JOINT LAND ATTACK CRUISE MISSILE DEFENSE ELEVATED NETTED SENSOR SYSTEM (JLENS)

Land-based Testing Sites

ENVIRONMENTAL ASSESSMENT
Final

September 2007

U.S. Army Dugway Proving Ground
Dugway, Utah

West Desert Technical Center
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FINDING OF NO SIGNIFICANT IMPACT
JOINT LAND ATTACK CRUISE MISSILE DEFENSE ELEVATED NETTED SENSOR SYSTEM (JLENS)
U.S. ARMY DUGWAY PROVING GROUND, DUGWAY, UTAH

Pursuant to the *National Environmental Policy Act* (NEPA) of 1969 and the Council on Environmental Quality regulations (40 CFR Sec. 1500-1508) implementing the procedural provisions of NEPA, the U.S. Army gives notice that an Environmental Assessment (EA) has been prepared for construction and test operations of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) at U.S. Army Dugway Proving Ground (DPG), Utah and U.S. Air Force Utah Test and Training Range (UTTR). The EA is incorporated by reference. Based on the EA it has been determined that an environmental impact statement is not required.

PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to establish land-based JLENS testing sites and to conduct a three-year test program on the JLENS system to determine its effectiveness against cruise missiles and other forms of aerial attack. The testing sites consist of two elevated radar sites with ground support facilities, two mission support areas, towed target sorties from Michael Army Airfield, target staging, maintenance and storage facilities, drone launch facilities, an aerial mission operations area, and an existing ground based radar facility. All of the activities would be on DPG or UTTR, or would take place in military airspace except for placement of fiber optic lines on Bureau of Land Management property and a test site on land to be leased from the state. The No Action Alternative was evaluated in the EA. Two alternative locations were considered and subsequently eliminated from further analysis.

FINDINGS

The following paragraphs summarize the anticipated environmental impacts from implementing the Proposed Action.

Air Resources. There would be a short-term temporary increase in emissions of pollutants from construction activities and a negligible increase in aircraft emissions. No long-term or significant impacts would occur.

Geological Resources. Construction would impact the physical properties of the soil through grading and excavation but would not result in significant impacts. Procedures outlined in the installations' Fugitive Dust Control Plans would be implemented to minimize impacts.

Water Resources. Water resources are scarce in this high desert environment and no significant impacts to water quality would result from development of the JLENS test sites.

Biological Resources. Because of the vastness of adjacent similar habitat, any impact from human disturbance would not be significant. No federally-listed threatened or endangered species are known to inhabit the desert basin and none were identified during field surveys. To prevent impacts to migratory birds, pre-construction surveys for nests and nesting activity will be performed when clearing and grading activities are scheduled to occur between March 15 and September 15. The survey will include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) or occupied burrows are found, construction will not be allowed to occur within an appropriately-sized buffer area around the nest/burrow until it is no longer active.

Cultural Resources and Native American Concerns. Surveys did not identify any archaeological sites that would be impacted. The State Historic Preservation Office concurred with the Army's determination of no affect to historic properties by the JLENS testing. An archaeological monitor will be present for the grading and graveling of the road and staging area at the mission operations support area located on the UTTR-South Range to ensure no disturbance to potential sub-surface resources.

Hazardous Materials. The usage of hazardous materials is expected to increase slightly due to the JLENS program; however, no significant environmental impacts were identified.

Solid and Hazardous Waste. The additional quantities of hazardous wastes generated would be handled by the Air Force and would not cause any significant impacts to the environment. A small quantity of construction debris would be generated during site development but would not affect existing waste disposal agreements or have a substantial effect on landfill capacities.

Airspace. No additional special use airspace would be required for the JLENS testing program. Existing airspace coordination and scheduling procedures should prevent air traffic conflicts.

Visual Resources. Impacts to visual resources would not be considered significant because of the low height of ground facilities, their location on Department of Defense (DoD) ranges, and the current abundance of military air traffic. Upon completion of testing the south test site, to be located on state-owned land south of DoD's ranges, would be reclaimed and the visual character of the area would return. No significant impacts were identified.

Transportation. The increase in vehicular traffic associated with JLENS testing activities would be minor and would not increase traffic congestion or cause excessive wear to public roads.

Noise. Because the test sites underlie military airspace and, except for the south site, are located on active military ranges where noise levels from aircraft, missiles, and tanks are already high, no significant noise impacts are expected.

Socioeconomics. Small beneficial impacts to local employment would occur. The local housing market would most likely respond to the small increases in demand without experiencing shortages that would affect housing values. No significant impacts are expected to local schools.

Environmental Justice. There would be no disproportionate impacts to minority or low-income populations or to children from implementing the JLENS program.

Land Use. The JLENS program is consistent with existing operations at DPG and UTTR. The temporary change in land use at the south test site would not be a significant impact.

Range Management. In order for the Army to lease the south test site, the state would have to remove one section of land (one square mile) from an existing grazing permit, but that would not have a significant impact on the permittee's livestock operation and the increase in lease payments would benefit the Utah public school system.

Fire Management. The activities involved with JLENS testing would not introduce a new or different type of fire risk into the training and operations missions of the UTTR or DPG. Fire suppression equipment would be maintained at the south test site and a large safety zone would be cleared to prevent fires from discharged RATO bottles. No significant impacts were identified.

