

**Environmental Baseline Survey**

Unlimited Release

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# **Environmental Baseline Survey for Installation of Five New Hydrogeologic Groundwater Monitoring Wells**

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## **EXECUTIVE SUMMARY**

### **E.1 Property Identification**

The “subject property” is comprised of two parcels of land within the Kirtland Military Reservation, Bernalillo County, New Mexico, as shown on the map in Appendix B of this document. Site A is located within T 9N, R 4E, Section 13 and Site B is located within T 9N, R 4E, Section 36 being described by a location map.

### **E.2 Site History and Operations**

The area associated with Site A was historically associated with explosives testing at SNL between 1950 and the late 1960s. The area associated with Site B was historically associated with testing at SNL of radioactive material between 1956 and 1978.

In the late 1980s SNL personnel began Environmental Restoration (ER) activities at both sites, which continue to the present. Current ER activities consist primarily of groundwater monitoring. The New Mexico Environment Department (NMED) requires the groundwater monitoring at both sites under the Hazardous and Solid Waste Amendment (HSWA) Permit held by National Technology & Engineering Solutions of Sandia, LLC, (NTESS) and the Department of Energy (DOE).

### **E.3 Proposed Future Use**

Both Sites A and B are located within remote areas of KAFB and currently have no specific use other than their association with SNL ER activities. ER activities, including ground water monitoring are anticipated to continue for the foreseeable future.

### **E.4 Factors Evaluated**

The approach was to perform a document search, supplemented by a visual site inspection, to identify potential environmental contamination associated with the property. Factors evaluated included hazardous substances; petroleum products and derivatives; environmental restoration sites; areas of concern; storage tanks; oil/water separators; grease traps; wash racks; waste tanks; pesticides; military munitions/ordnance; medical or bio-hazardous waste; radioactive waste; solid/municipal waste; indoor air quality; groundwater; wastewater treatment, collection, and disposal/discharge; drinking water quality; utilities; asbestos; polychlorinated biphenyls (PCBs); radon; lead-based paint; cultural resources; floodplains; and natural/biological resources.

Each of these factors is evaluated separately in Section 5, Findings for Subject Property.

### **E.5 Property Categorization**

The property categorization for this subject property would be considered Category 5 – “An area or real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred and removal or remedial actions or both, are under way, but all required actions have not yet been taken.”

There appears to be sufficient information to categorize the subject property and it appears that no further effort needs to be made to obtain additional information.

## **E.6 Findings and Recommendations**

There are no findings of an adverse nature on the subject property itself or from adjacent properties.

## **1.0 PURPOSE OF THE ENVIRONMENTAL BASELINE SURVEY**

### **1.1 Introduction**

This Phase I Environmental Baseline Survey (EBS) provides the findings of a survey and assessment for termination of an existing easement granted to the Department of Energy (DOE) for the installation of 5 new hydrogeologic groundwater monitoring wells located on KAFB, New Mexico. The purpose of this EBS is to:

Document the nature, magnitude, and extent of any environmental contamination of the property.

Identify potential environmental contamination liabilities associated with the property.

Develop sufficient information to assess the health and safety risks.

Ensure adequate protection for human health and the environment related to a specific property.

Determine possible effects of contamination on property valuation, and serve as the basis for notice of environmental condition for applicable federal or local real property disclosure requirements.

### **1.2 Boundaries of the Property and Survey Area**

There are two sites comprised of several parcels of land within the Kirtland Military Reservation, Bernalillo County, New Mexico. Site A is located within T 9N, R 4E, Section 13 and Site B is located within T 9N, R 4E, Section 36 being described by a location map (see Appendix B of this document).

## **2.0 SURVEY METHODOLOGY**

### **2.1 Approach and Rationale**

The approach of this action is to perform a document search and preliminary site investigation to identify potential environmental contamination associated with the property. The document follows the format required by Air Force Instruction 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*, 26 January 2015.

SNL personnel have performed a thorough review of *reasonably obtainable*<sup>1</sup> state, federal, and local government and USAF records as part of this EBS. This review investigated the existence of information concerning this property on KAFB.

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<sup>1</sup> *Reasonably obtainable* for the purposes of this document shall be considered equivalent in scope and intent to the term *reasonably ascertainable* as defined in the *ASTM Standard E1527-00, Section 3.3.30*

The EBS process was conducted in two steps. The first step was to research past disposal operations, handling/processing, and test activities. The second step evaluated the current operations for compliance with environmental regulations. The information collected is presented in this Phase I survey.

## 2.2 Description of Documents Reviewed

The following documents were reviewed in preparation of this EBS:

- Air Force Form 813 dated May 5, 2011: *Hydrogeologic Monitoring Wells Removal from Land Use Permit, PERM-KI-91-0010*.
- Air Force Form 813 dated February 2, 2011: *Hydrogeological Wells, PERM-KI-91-0010*.
- SNL SAND Report, *Sandia National Laboratories Environmental Information Document Calendar Year 2003 Update*, SAND2004-5058, October 2004, Sandia National Laboratories, Albuquerque, New Mexico. See Appendix C for relevant citations from this document.
- Kirtland Air Force Base Environmental Compliance Program (ECP) and Environmental Restoration Program (ERP) sites location map; dated February 27, 2006.
- Kirtland Air Force Base Master Environmental Restoration Program Site List; dated July 20, 2011.
- Data from Geographic Environmental Management System (GEMS), including historic aerial photos and environmental/cultural map layers.

## 2.3 Property Inspections/Personnel Interviews

The author and another member of the environmental management team conducted a site visit of the subject property on December 20, 2016. None of the following environmental concerns or issues were observed: no odors; pools of liquid; drums; hazardous substance and petroleum product containers; potential asbestos-containing material (ACM); PCB-containing electrical equipment; drains and sumps; pits, ponds, and lagoons; stained soil or pavement; stressed vegetation; wastewater; or dead or diseased wildlife. No concerns relating to the health and safety of individuals or local flora or fauna, such as stains or leaks, were observed (See Appendix C for site photographs and Appendix E for the site inspection form).

### Personnel Interviews

- SNL Team Lead with Environmental Safety and Testing Organization 06234 was interviewed on December 8, 2016.
- SNL Real Estate Specialist working in the Facilities Management and Operations Center Organization 04853 was interviewed on December 8, 2016.

## 2.4 Sampling

As indicated by the negative findings in Section 2.3, *Property Inspections*, no indications were observed which warranted the performance of sampling and analysis at the subject property, so sampling was not conducted as part of this EBS. Summary information on the sampling of Environmental Restoration (ER) sites on the Sandia National Laboratories/New Mexico (SNL/NM) campus can be found in Section 7.2 and Appendix B.

## 3.0 PROPERTY DESCRIPTION

### 3.1 History and Current Use

#### 3.1.1 *Historic*

In late 1939, the U.S. Army leased 2,000 acres from the City of Albuquerque adjacent to the Municipal Airport. A small number of aviation mechanics used this property to service and repair Army aircraft being flown across the country. In January 1941, the Army decided to establish a permanent presence in Albuquerque and construction began on the Albuquerque Army Air Base. Designers planned the initial project to house and supply quarters and workspace for the 225 officers and 1,970 enlisted men of the 19<sup>th</sup> Bombardment Group, as well as the associated squadron, quartermaster, signal, ordnance, medical, chemical warfare, chapel, and finance units. In February 1942, Albuquerque Army Air Base was renamed Kirtland Field, in honor of Colonel Roy Carrington Kirtland (1874-1941).

As the U.S. entered World War II, the Army Air Force had a need to increase its training schools. Kirtland Field was expanded by the addition of 1,100 acres to the east of the existing base boundary, an area that included the adjacent Oxnard Field. On May 12, 1942, transfer of Oxnard Field to the Army Air Force was completed. Renamed the Albuquerque Air Depot Training Station, and unofficially referred to as Sandia Base, the field became a facility of the Air Service Command of the U.S. Army Air Force. The primary mission of the new base was the training of military personal in aircraft service, repair, and maintenance.

In 1943, the Army reached the saturation point for personnel trained in the above disciplines and a period of relative inactivity followed on the base. During this time, many of the base buildings were abandoned and training equipment was moved to storage. In 1944 and 1945, the base was used as a convalescent center for wounded aviators.

In 1945, Sandia Base came under the control of the Manhattan Engineer District (named after the Manhattan Project at Los Alamos) of the U.S. Army Corps of Engineers (USACE). Separation of the military functions at Sandia Base from the functions of Los Alamos Laboratory was desirable by mid-1946. Around that time, Sandia Base became an ordnance activity, used for the development of high explosives, that included two areas (technical areas 1 and 2) administered by the Department of the Army. U.S. Army Colonel Gilbert M. Dorland became the first Commanding Officer of Sandia Base on July 29, 1946. On January 1, 1947, the Atomic Energy Commission activated the USAF Special Weapons Project. A portion of the Los Alamos staff, called the "Z Division" after its leader Dr. Jerrold Zacharias, was the forerunner of the Sandia National Laboratories. On April 1, 1948, the Z Division became the Sandia Branch of the Los Alamos Scientific Laboratory. On November 1, 1949, Sandia Corporation, a wholly owned subsidiary of Western Electric, assumed the management of Sandia National Laboratories. On July 1, 1971, both Sandia Base and Manzano Base were incorporated into Kirtland AFB. Many other organizational changes occurred from 1974 to 1992. In June 1992, Kirtland AFB became an AFMC Base and has been operated by the 377 ABW since that time.

