS to perform a pre-construction bird survey in the area. Appendix E includes copies of communications regarding natural resources.

The United States Army Corps of Engineers (USACE) and USEPA jointly define wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (USACE 1987). Wetlands are protected as “waters of the United States” under Section 404 of the Clean Water Act. Jurisdictional waters of the United States regulated under the Clean Water Act include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, and “other” waters that, if degraded or destroyed, could affect interstate commerce.

Review of information from the United States Department of the Interior National Wetland Inventory-Map shows that there are no wetland areas at the Subject Property (USFWS 2014).

3.20. EDR Report

This section provides a summary of the information presented in the EDR Regulatory Database Report (Appendix F). A search was conducted of the available federal and state databases to identify potential environmental issues associated with the Subject Property and surrounding properties (extending up to 1 mile from the Subject Property). This search was completed in accordance with USEPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) and ASTM Standard E1527-93 (ASTM 1993). As part of this search, un-mappable or un-plottable sites listed in the EDR database report were reviewed to determine if they were located within the specified radii of the database(s) in which they were included.

The following EDR proprietary records were reviewed:

- National Priorities List (NPL)
- Proposed NPL list
- Delisted NPL list
- NPL Liens
- Superfund Consent Decrees
- Records of Decision (RODs)
- Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) list
- CERCLIS-No Further Remedial Action Planned (NFRAP) list
- Federal Facility Site Information listing
- National Pollutant Discharge Elimination System (NPDES)
- Comprehensive Environmental Response, Cleanup, and Liability Act (CERCLA) Superfund Lien (Liens 2)
- Resource Conservation and Recovery Act (RCRA) Corrective Actions list (CORRACTS)
- RCRA Non-CORRACTS Treatment, Storage, and Disposal (TSD) list
- RCRA-Generators list
- RCRA-Small Quantity Generators (SQG) list
- RCRA-Conditionally Exempt Small Quantity Generators (CESQG) list
- RCRA Administrative Action Tracking System (RAATS) list
- United States Institutional Controls list
- United States Engineering Controls list
- Federal Institutional Controls/Engineering Controls registries
- Federal Emergency Response Notification System (ERNS) list
- State and Tribal equivalent CERCLIS

- State and Tribal Landfill and/or Solid Waste Disposal Site lists
- Solid and Hazardous Waste Facility (SHWF)
- Solid Waste Facility Database (SWF/LF)
- State and Tribal Leaking Underground Storage Tank (LUST) lists
- State and Tribal Registered Storage Tank list
- State and Tribal Voluntary Cleanup Sites
- State and Tribal Brownfields sites
- List of Voluntary Remediation Program (VRP) sites
- Local Brownfield site lists
- Local lists of Landfill/Solid Waste Disposal Sites
- Local lists of Hazardous Waste/Contaminated Sites
- Local Land Records
- Records of Emergency Release Reports
- Incident and Accident Data
- DoD Sites
- Formerly Used Defense Sites (FUDS)
- Superfund (CERCLA) Consent Decrees
- Uranium Mill Tailings Sites
- Mines Master Index File
- Toxic Chemical Release Inventory System (TRIS)
- Federal Insecticide, Fungicide, and Rodenticide Act / Toxic Substances Control Act list
- Federal Insecticide, Fungicide, and Rodenticide Act / Toxic Substances Control Act Inspections and Enforcements list
- Historical Federal Insecticide, Fungicide, and Rodenticide Act / Toxic Substances Control Act Inspections and Enforcements list
- Section 7 Tracking System list
- Integrated Compliance Information System list
- PCB Activity Database System
- Material Licensing Tracking System
- Radiation Information Database
- RCRA Administrative Action Tracking System
- Risk Management Plans
- Underground Injection Control (UIC) Well Locations list
- Indian Reservations

- State Coalition for Remediation of Drycleaners Listing
- Financial Assurance Information listing
- Lead Smelter Sites
- Potentially Responsible Parties
- 2020 Corrective Action Program List
- Mine Locations Listing
- Federal and Indian Lands
- Financial Assurance Information
- Coal Combustion Residues Surface Impoundments list
- Steam-Electric Plan Operation Data
- Aerometric Information Retrieval System Facility Subsystem (AFS)
- Air Facility System Data
- USEPA Watch List
- PCB Transformer Registration Database
- EDR Exclusive Historic Gas Stations
- EDR Exclusive Historic Dry Cleaners
- Exclusive Recovered Government Archives
- Facility Index System/Facility Registry System (FINDS) list
- Biennial Reporting System list
- Storage Tank Listing (TANKS)
- SPILL Database.