(KAFB, 2012)

### *3.1.1.1 Historic Operations and Land Use*

The area associated with Site A was historically associated with more than 100 explosives field tests by SNL between 1950 and the late 1960s. SNL conducted a wide variety of tests involving at or above ground explosive detonations.

The area associated with Site B was historically associated with testing by SNL of radioactive material between 1956 and 1978. Between 1956 and 1961 tests were conducted to simulate the extent of radioactive fallout dispersion from a nuclear weapon detonation during a transport accident or an accidental detonation during assembly. The tests were noncriticality explosions and did not yield nuclear fission products. Concrete and asphalt pads were thought to encompass ground zero, or near ground zero, for the tests. Fallout collector tray stations were located in the fields surrounding the pads, mainly to the north of the pads. Radial roads, called firing lines, centered around the pads, aided in the placement and retrieval of the fallout collector trays for the tests.

Between 1965 through 1978 tests were conducted for fire survivability and contained features associated with those tests, including a permanent burn pad, four excavated pits, four debris mounds, scattered test debris, and a burial pit containing radioactively contaminated materials.

In the late 1980s SNL personnel began Environmental Restoration (ER) activities at both sites, which continue to the present. Current ER activities consist primarily of groundwater monitoring. The New Mexico Environment Department (NMED) requires the groundwater monitoring at both sites under the Hazardous and Solid Waste Amendment (HSWA) Permit held by NTESS and the Department of Energy (DOE).

### *3.1.1.2 Demolitions*

As part of ER Site activities at both Site A and B, SNL has completed numerous Voluntary Corrective Measures for removal of legacy test structures and contaminated soil from the sites. Outside of maintaining access roads associated with the groundwater monitoring wells, the sites have been graded and seeded to facilitate re-vegetation of the areas. Additional information regarding ER Site activities can be found in Section 5.4 of this EBS.

## **3.1.2 Current Operations and Land Use**

SNL personnel have installed 5 hydrogeologic monitoring wells. Wells at Location A are CCBA-MW1 and CCBA-MW2. Wells at Location B are OBS-MW1, OBS-MW2, and OBS-MW3. Each monitoring well is designed to provide for safe and efficient groundwater monitoring. A concrete pad approximately 3 feet (ft) by 3 ft contains a steel wellhead, which is 3 ft high by 1 ft in diameter. The wellhead is capped by an aluminum lid, which is padlocked in order to keep out unauthorized personnel. Steel poles that are 4 ft high by 4 inches (in.) in diameter are filled with concrete and placed at each of the four corners of the concrete pad to protect the wellhead. Both the wellhead and the steel poles are painted a “high traffic” yellow for optimal visibility.

Both Sites A and B are located within remote areas of KAFB and currently have no specific use other than their association with SNL ER activities. ER activities, including ground water monitoring are anticipated to continue for the foreseeable future.

## 3.2 Environmental Setting

### 3.2.1 Climate

The subject property is located in the southeast quadrant in the City of Albuquerque in New Mexico. The climate is typical of a high desert plateau with low precipitation, wide temperature extremes, and typically clear, sunny days. Average yearly rainfall is 8.5 inches, primarily received during spring and summer thunderstorms.

(NOAA, 2017)

### 3.2.2 Soils

#### *Overview and Geomorphic Relations*

Soils at KAFB are derived primarily from eroded bedrock in the Manzanita Mountains that was transported downslope by water and other natural mechanisms. The parent material of most soils in the KAFB area consists of gravelly alluvial fan material with additions of wind-deposited material including fine sand, silt, and calcium carbonate. The dominant soils in the western portion of KAFB include the Madurez-Wink, Tijeras-Embudo, and Latene-Nickel associations. These are typically deep, well-drained soils consisting of various combinations of sandy loams, fine sandy loams, and gravelly sandy loams. Runoff and erosion potential on these soils is generally moderate, although the Madurez-Wink association has a moderate to severe potential for wind erosion. All the soils have substantial percentages of calcium carbonate in one or more horizons, with corresponding high buffering capacities.

A relatively thick unsaturated zone consists of surface soils and fine-grained through coarse-grained fluvial and alluvial fan deposits that are both discontinuous and variable in thickness. The chemical composition of these soils reflects the composition of the source bedrock, and soils at KAFB frequently have high naturally occurring (background) concentrations of the metals arsenic, beryllium, and manganese.

Most facilities are constructed on level ground or gentle slopes. The geomorphic surface of these areas is composed of alluvial fans that slope westward toward the Rio Grande. Steeper slopes occur along the arroyos (particularly where channel erosion occurs during periods of storm runoff) and in the Manzanita Mountains. Facilities in the Manzanita Mountains sit predominantly on Precambrian crystalline and Paleozoic marine carbonate bedrock and are not prone to landslides.

(SNL/NM, 2011)

### 3.2.3 Geology/Hydrogeology

#### *Geology*

KAFB and SNL/NM are situated in the eastern portion of the Albuquerque Basin (also referred to as the Middle Rio Grande basin). The Middle Rio Grande basin is one of a series of basins formed during the extension of the Rio Grande Rift and is approximately 3,000 square miles. There are a number of regional faults intersecting the area. The basin is primarily filled with poorly consolidated sediments that have eroded from the surrounding mountain areas. The upper part of the basin fill is comprised of a complex sequence of gravel, sand, silt, clay, and caliche

deposits of the middle Pleistocene to uppermost Miocene Upper Santa Fe Group and post-Santa Fe Group deposits. These units include alluvial fan, fluvial, eolian, playa, colluvial, and floodplain deposits. Surface soils that have developed in these deposits include the Tijeras Series (gravelly, fine sand) and the Wink Series (fine sandy loam).

As the Rio Grande Rift continued to expand, the Albuquerque Basin subsided. The basin is a major structural feature of the central Rio Grande Rift, a linear extensional feature extending from southern Colorado to Mexico and West Texas. Over the last 30 million years, the Ancestral Rio Grande meandered across the valley formed by the subsidence and deposited sediments in broad stream channels and floodplains derived from sources to the north. The basin also filled with eolian deposits and alluvial materials shed from surrounding uplifts. This sequence of sediments is called the Santa Fe Group. The thickness of the Santa Fe Group is up to 14,500 ft at the deepest part of the basin. The entire sequence consists of unconsolidated sediments, which thin toward the edge of the basin and are truncated by normal faults at the bounding uplifts. Units overlying the Santa Fe Group include Pliocene Ortiz gravel and Rio Grande fluvial deposits, which are interbedded with Tertiary and Quaternary basaltic and pyroclastic materials. The Santa Fe Group, in addition to younger alluvial deposits along the Rio Grande, comprise the Santa Fe Group aquifer system.

(SNL/NM, 2011)

#### *Hydrology*

The regional hydrogeologic conditions within the basin are defined by the surface water and groundwater features and the geologic units present. The dominant surface water feature is the Rio Grande, which flows through the basin generally north to south. The groundwater-bearing units of the basin are the unconsolidated deposits of the Santa Fe Group, which comprise the main aquifer.

The Santa Fe Group aquifer system is a critical source of municipal, domestic, and industrial water in the Albuquerque area.

The present-day structure of the aquifer system within the basin is complex; the major hydrostratigraphic units in the aquifer are tabular and wedge-shaped bodies that are truncated and displaced by numerous faults. Few of the major units are present continuously throughout the basin. These major units are hundreds to thousands of feet thick, extend over tens of square miles, and primarily consist of unconsolidated and partially cemented deposits that interfinger in complex arrangements. The diverse rock types and intricate interbedding relations indicate that the hydrologic characteristics of these units can be defined only in general terms. Though the aquifer is under confined conditions locally, it is considered to be an unconfined aquifer as a whole.

Thickness of the unsaturated material between the ground surface and the water table varies from approximately 500 ft in the western portion of the KAFB and SNL/NM area to a negligible amount in the eastern portion.

Regional recharge to the Santa Fe Group occurs via mountain fronts and tributaries to the Rio Grande, the inner valley of the Rio Grande, and the river itself; underflow enters the aquifer subsurface at the basin margins.

Tijeras Arroyo and Arroyo del Coyote provide limited recharge, as does mountain-front recharge when it connects across the fault complexes. Areal precipitation is estimated to provide a negligible contribution, as 95 to 99 percent is estimated to be lost to evapotranspiration.

Prior to the development of water resources in the Albuquerque area, groundwater flow in the Albuquerque Basin was generally from the north to the south, with a westward component of flow from recharge areas along mountain-front boundaries to the east. As the Santa Fe Group aquifer has been developed as a source for municipal and industrial water supplies, groundwater flow directions have been altered toward pumping centers in the northern part of the basin.

A perched groundwater system overlies the regional aquifer in the northern portion of KAFB. The groundwater flow direction within this perched system is to the southeast, with the depth to groundwater at approximately 270 ft below ground surface (bgs) in the western portion of the perched system, and 420 ft bgs in the eastern portion.

Regional discharge occurs as groundwater moves out of the basin into downgradient basins on the Rio Grande Rift as underflow or through discharge to the Rio Grande. Discharge also occurs as pumpage from the City of Albuquerque municipal production well fields. The discharge is greater than recharge and effectively dewateres the aquifer in the KAFB and SNL/NM area (SNL/NM, 2011)

The reported depth to groundwater at Site A wells is CCBA-MW1~47 ft. and CCBA-MW2 ~71 ft. (GEMS, January 2017).

The reported depth to groundwater at Site B wells is OBS-MW1~72 ft, OBS-MW2~175 ft, and OBS-MW3~69 ft. (GEMS, January 2017).

### **3.2.4 Topography**

The KAFB area consists of widely varied topography, ranging from rugged mountains on the east, to flat plains on the west. The City of Albuquerque is adjacent to KAFB. Located in the Albuquerque Basin in central New Mexico, KAFB and SNL/NM are west of and extend into the foothills of the Manzanita Mountains. The main KAFB site is on a relatively flat plain and range in elevation from approximately 5,300 to 5,500 feet above mean sea level. Portions of the Withdrawn Area extend into the foothills of the Manzanita Mountains at elevations over 7,700 feet above mean sea level. The Rio Grande flows roughly north-south approximately 5 miles west of KAFB. The channel of the Rio Grande is at an elevation of approximately 4,940 feet above mean sea level.

(SNL/NM, 2011)

Site A is located north of Coyote Springs Road. It is on an alluvial plain among the eastern slopes of the Rio Grande Valley, approximately ½ a mile north of the Tijeras Arroyo and approximately 7 miles east of the Rio Grande River at an elevation of 6,000 feet (ft). Site B is located north of Isleta Road. It is on an alluvial plain among the eastern slopes of the Rio Grande

Valley, approximately 1 mile south of the Tijeras Arroyo and approximately 5 miles east of the Rio Grande River at an elevation of 5,800 feet (ft).

#### **4.0 PROPERTY CATEGORIZATION**

The property categorization for this subject property would be considered Category 5 – “An area or real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred and removal or remedial actions or both, are under way, but all required actions have not yet been taken.”

There appears to be sufficient information to categorize the subject property and it appears that no further effort needs to be made to obtain additional information.

#### **5.0 FINDINGS FOR SUBJECT PROPERTY**

The following information (Sections 5.1 through 5.27.4) is based upon personnel interviews and the preliminary site inspection.

Records review, interviews, and site inspections revealed that no hazardous materials or substances were stored or used within the subject property. There is no evidence that hazardous and petroleum wastes have been generated, stored, or disposed of within the subject property.

##### **5.1 Visual Site Inspection (VSI)**

As detailed in Section 2.3, a preliminary property inspection occurred as part of this EBS and is documented on the VSI form from AFI 32-7066 as part of Appendix E.

##### **5.2 Hazardous Substances Notification**

###### ***5.2.1 Storage of Hazardous Substances***

Records review and site inspections revealed that Site A was utilized for explosive field tests, which took place between 1950 to the late 1960s. SNL personnel began environmental restoration activities in the late 1980's that continue to the present. Site inspections revealed no visible storage of hazardous substances.

Records review and site inspections revealed that Site B was historically associated with testing by SNL of radioactive material between 1956 and 1978. SNL personnel began environmental restoration activities in the late 1980's that continue to the present. Site inspections revealed no visible storage of hazardous substances.

###### ***5.2.2 Hazardous Substances Released***

Records review and site inspections revealed that Site A was utilized for explosive field tests, which took place between 1950 to the late 1960s. Site B was historically associated with testing by SNL of radioactive material between 1956 and 1978. SNL personnel began environmental restoration activities in the late 1980's that continue to the present. Additional information

regarding the release of hazardous substances is contained in Section 5.4 of this EBS.

### **5.2.3 Hazardous and Petroleum Waste**

There is no evidence that hazardous and petroleum wastes have been generated, stored, or disposed of within the subject properties.

## **5.3 Petroleum Products and Derivatives**

Records review, interviews, and site inspections revealed that no petroleum products and/or derivatives were stored or used within the subject properties.

## **5.4 Environmental Restoration**

### **SNL Environmental Restoration (ER) Sites:**

There are 2 SNL ER sites located within the Site A boundaries. The following provides the current status of the ER sites:

- **ER site 8, Open Dump (Coyote Canyon Blast Area)-** ER Site 8, Open Dump (Coyote Canyon Blast Area)- ER Site 8 is associated with the ER Site 58 test area. ER Site 8 contained mainly general refuse and demolition debris. On April 8, 2010, there was a request by NMED for additional site characterization, including a groundwater investigation. Approval for ER Site 8 is pending regulatory approval by NMED.
- **ER Site 58, Coyote Canyon Blast Area-** ER Site 58, Coyote Canyon Blast Area- ER Site 58 was used to conduct more than a hundred explosive field tests, which took place between 1950 to the late 1960s. ER Site 58 is currently undergoing groundwater investigation in tandem with ER Site 8 per NMED direction, April 2010. Approval for ER Site 58 is pending regulatory approval.

Multiple remediation projects, starting in the mid-1980s and continuing until 2000 have been conducted at numerous features and locations within ER Sites 8 and 58, as shown in the table below. Approximately 1,390 cubic yards of various types of waste (shown below), 12 JATO (jet-assisted takeoff) motors, and other miscellaneous items have been removed as a result of remediation work conducted at the site.

<b>ER Site</b>	<b>Activity Date</b>	<b>Waste Type Removed</b>	<b>Waste Volume Removed</b>
8 and 58	Mid-80s	HE/UXO	12 yd <sup>3</sup>
8 and 58	October 1993	HE/UXO	Over 80 UXO Items
8	October 1993	HE	5 lbs HE chunks
58	February, March 1995	Radiologically-contaminated soil	10 yd <sup>3</sup>
8	February 1996	Solid waste (wood, metal, JATO motors)	120 yd <sup>3</sup> mainly wood, 35 yd <sup>3</sup> scrap metal, 2 JATOs
8 and 58	March 1996	JATO motors	10 JATOs

8 and 58	July 1996	Radiologically-contaminated wood and soil	27 yd3
8 and 58	June 1997, August 1998, January-March 2004	Radiological and non-radiologically-contaminated metal, metal-contaminated soil, batteries, and metal slag	76 yd3
8	January 1998	Nonregulated debris (metal, asphalt, concrete, plastic, firebrick) and ACM (mainly transite tile)	30 yd3 nonregulated debris, 10 yd3 ACM
58	March through May 1998	ACM	15 yd3
58	May & June 1998	Nonregulated debris, batteries, ACM	41 yd3
8 and 58	September 1998	Nonregulated soil with a minimal amount of debris	220 yd3
8 and 58	December 1998 through March 1999	Debris (batteries, firebrick, asphalt, concrete, plastic, wood, metal, transite tile) from 57 individual locations	150 yd3
8 and 58	January & February 1999	Concrete from 13 individual locations	500 yd3
58	October & November 2000	Metal, plastic, asbestos piping, concrete, and wood	136 yd3

There is 1 SNL ER site located within the Site B boundaries. The following provides the current status of the ER site:

- ER Site 68, Old Burn Site-** This site covers approximately 6.5 acres and is located on the north side of Isleta Road, across from the Kirtland Air Force Base (KAFB) 200-ft shock tube facility. ER Site 68 was used to test weapons components from 1965 through 1978 for fire survivability and contained features associated with those tests, including a permanent burn pad, four excavated pits, four debris mounds, scattered test debris, and a burial pit containing radioactively contaminated materials. The NMED issued a Certificate of Completion for CAC without Controls for ER Site 68 on October 28, 2005. On April 8, 2010, there was a request by NMED for additional site characterization, including a groundwater investigation. Regulatory approval is pending.

(GEMS, January 2017)

#### **5.4.1 *Environmental Restoration Program (ERP) Sites***

Review of the *Kirtland Air Force Base Environmental Compliance Program (ECP) and Environmental Restoration Program (ERP) Sites* map, dated February 27, 2006, indicated that no ECP or ERP Sites would be located within the boundaries of either Site A or Site B.

Additionally, review of the KAFB Administrative Record web site revealed no environmental restoration sites or activities that impact the subject property (KAFB, 2016). Adjacent areas (within ½ mile) have been evaluated for the presence of USAF ERP sites and are described in Section 7.2 Adjacent Environmental Data Resources (EDR) Survey Properties.

#### **5.4.2 *Military Munitions Response Program (MMRP) Sites***

Review of the KAFB Administrative Record web site revealed no MMRP sites that impact the subject property

(KAFB, 2012)

#### **5.5 *Areas of Concern (AOC)***

Review of the KAFB Administrative Record web site revealed no Areas of Concern that impact the subject property.

(KAFB, 2016)

#### **5.6 *Storage Tank(s)***

No active or abandoned, above or below grade, gasoline, oil, or chemical storage tanks, pipelines, hydrant fueling, or transfer systems are associated with activities at the subject property.

(NMED, 2017)

##### **5.6.1 *Aboveground Storage Tanks***

Records review, interviews, and site inspections revealed that no aboveground storage tanks are located within the subject properties.