The database search did not identify findings at or within 1 mile of the Subject Property.

Orphan Summary

Four facilities were identified in the Orphan Summary as LTANKS, TANKS, SWF/LF, and USTs. With the site information provided, one facility was determined to be located out of the search area radii. The remaining three facilities were unable to be mapped with the site address information provided.

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4. FINDINGS FOR ADJACENT PROPERTIES

4.1. Land Uses

In accordance with ASTM Standard Designation E1527-93, the adjacent properties within the radii specified in ASTM E1527-93 of the Subject Property were surveyed to determine their potential to affect the subject property. An EDR database search was conducted to include the adjacent properties and provides information on sites which are listed on state and/or federal databases within the specified radii of the Subject Property. The EDR database report is provided in Appendix F.

The accessible adjacent properties were visually inspected on 19 August 2014 as part of the Phase I EBS VSI activities.

4.2. Surveyed Properties

LF S-10 is bordered by the following properties:

- **North** – The area north of the Subject Property consists of open range
- **South** – The area south of the Subject Property consists of open range
- **East** – The area east of the Subject Property consists of open range
- **West** – Open range and County Road 19 are adjacent to the Subject Property to the west, followed by additional open range.

4.2.1. Federal Records

Federal records reviewed are listed in Appendix H: Section H.2.

4.2.2. State and Local Records

State and local records reviewed are listed in Appendix H: Section H.3.

4.2.3. Tribal Records

Tribal records reviewed are listed in Appendix H: Section H.4.

4.2.4. EDR Proprietary Records

The following EDR proprietary records were reviewed:

- Manufactured Gas Plants - EDR Proprietary Manufactured Gas Plants
- EDR Historical Auto Stations - EDR Proprietary Historic Gas Stations

- EDR Historical Cleaners - EDR Proprietary Historic Dry Cleaners.

The database search did not identify findings within the specified radii of the Subject Property.

4.3. Additional Findings

No additional findings for adjacent properties were identified.

5. APPLICABLE REGULATORY COMPLIANCE ISSUES

5.1. List of Compliance Issues

In 1992, the Community Environmental Response Facilitation Act (CERFA) amended CERCLA and established new procedures for contamination assessment, cleanup, and related activities. CERFA supports other environmental laws to ensure that possible adverse effects of property transfers on human health and the environment are addressed, and that property offering potential for reuse and redevelopment is identified expeditiously.

Based on the review of available documentation, interviews with current employees, and a visual survey conducted on 19 August 2014, no non-compliance issues related to the Subject Property were identified.

5.2. Description of Corrective Actions

Based on a property survey, interviews with current and former personnel, and review of historical documents on the Subject Property, no evidence of on-going or active corrective actions filed against, or required, relative to the Subject Property were identified.

5.3. Estimates of Various Alternatives

As there are no corrective actions being recommended, no cost estimates are included.

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6. CONCLUSIONS

In accordance with AFI 32-7066 *Environmental Baseline Surveys in Real Estate Transactions* (USAF 1994) and the Statement of Work (SOW) dated 23 August 2013, provided by F.E. Warren AFB, the Subject Property has been classified into one of seven categories described in Table 6-1. These categories are based on the presence of hazardous substances, petroleum substances, or their derivatives.

These classifications of environmental condition of property area types are consistent with CERCLA Section 120(h) requirements related to the transfer of contaminated federal real property (42 U.S.C. 9601 and following). Areas classified as categories 1 through 4 are suitable, with respect to CERCLA Section 120(h) requirements, for deed transfer to a non-federal recipient.

Table 6-1: Descriptions of Classifications for Environmental Conditions of Subject Property

Category	Summary	Description
1	No storage, release, or disposal has occurred	Property where no hazardous substances or petroleum products or their derivatives were stored, released into the environment or structures, or disposed on the subject property and where no migration from adjacent areas has occurred.
2	Only storage has occurred	Property where hazardous or petroleum products or their derivatives were stored, but no release, disposal or migration from adjacent areas occurred.
3	Contamination below level that requires any action	Property where contamination is present but falls below established action levels.
4	Remedial action required and taken	Property where contamination above action level existed but all remedial actions necessary to protect human health and the environment have been taken to meet the provisions of CERCLA Section 120 (h) (3).
5	Remedial or other action underway	Property is undergoing remedial action for known contamination. Remedial systems are partially or entirely in-place, but have not been fully demonstrated.
6	Required response action not implemented	Property contains known contamination and required remedial systems or other actions have not been selected or implemented.
7	Further evaluation required	Areas that are not evaluated or required additional evaluation.

6.1. Facility Matrix

Table 6-2 is a facility matrix that summarizes observed conditions at the Subject Property. In the matrix, a property category code is used to indicate the degree of potential impact associated with the Subject Property.

Table 6-2: Facility Matrix of Subject Property	
Launch Facility	S-10
Asbestos Containing Material	Yes
Lead Based Paint	Yes
Current Storage Tanks and Oil/ Water Separators	None
Historic Storage Tanks	One 14,500- gallon diesel UST, 60- gallon lube oil tank, 360- gallon day tank. All removed in 2006.
Hazardous Materials or Petroleum Products	Historic use of sodium chromate, ethylene glycol, and diesel
Hazardous or Petroleum Wastes	None
Potential Environmental Concerns	None
Substance Released	None
Status/Comment	None
Category	2

6.2. Data Gaps

A data gap is defined by ASTM E1527-93 as a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice including, but not limited to, the site reconnaissance, interviews, and historical research. Failure to achieve the historical research objectives identified in the standard is termed a data failure and is a type of data gap.

Information used to prepare this report was provided by others through interviews, websites, and data sources such as existing reports from local and state agencies and the F.E. Warren AFB. The data included in this report assumes that the supplied information was accurate.

No data gaps were identified.

7. RECOMMENDATIONS

In accordance with the AFI 32-7066, parcels involved in a proposed transaction agreement should be classified into one of seven categories based on the presence of hazardous substances, petroleum substances, or their derivatives. Based upon visual inspections, interviews, and records searches, the following property classification has been identified for the Subject Property:

- **Category 2 – *Only storage has occurred. Property where hazardous or petroleum products or their derivatives were stored, but no release, disposal or migration from adjacent areas occurred.***

Table 6-1 lists each property classification (category) and provides additional details. The Subject Property, as categorized above, is further described in Table 6-2. Based on AFI 32-7066, all property in categories 1 through 4 may proceed with any planned transaction without reservation.

Properties surrounding the Subject Property, including those on adjoining parcels and those within 100 ft of the Subject Property boundaries, include the following:

- **North** – The area north of the Subject Property consists of open range
- **South** – The area south of the Subject Property consists of open range
- **East** – The area east of the Subject Property consists of open range
- **West** – Open range and County Road 19 are adjacent to the Subject Property to the west, followed by additional open range.

OTHER AREAS OF CONCERN

Based on the site visual survey, interviews, literature search, and aerial photograph review, other areas of concern were noted at the Subject Property:

- A hazardous materials ACM survey was conducted prior to demolition of the silo on 18 October 2013. Building materials suspected of containing asbestos tested positive (≥1 percent) in the black and gray fibrous tar in expansion joints throughout the surface of the exterior concrete pads. The ACM was left in place during demolition of the silo in 2014.
- A hazardous materials LBP survey was conducted prior to demolition of the silo on 18 October 2013. LBP was found on several materials of the exterior and interior of the silo. The LBP materials were left in place during demolition of the silo in 2014.

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8. CERTIFICATIONS

In accordance with Section 2.1.5 of AFI 32-7066, this section provides the required certifications regarding the accuracy of this Phase I EBS.

8.1. Certification of the Environmental Baseline Survey

EA Engineering, Science, and Technology, Inc., PBC (EA) has conducted this EBS on behalf of the United States Air Force. EA has reviewed all appropriate records made available and conducted a VSI of the selected facilities following an analysis of information during the record search. The information contained within the EBS is based on records made available and, to the best of the EA's knowledge, is correct and current as of January 2015.