##### **5.6.2 *Underground Storage Tanks***

Records review, interviews, and site inspections revealed that no underground storage tanks are located within the subject properties.

##### **5.6.3 *Pipelines, Hydrant Fueling, and Transfer Systems***

Records review, interviews, and site inspections revealed that there are no known pipelines, hydrant fueling, or transfer systems associated with the subject properties.

#### **5.7 *Oil Water Separator(s)***

No known oil/water separators are associated with activities related to the subject property. No preexisting facilities of this nature are known to exist at the subject properties.

### **5.8 Grease Trap(s)**

Records review, interviews, and site inspections revealed no known grease traps, or historic use thereof, on the subject properties.

### **5.9 Wash Rack(s)**

Records review, interviews, and site inspections revealed no known wash racks, or historic use thereof, on the subject properties.

### **5.10 Waste Tank(s)**

Records review, interviews, and site inspections revealed no known waste tanks, or historic use thereof, on the subject properties.

### **5.11 Pesticides**

SNL uses pesticides to control rodent and insect populations inside buildings. Herbicides are used in developed areas as needed to control weeds. Licensed professionals contracted through SNL apply these chemicals. The best information available suggests that the subject properties have not been, and are not currently, subject to the application of herbicides or pesticides.

### **5.12 Military Munitions/Ordnance**

The area associated with Site A was historically associated with more than 100 explosives field tests by SNL between 1950 and the late 1960s. SNL conducted a wide variety of tests involving at or above ground explosive detonations. SNL activities at Site B did not historically involve the use of military munitions or ordnance. However, in November 1993, KAFB Explosive Ordnance Disposal (EOD) conducted a surface visual survey for Unexploded Ordnance / High Explosives (UXO/HE) at the site and found numerous artillery shells and ordnance debris that was related to the anti-aircraft shell testing at the SNL Workman Firing Site located one mile west of Site B.

Additional information regarding these historical activities is located in Section 3.1.1.1 and 5.4 of this EBS.

### **5.13 Medical or Bio-hazardous Waste**

Records review, interviews, and site inspections revealed SNL has not produced or stored any medical or biohazard waste in or around the subject properties.

### **5.14 Radioactive Waste**

Historic activities at Site A were not primarily associated with the use of radioactive material or generation of radioactive waste. However, later environmental remediation activities involved the removal of radiologically-contaminated soil, wood, and metal from the site. The area associated with Site B was historically associated with testing by SNL of radioactive material between 1956 and 1978. Additional information regarding historical activities for both Site A and B is located in Section 3.1.1.1 and 5.4 of this EBS.

### **5.15 Solid/Municipal Waste**

Records review and site inspections revealed that Site A was associated with the ER Site 58 test area. Numerous locations with ER Site 58 were designated as “Concrete or Housekeeping Features” according to the Corrective Action Report. These areas contained non-regulated debris consisting primarily of concrete, asphalt, wood, and other construction materials. Approximately 1,200 cubic yards of solid waste was removed and disposed of at an approved off-site facility.

Records review and site inspections revealed that Site B contained a permanent burn pad, four excavated pits, four debris mounds, and scattered test debris associated with SNL testing from 1965 through 1978. Approximately 130 cubic yards of solid waste was removed and disposed of at an approved off-site facility.

SNL personnel began environmental restoration activities in the late 1980’s at both Site A and Site B. No concerns relating to the health and safety of individuals or local fauna or flora, such as stains or leaks, were observed. Personnel did not observe discolored soil or stressed vegetation at the subject easement during the site inspection.

Additional information regarding historical activities for both Site A and B is located in Section 3.1.1.1 and 5.4 of this EBS.

### **5.16 Indoor Air Quality**

Indoor air quality is not applicable to this EBS. There are no structures, past or present, on the property.

### **5.17 Groundwater**

The purpose of the groundwater monitoring wells is a requirement by the New Mexico Environment Department (NMED) under the Hazardous and Solid Waste Amendment (HSWA) Permit held by SNL/NM and DOE to monitor for potential contamination associated with historic testing at the sites. Records review, interviews, and site inspections revealed no known groundwater impacts on the subject properties.

### **5.18 Wastewater Treatment, Collection, and Disposal/Discharge**

Records review, interviews, and site inspections revealed no wastewater treatment, collection, and discharge requirements or installations associated with the subject properties.

#### ***5.18.1 Storm Water***

Records review, interviews, and site inspections revealed no known stormwater impacts on the subject properties.

#### ***5.18.2 Septic Tanks and Leach Fields***

Records review, interviews, and site inspections revealed no known septic tanks or leach fields on the subject properties.

### **5.19 Drinking Water Quality**

Records review, interviews, and site inspections revealed no potable water lines or requirements associated with the subject properties.

### **5.20 Utilities (Energy)**

Records review, interviews, and site inspections revealed no utility requirements associated with the subject properties.

### **5.21 Asbestos**

Records review and site inspections revealed that approximately 100 cubic yards of ACM material was removed from Site A as part of ER Site remediation activities. Records review, interviews, and site inspections revealed no known impacts from ACM at Site B.

Additional information regarding historical activities for both Site A and B is located in Section 3.1.1.1 and 5.4 of this EBS.

### **5.22 Polychlorinated Biphenyls (PCBs)**

Records review, interviews, and site inspections revealed no known PCB impacts at the subject properties.

### **5.23 Radon**

The Air Force Radon Assessment and Mitigation Program (RAMP) Initial Screen Survey Results, 24 May 1988, classified KAFB as an installation with a *low* probability of radon concentrations in excess of 4 picocuries per liter (pCi/l). The installation was therefore precluded from the subsequent *Detailed Assessment Survey*, and mitigation activities were deemed unnecessary and not advisable. Records review, interviews, and site inspections revealed no known radon issues are associated with the subject property. Sampling for radon was not conducted as part of this Phase I investigation.

### **5.24 Lead-Based Paint**

Based upon past sampling and analysis for lead-based paints at SNL/NM, the Facilities ES&H organization (FESH) considers all painted surfaces to contain lead in such quantities as to be present in detectable levels by common analytical methodology. However, there are no known past or present buildings, and therefore no lead-based paint issues, associated with the subject property.

### **5.25 Cultural Resources**

#### ***5.25.1 Prehistoric Resources***

Records review, interviews, and site inspection revealed that no known prehistoric resources are associated with the subject property.

#### ***5.25.2 Historic Structures and Resources***

Records review, interviews, and site inspection revealed that no known historic structures and resources are associated with the subject property.

### 5.25.3 Paleontological Resources

Records review, interviews, and site inspection revealed that no known paleontological resources are associated with the subject property.

## 5.26 Floodplains

Records reviews indicate positively that the subject property is in neither a 100 nor 500 year flood zone.

(SNL/NM, 2011) (FEMA, 2017)

## 5.27 Natural/Biological Resources

### *Vegetation*

KAFB as a whole is located at the juncture of the Chihuahuan Semi-desert Grassland, the Great Basin Scrub Grassland and the Plains Grassland. Most of the grasslands within KAFB are of very good quality, evidenced by the widespread presence of climax, or secondary succession, plant communities. Livestock have been excluded from KAFB for more than 40 years, allowing much of the land to return to native plant communities.

The SNL/NM and KAFB grasslands can be best described as fragments of historic grasslands in the region. They are now fragments due to the regional scarcity of the habitat and the relative isolation from other substantial grassland areas. SNL/NM and KAFB grasslands are bordered by urban Albuquerque to the north and west, forest lands to the east, and cattle grazing scrublands to the south. SNL/NM and KAFB grasslands provide necessary habitat to support many species of birds, reptiles, amphibians, and mammals that depend on grassland habitats.

The primary types of vegetation that occur within the area of the subject property include the following:

- Dwarf Shrub Grassland (National Vegetation Classification System [NVCS] Classification IV.A.2.N.a) consists of low-growing (generally less than 0.5 meters tall) shrubs that comprise 25 percent or greater of the total vegetative cover. Common plants include the following:
  - Burro grass (*Scleropogon brevifolius*)
  - Black grama grass (*Bouteloua eriopoda*)
  - Ring muhly grass (*Muhlenbergia torreyi*)
  - Winterfat (*Krascheninnikovia lanata*)
- Large Shrub Grassland (NVCS Classification III.A.5.N.b.) areas are dominated by shrubs greater than 0.5 meters in height. Common plants include the following:
  - Sand sage (*Artemisia filifolia*)
  - Galleta grass (*Pleuraphis jamesii*)

- Indian ricegrass (*Achnatherum hymenoides*)
  - Spike dropseed grass (*Sporobolus contractus*)
  - Grasslands with Sparse Dwarf-Shrubs (NVCS Classification V.A.8.N.c.) primarily consist of grasses of moderate height with dwarf shrubs forming less than 25 percent cover. Common plants include the following:
    - Black grama grass (*Bouteloua eriopoda*)
    - Spike dropseed grass (*Sporobolus contractus*)
    - Silverscale saltbush (*Atriplex argentea*)
    - Prickly Russian thistle (*Salsola tragus*)
- (SNL/NM, 2011)

### *Wildlife*

Wildlife communities within KAFB are typical of those found in wildlands of central New Mexico. The composition of each wildlife community is determined by the quality and quantity of habitat available that meets the needs of each animal species. A wide diversity of wildlife could potentially be encountered within the area of the subject property.