Completed by: _____ Date: 2 March 2015
Dan Bigbee, Project Manager
EA Engineering, Science, and Technology, Inc., PBC

Certified by: _____ Date: 2 March 2015
C. Brian O'Ferrall, CHMM, Program Manager, Federal Programs
EA Engineering, Science, and Technology, Inc., PBC

Approved by: _____ Date: 2 March 2015
Travis Beckwith, EBS Program Manager, Environmental Professional, F.E. Warren AFB

8.2. Certification of Polychlorinated Biphenyl Clearance

1. This Real Property is in compliance with 40 CRF 761 as outlined below:
   a. An inventory has been prepared and is being maintained of all PCB Real Property Installed Equipment and Real Property PCB Items according to Section 761.45

      Yes _____ No _____ Not Applicable X
   b. All in-service and stored serviceable PCB and PCB-contaminated Real Property Installed Equipment and Real Property PCB Items have been inspected, repaired, and are being maintained to prevent leakage and, therefore, can be distributed according to Section 761.30.

      Yes _____ No _____ Not Applicable X
   c. PCB Real Property Installed Equipment and Real Property PCB Items have been stored, decontaminated, and labeled according to Sections 761.42, 761.43 and 761.44.

      Yes _____ No _____ Not Applicable X
   d. There are no known PCB contaminated soil, wastes, or unserviceable equipment remaining on the existing property.

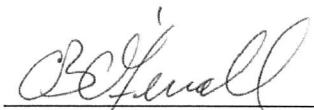
      Yes X No _____ Not Applicable _____
2. A records search and onsite inspection indicate that this property has not been exposed to PCB materials or equipment.

   Yes _____ No _____ Not Applicable X

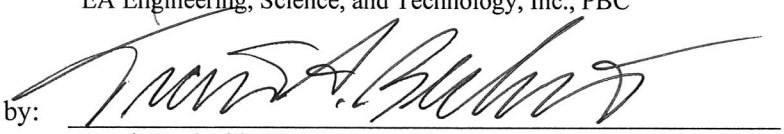
Certify to either Paragraph 1 or 2.

Completed by: Date: 2 March 2015

Dan Bigbee, Project Manager
EA Engineering, Science, and Technology, Inc., PBC

Certified by:  Date: 2 March 2015

C. Brian O'Ferrall, CHMM, Program Manager, Federal Programs
EA Engineering, Science, and Technology, Inc., PBC

Approved by:  Date: 2 March 2015

Travis Beckwith, EBS Program Manager, Environmental Professional, F.E. Warren AFB

8.3. Certification of Contamination

The information contained in this notice is required under the authority of regulations promulgated under Section 120(h) of CERCLA (or "Superfund") 42 U.S.C. Section 9620 (h). A completed search of agency files revealed hazardous substance(s) as the term is defined in CERCLA (42 U.S.C. 9601, as amended) were stored for 1 year or more, known to have been released, or were disposed on the excess Air Force controlled Real Property described below.

I. The following notice provides the available information discovered as a result of a complete search of agency files pertaining to hazardous substances known to have been stored, released, or disposed of on the excess Real Property:
   a. Identify the type and name of the hazardous substance: *Hazardous substances identified at the Subject Property are discussed in Section 3.3.*
   b. Identify the quantity in kilograms and pounds of the hazardous substance(s) stored, disposed, or released on the excess property: *An inventory of the hazardous substances identified at the Subject Property, are discussed in Section 3.3.*
   c. Identify the date(s) and the period of time that such storage release or disposal took place: *No releases occurred at the Subject Property.*
   d. Describe the remedial action taken with regard to the hazardous substance on the excess property: No r*emedial actions occurred at the Subject Property.*

II. The following information, based on agency files or other available information, addresses the period prior to January 2015 when this EBS was prepared. This information is the best available and is believed to be correct, but no guarantee as to accuracy can be provided.

Completed by: _____ Date: 2 March 2015
Dan Bigbee, Project Manager
EA Engineering, Science, and Technology, Inc., PBC

Certified by: _____ Date: 2 March 2015
C. Brian O'Ferrall, CHMM, Program Manager, Federal Programs
EA Engineering, Science, and Technology, Inc., PBC

Approved by: _____ Date: 2 March 2015
Travis Beckwith, EBS Program Manager, Environmental Professional, F.E. Warren AFB