Birds of prey species common to the area include the following:

- Red tailed hawk (*Buteo jamaicensis*)
- Burrowing owl (*Athene cunicularia*)
- American kestrel (*Falco sparverius*)

Other bird species common to the area include the following:

- Horned lark (*Eremophila alpestris*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Western meadowlark (*Sturnella neglecta*)
- Eastern meadowlark (*Sturnella magna*)
- Sage sparrow (*Amphispiza belli*)
- Cassin's sparrow (*Aimophila cassinii*)

Reptiles and amphibians common to the area include the following:

- Little striped whiptail (*Aspidoscelis inornata*)
- Side blotched lizard (*Uta stansburiana*)
- Prairie rattlesnake (*Crotalus viridis*)
- Couch's spadefoot toad (*Scaphiopus couchii*)
- New Mexico spadefoot toad (*Spea multiplicata*)

Mammals common to the area include the following:

- Desert cottontail (*Sylvilagus audubonii*)

- Coyote (*Canis latrans*)
- Ord's kangaroo rat (*Dipodomys ordii*)

(SNL/NM, 2011)

#### ***5.27.1 Sensitive Habitat***

Records review, interviews, and site inspection revealed that no known sensitive habitat resources are associated with the subject property.

#### ***5.27.2 Threatened and Endangered Species***

Records review, interviews, and site inspection revealed that no known threatened and endangered species are uniquely associated with the subject properties.

#### ***5.27.3 Wetlands***

Records review, interviews, and site inspection revealed that no known wetlands are associated with the subject properties.

#### ***5.27.4 Floodplains***

Records review, interviews, and site inspection revealed that no known floodplains are associated with the subject property.

## **6.0 APPLICABLE REGULATORY COMPLIANCE ISSUES**

### **6.1 List of Compliance Issues**

There are no compliance issues related to the subject property.

## **7.0 FINDINGS FOR ADJACENT PROPERTIES**

### **7.1 Introduction**

The primary land use for the subject properties is for Environmental Restoration and environmental monitoring activities undertaken by Sandia National Laboratories. Adjacent properties to Site A include Manzano Base and withdrawn land.

Adjacent properties to Site B include the Defense Threat Reduction Agency Giant Reusable Air Blast Simulator (GRABS) Site, Starfire Optical Range, and other KAFB facilities.

### **7.2 Adjacent Environmental Data Resources (EDR) Survey Properties**

Adjacent areas (within ½ mile) have been evaluated for the presence of SNL and USAF ER sites. See Section 5.4, Environmental Restoration, in this document for USAF ER (IRP, ERP, ECP and MMRP) information related to this area. USAF ERP sites and SNL ER sites that are located within ½ mile of the subject property are listed below with brief summaries of their current regulatory status. ER Site Maps for these sites can be found in Appendix B.

**SNL ER Sites:**

The following SNL ER sites are located within ½ mile of Site A:

- **ER Site 92, Pressure Vessel Test Site-** ER Site 92 was used to perform pressure-failure tests on small-scale model pressure vessels. No hazardous materials were used during historical test operations, as only nitrogen gas or steam was used to pressurize the vessels. Corrective action is complete at ER Site 92, and no further action is required. This site is acceptable for residential land use, and there are no restrictions on future activities. NMED approved completion of corrective action in September 1997.
- **ER Site 21, Metal Scrap-** ER Site 21 consisted of an empty 55-gallon drum, some scrap metal, and wood debris scattered at the southern edge of a large stand of Ailanthus trees (*Ailanthus altissima*). The site was defined as a 1 acre area centered on the empty 55-gallon drum. No documentation of activities that occurred at this site has been found. Corrective action is complete at Site 21, and no further action is required. This site is acceptable for residential land use, and there are no restrictions on future activities. NMED approved completion of corrective action in October 2000.
- **ER Site 62, Greystone Manor Site-** ER Site 62 consists of minor scattered rubble associated with the former Greystone manor and its wading pool and bathhouse. Small explosive tests were conducted with terrain models at this site between 1952 and 1957. Corrective action is complete at ER Site 62, and no further action is required. This site is acceptable for residential land use, and there are no restrictions on future activities. NMED approved completion of corrective action in December 1995.
- The following SNL ER sites are located within ½ mile of Site B: **ER Site 71, Moonlight Shot Area-** Site 71 is an inactive site consisting of approximately 83 acres and is centered on a concrete and asphalt pad in an open area north of Isleta Road. Between 1956 and 1961 tests were conducted to simulate the extent of radioactive fallout dispersion from a nuclear weapon detonation during a transport accident or an accidental detonation during assembly. The tests were noncriticality explosions and did not yield nuclear fission products. Corrective action is complete at ER Site 71, and no further action is required. This site is acceptable for residential land use, and there are no restrictions on future activities. NMED approved completion of corrective action in July 2000.
- **ER Site 22, Storage/Burn-** ER site 22 was a fenced area approximately 50-ft by 50-ft square. The area inside the fence contained one empty, open-topped 55-gal drum, several wooden pallets, charcoal, and scraps of fiberboard. The drum had apparently been used as a fire barrel. Corrective action is complete at Site 22, and no further action is required. This site is acceptable for residential land use, and there are no restrictions on future activities. NMED approved completion of corrective action in July 2000.

(GEMS, January 2017)

**KAFB ERP Sites-** There is one KAFB ERP site located within ½ mile of the Site B boundaries. The following provides the current status of the ERP site:

- **WP-087, Grab Site Waste Pile-** The KAFB Master ERP Site List, dated 07-20-2011, Section 7.4, shows the current state of this ERP site is “Sites With Permit Modification to No Further Action”.

(KAFB, 2011)

### **7.2.1 Federal Databases**

FEMA Flood Map Service Center

<https://msc.fema.gov/portal>

### **7.2.2 State and Local Databases**

Virtually all environmental and real estate data for this EBS was obtained from local sources (KAFB or SNL documents and databases).

#### State

New Mexico Cultural Resource Information System (NMCRIS)

<https://nmcris.dca.state.nm.us/NMCRIS/Security/SignIn.aspx>

Note that while NMCRIS was referred to during the EBS, the data in NMCRIS was developed locally during KAFB and SNL projects over the years, and is available in more usable form via local databases and maps, which were actually relied upon for this EBS.

#### Local

KAFB Administrative Record web site

<https://kirtlandafb.tlisolutions.com/main.aspx>

Sandia National Laboratories Legacy Site Information

<https://info.sandia.gov/LegacySiteInfo/> (web link available internally at SNL only).

Sandia National Laboratories Integrated Reporting Management System (IRMS)

<https://cfwebprod.sandia.gov/cfdocs/SRS/templates/>

Sandia National Laboratories Geographic Environmental Management System (GEMS)

(Internal database, no web link available.)

Sandia National Laboratories Environmental Geographic Information Portal (EGIP)

<https://chips.srn.sandia.gov/> (web link available internally at SNL only).

### **7.2.3 Tribal Records**

No tribal records were identified that are relevant to the subject property.

## **7.3 Findings/Impact**

Records review, interviews, and site inspection revealed that no known findings of an adverse nature for the subject property from adjacent properties.

## **8.0 RECOMMENDATIONS**

To the best of the author's knowledge there are no known or undisclosed SNL/NM environmental impacts at this subject property, unless otherwise noted within this document.

## 9.0 CERTIFICATIONS

### 9.1 Certification of the Environmental Baseline Survey

*I have conducted this Environmental Baseline Survey in association with Sandia National Laboratories and on behalf of the United States Air Force in accordance with the requirements contained in Air Force Instruction 32-7066, Environmental Baseline Surveys in Real Estate Transactions. I have reviewed all appropriate records made available and conducted visual site inspections of the selected facilities following an analysis of information during the record search. The information contained within the survey report is based on records made available and, to the best of my knowledge, is correct and current as of February 3, 2017.*

Certified by:

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Christopher S. Catechis, CEI  
Sandia National Laboratories

Date:

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Accepted by:

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Susan D. Lacy  
Department of Energy,  
Sandia Field Office (SFO)

Date:

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Approved by:

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GREGORY S. CAPRA, P.E. LEED AP  
Base Civil Engineer

Date:

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## APPENDIX A: TERMS

ABCWUA	Albuquerque Bernalillo County Water Utility Authority
AC	Acres
ACM	Asbestos Containing Material
AFI	Air Force Instruction
AFOTEC	Air Force Operational Test and Evaluation Center
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
CEPR	Civil Engineering Property Real Estate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	Department of Energy
EBS	Environmental Baseline Survey
ECP	Environmental Compliance Program
EPA	Environmental Protection Agency
ER	Environmental Restoration
ERP	Environmental Restoration Program
ft	feet
GEMS	Geographic Environment Management System
HR-1	Hydrogeologic Region 1
in	inches
KAFB	Kirtland Air Force Base
NMED	New Mexico Environment Department
O/WS	Oil/water separators
PCBs	Polychlorinated Biphenyls
pCi/l	picocuries per liter
RAMP	Radon Assessment and Mitigation Program
RCRA	Resource, Conservation, and Recovery Act
SNL	Sandia National Laboratories
U.S.	United States
USAF	United States Air Force
UST	Underground Storage Tank
~	Approximately

## **APPENDIX B: MAPS**

**Sandia National Laboratories, Albuquerque, NM, Survey Maps and Legal Descriptions**

## Location Overview



## Site A Location Map

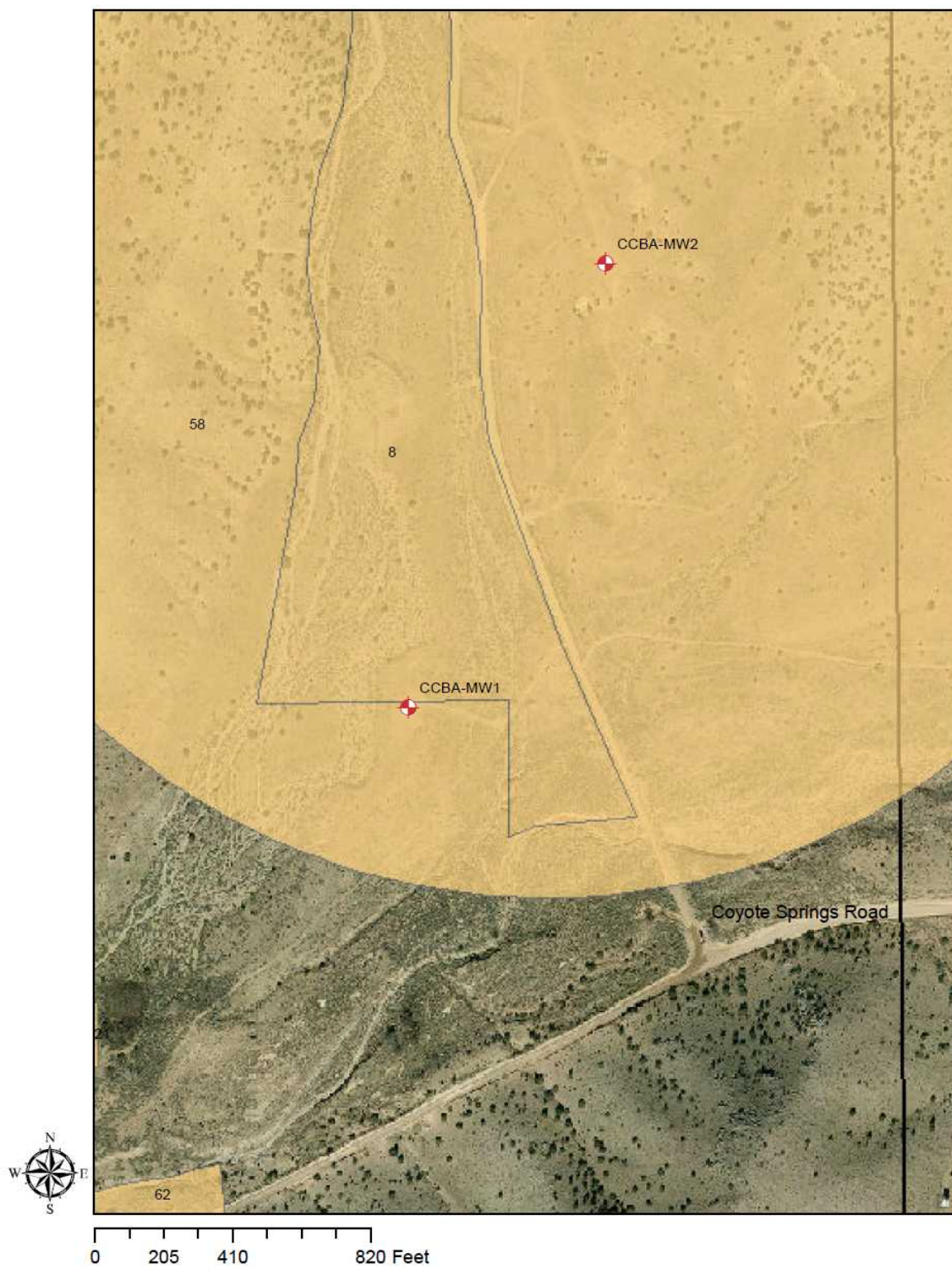


## Site B Location Map



**SNL ER and KAFB ERP Site Characterization Maps for Sites within ½ Mile**

## Site A SNL ER Sites Map



## Site A KAFB ERP Sites Map



## Site B SNL ER Sites Map



## Site B KAFB ERP Sites Map



## APPENDIX C: AERIAL AND SITE PHOTOS



Photograph D-1. Site A looking south toward well CCBA-MW1.



Photograph D-2. Site A looking southwest toward well CCBA-MW2.



Photograph D-3. Site B looking east toward well OBS-MW3.

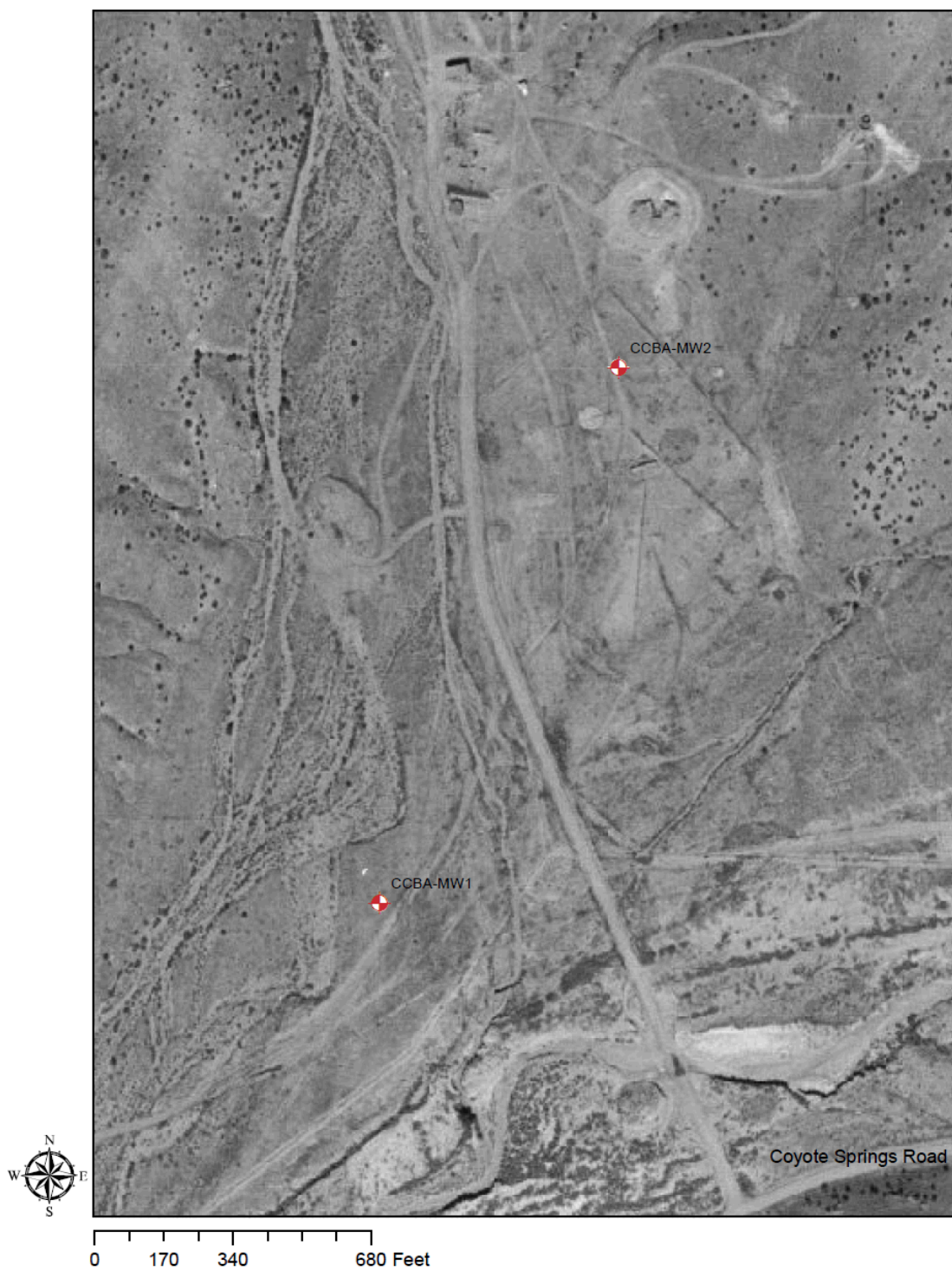


Photograph D-4. Site B looking northeast toward wells OBS-MW1 and 2.

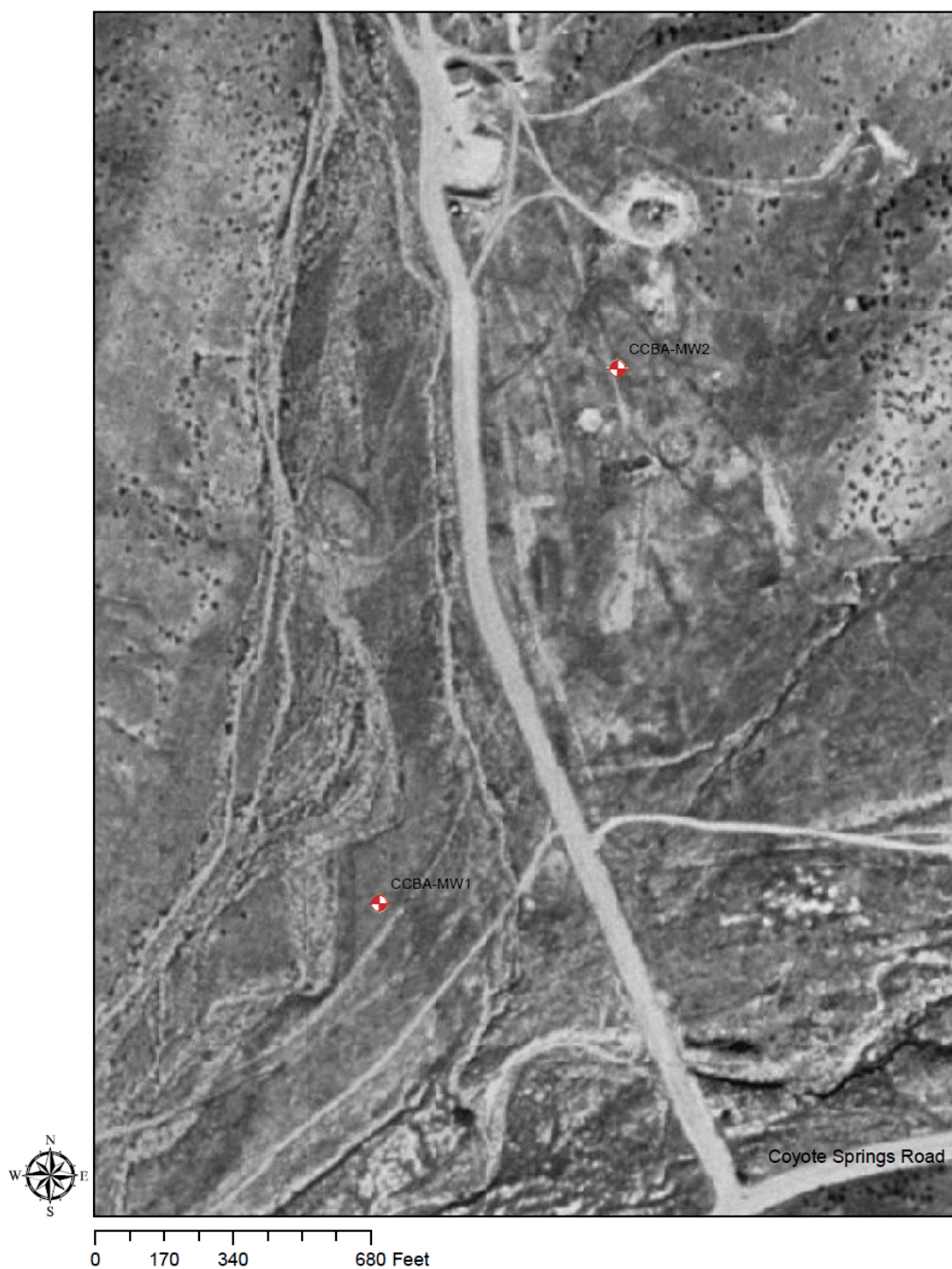
## Site A Historic Site Photograph 1951



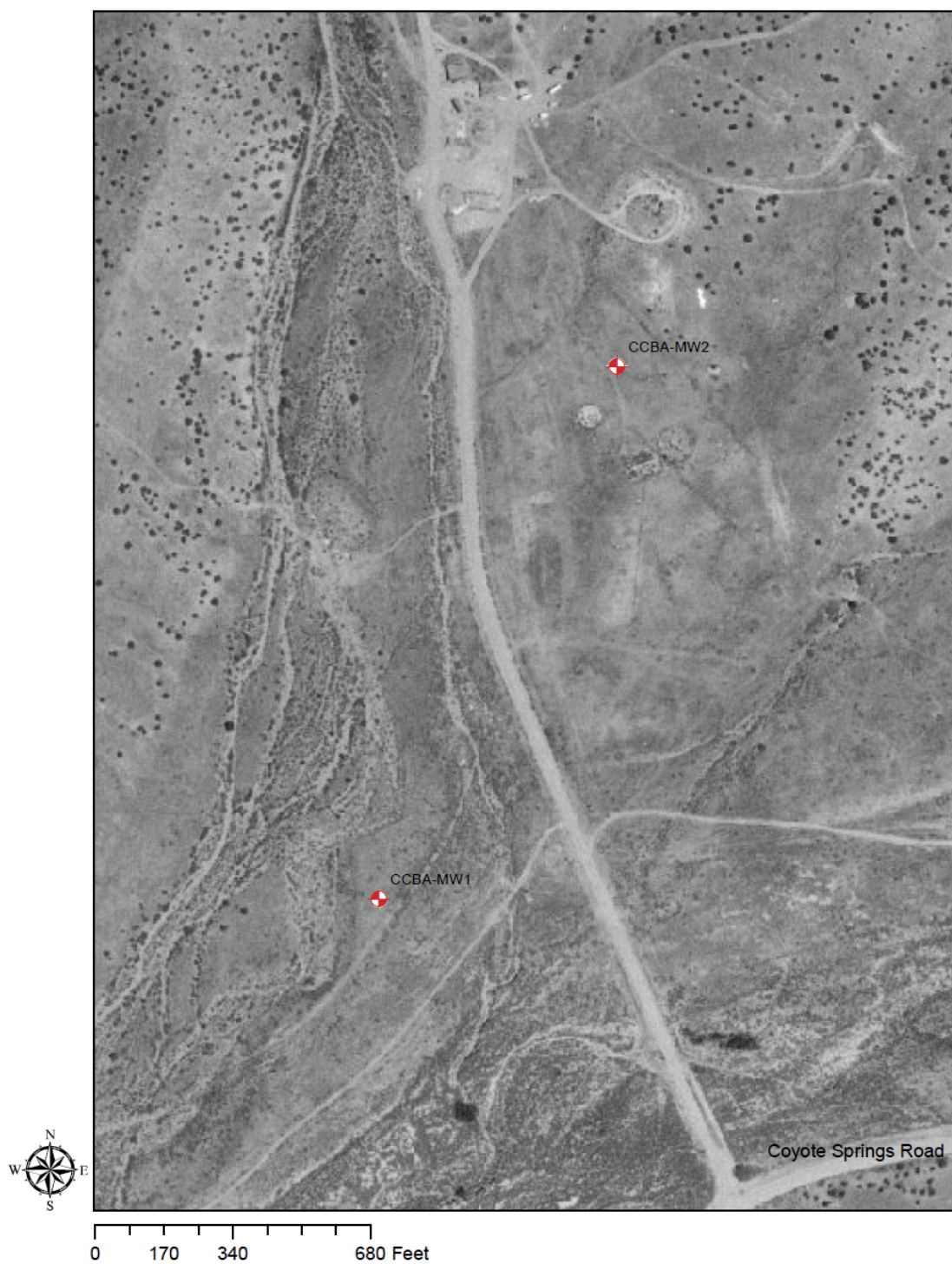
## Site A Historic Site Photograph 1967



## Site A Historic Site Photograph 1982



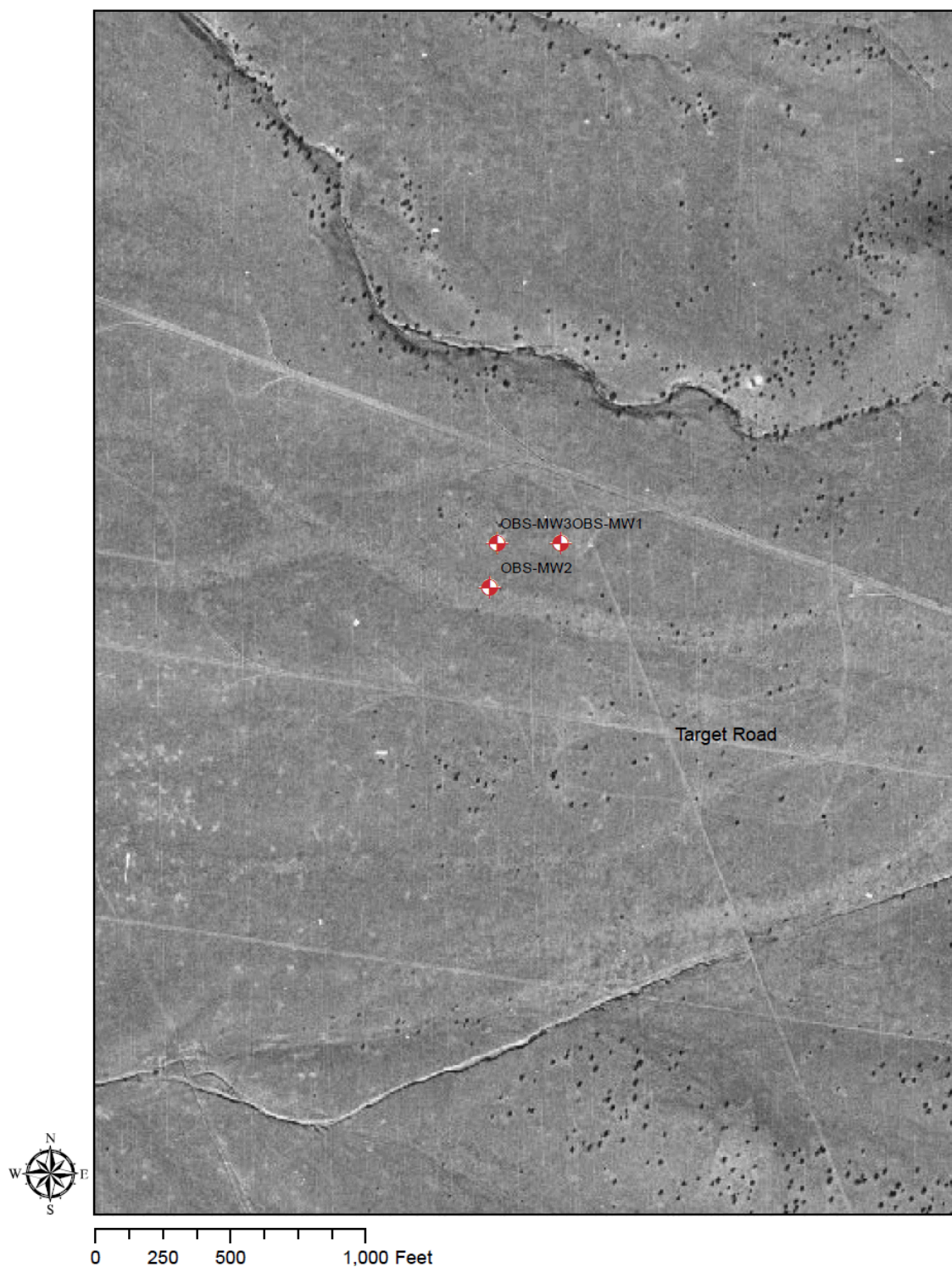
## Site A Historic Site Photograph 1990



## Site A Historic Site Photograph 2010



## Site B Historic Photograph 1951



## Site B Historic Photograph 1967



## Site B Historic Photograph 1982



## Site B Historic Photograph 1990



## Site B Historic Photograph 2003



## Site B Historic Photograph 2010



## APPENDIX D: REFERENCES

- FEMA, 2017 Federal Emergency Management Agency (FEMA) Flood Map Service Center <<http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=1069574&IFIT=1>> Accessed 3 February 2017.
- KAFB, 2011 Kirtland AFB. 2011. *Kirtland Air Force Base Master Environmental Restoration Program Site List*; dated 4 April 2011.
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- KAFB, 2012 Kirtland AFB. 2012. *Integrated Natural Resources Management Plan For Kirtland Air Force Base*. October 2012. Available online <<http://docplayer.net/8179453-Integrated-natural-resources-management-plan-for-kirtland-air-force-base.html>>. Accessed on 3 February 2017.
- NMED, 2017 NMED. 2016. Petroleum Storage Tank Bureau, All Active Tanks [both Aboveground Storage Tanks (ASTs) and Underground Storage Tanks (USTs)]. Available online <<http://www.nmenv.state.nm.us/ust/acttan.html>>. Accessed on 3 February 2017.
- NMED, 2017a NMED. 2016. Petroleum Storage Tank Bureau, Active Leaking and No Further Action (NFA) Site Lists. Available online <<http://www.nmenv.state.nm.us/ust/lists.html>>. Accessed on 3 February 2017.
- NOAA, 2017 *2016 Weather Highlights, Temperature and Precipitation: Albuquerque*. National Oceanic and Atmospheric Administration, United States Department of Commerce. Available online <<http://www.srh.noaa.gov/abq/?n=climonhigh2016annual-tempprecipabq>> Accessed on 3 February 2017.
- SNL/NM, 2011 Sandia National Laboratories/New Mexico (SNL/NM) SAND Report, Operational Area Environmental Evaluations, SAND2011-6097, September 2011, Sandia National Laboratories, Albuquerque, New Mexico.

## **APPENDIX E: INTERVIEWS**

1. SSNL Hydrologist working in the Environmental Safety and Testing Organization 06234 was interviewed on December 8, 2016. Christopher Catechis, Sandia National Laboratories, spoke with the Hydrologist regarding Sandia National Laboratories environmental restoration activities at the well sites and the overall groundwater monitoring program at Sandia National Laboratories.
2. SNL Real Estate Specialist working in the Facilities Management and Operations Center Organization 04853 was interviewed on December 8, 2016. Christopher Catechis, Sandia National Laboratories, spoke with the Real Estate Specialist regarding the land use permit for the hydrogeologic wells and the proposed site boundaries and overall site footprint for the wells.

**VISUAL SITE INSPECTION (VSI)**  
**Kirtland AFB, Albuquerque, NM**

AFI32-7066 26 JANUARY 2015

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## Attachment 6

## VISUAL SITE INSPECTION CHECKLIST TEMPLATE

## VISUAL SITE INSPECTION (VSI)

Kirtland Air Force  
Base, Albuquerque,  
NM.

## GENERAL INFORMATION

Facility Number: Installation of Five New Hydrogeologic Groundwater Monitoring Wells  
Current Use:

Inspected: May 26, 2017

Type of Building: N/A

Area (Sq. Ft.): 0.25 acres

Type of Construction: N/A

Year of Construction: N/A

**Description of Facility:** SNL personnel have installed 5 hydrogeologic monitoring wells. Wells at Location A are CCBA-MW1 and CCBA-MW2. Wells at Location B are OBS-MW1, OBS-MW2, and OBS-MW3. Each monitoring well is designed to provide for safe and efficient groundwater monitoring. A concrete pad approximately 3 feet (ft) by 3 ft contains a steel wellhead, which is 3 ft high by 1 ft in diameter. The wellhead is capped by an aluminum lid, which is padlocked in order to keep out unauthorized personnel. Steel poles that are 4 ft high by 4 inches (in.) in diameter are filled with concrete and placed at each of the four corners of the concrete pad to protect the wellhead. Both the wellhead and the steel poles are painted a "high traffic" yellow for optimal visibility.

Both Sites A and B are located within remote areas of KAFB and currently have no specific use other than their association with SNL ER activities. ER activities, including ground water monitoring are anticipated to continue for the foreseeable future.

[Insert Photo]

## PHYSICAL SETTING

## Current Uses of the Facility

Are any current uses likely to involve treatment, storage, disposal, or generation of hazardous substances or petroleum products? ☐ Yes ☒ No

Report current uses based on observation, interviews, and records review.

## Past Uses of the Facility

Were any past uses likely to have involved treatment, storage, disposal, or generation of hazardous substances or petroleum? ☒ Yes ☐ No

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*Report all past uses based on observations, interviews, and records review.**PHYSICAL CONDITIONS and FINDINGS*

N = No Y=Yes X=Excellent G=Good F=Fair P=Poor NA=Not Applicable

**Comments**

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Condition of Paint	X	
Condition of Building	NA	
Air Emissions Sources	NA	
PCB Containing Equipment	NA	
Historical Property	NA	
Observed Wetlands	NA	
Drinking Water Wells	NA	
Remedial System	NA	
Monitoring Wells	X	OBS-MW2, OBS-MW3, OBS-MW1, CCBA-MW1, CCBA-MW2
<b>Hazardous Material and Waste, Petroleum, Oil, and Lubricant Units</b>		

Describe the condition of and materials handled by the following units (use the abbreviations listed below for Waste Stream column).

N=No Y=Yes HM=Hazardous Material HW=Hazardous Waste POL=Petroleum Oil & Lubricant Product POLW=POL Waste OTH=Other

## UNITS

INDUSTRIAL	WASTE STREAM	COMMENTS
Floor Drains	NA	
Waste Water System	NA	
Oil/Water Separators	NA	
Wash racks	NA	

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INDUSTRIAL	WASTE STREAM	COMMENTS
Above Ground Storage Tank	NA	
Underground Storage Tank	NA	
Other Tanks	NA	
Sumps	NA	
Silver Recovery Units	NA	
Hydrant System	NA	
Radioactive Units	NA	
Container Storage Area	NA	
Munitions	NA	
Other	NA	
SURFACE WATER		Comments
Storm Water System	NA	
Pits, Ponds, Lagoons	NA	
Other	NA	
MUNICIPAL		Comments
Sanitary Sewer ( <i>utility ownership</i> )	NA	

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INDUSTRIAL	WASTE STREAM	COMMENTS
Septic Tanks	NA	
Grease Traps	NA	
Drains	NA	
Other	NA	

Y=Yes N=No	Comments
Odors	No
Pools of Liquid	No
Stained Soil	No
Stains (walls, floor, etc.)	NA
Stressed Vegetation	No
Other Areas of Concern	NA

DATE:

 REPRESENTATIVE  
 OF SNL  
 (Optional):

Print Name:

Amy Miller5/26/17Amy Miller
 AIR FORCE  
 REPRESENTATIVE:

DATE:

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