PUBLIC REVIEW

A public notice was published on August 14, 2007 in the *Hilltop Times* (Hill AFB paper), *Ogden Standard Examiner, Tooele Transcript Bulletin, Wendover Times, Salt Lake Deseret News*, and *Salt Lake Tribune* announcing the availability of the draft EA and draft Finding of No Significant Impact (FONSI) for a 30-day public review. Copies of the draft EA and draft FONSI were placed in the two Salt Lake City libraries, one library in Tooele, and the library on DPG. Two meetings were held for Native American tribes. The public comment period ended on September 12, 2007. No public comments were received.

CONCLUSION

Based on the JLENS EA, I conclude that the environmental effects of the Proposed Action will not be individually or cumulatively significant and the preparation of an environmental impact statement is not warranted.

LTC, AV 27 SEP 2007

ROBERT E. JONES, JR. Date
COL, CM
Commanding
U.S. Army Dugway Proving Ground

In accordance with NEPA and the Air Force's Environmental Impact Analysis Process (EIAP) rules, the JLENS EA was reviewed by Air Force personnel at Hill Air Force Base and Air Force Materiel Command and it was determined that this EA satisfies Air Force EIAP requirements for adoption. I hereby adopt the EA and based on its contents conclude that the environmental impacts of the Proposed Action will not be individually or cumulatively significant and the preparation of an environmental impact statement is not warranted.

10 Oct 07

TIMOTHY K BRIDGES, SES Date
Director of Communications,
Installations, and Mission Support
Headquarters Air Force Materiel Command

ENVIRONMENTAL ASSESSMENT FOR TEST SITES ASSOCIATED WITH THE JOINT LAND ATTACK CRUISE MISSILE DEFENSE ELEVATED NETTED SENSOR SYSTEM (JLENS) AT THE U.S. ARMY DUGWAY PROVING GROUND, DUGWAY, UTAH, UTAH TEST AND TRAINING RANGE, HILL AIR FORCE BASE, OGDEN, UTAH, AND TOOELE COUNTY, UTAH

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ROBERT E. JONES, JR.
COL, CM
Commanding
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TABLE OF CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AST	Aboveground storage tank
AUM	Animal unit month
BLM	U.S. Bureau of Land Management
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CO	Carbon monoxide
CRMO	Cultural Resources Management Officer
dB	Decibel
dBA	"A-weighted" decibel
DoD	Department of Defense
DPG	U.S. Army Dugway Proving Ground
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
°F	Fahrenheit
FAA	Federal Aviation Administration
FCR	Fire control radar
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
GAPA	Ground-to-air pilotless aircraft
ICRMP	Integrated Cultural Resources Management Plan
IRP	Installation Restoration Program

JCS	Joint Chiefs of Staff
JLENS	Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
km	Kilometer
kW	Kilowatt
L_{dnmr}	Monthly day-night average sound levels
L_{eq}	Equivalent sound level
LACM	Land attack cruise missile
lbs	Pounds
LCEA	Life Cycle Environmental Assessment
MAAF	Michael Army Airfield
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NAAQS	National Ambient Air Quality Standards
NAS	National Aerospace Standard
NCA	Noise Control Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NH3	Amonia
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O_3	Ozone
ORV	Off-road vehicle
$PM_{2.5}$	Particulate matter smaller than 2.5 microns in diameter
PM_{10}	Particulate matter less than 10 microns in diameter
ppm	Parts per million
PSD	Prevention of significant deterioration
RATO	Rocket-assisted take-off
Pb	Lead
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-way
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SITLA	State and Institutional Trust Lands Administration
SO_2	Sulfur dioxide
SPCC	Spill Prevention Control and Countermeasures
SPD	Special Programs Division
SuR	Surveillance radar
tpy	Tons per year

U.A.C.	Utah Administrative Code
U.C.A.	Utah Code Annotated
UDAQ	Utah Department of Air Quality
U.S.	United States
USAF	U.S. Air Force
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UT	Utah
UTTR	Utah Test and Training Range
VRM	Visual resource management
VOC	Volatile organic compounds
WDTC	West Desert Test Center

CHAPTER 1
PURPOSE AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

The worldwide threat to the security of the United States (U.S.) by hostile nations and terrorist organizations poses significant danger to both civilian populations and the U.S. Armed Forces. The Department of Defense (DoD) is especially concerned with the threat posed by cruise missiles. Cruise missiles typically fly at low altitudes with long range flight patterns which make them difficult to detect until at extremely close range. The highly accurate command and control guidance packages of cruise missiles make deployed personnel and assets extremely vulnerable to attack.

The current capability of the U.S. Armed Forces to detect land attack cruise missiles (LACM) is limited by terrain and position. This capability diminishes as the LACM threat moves inland because theater commanders lose assistance from naval ships positioned along coastal areas. The DoD and Joint Chiefs of Staff (JCS) have selected the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) as a cost-effective, aerial technology solution for defense against LACMs and directed the U.S. Army to function as the lead service in its development.

1.2 PURPOSE AND NEED

A reliable early warning system is needed by the DoD to detect, track, and identify the threat of incoming missiles in a timely manner. The JLENS, as a Research and Development, Test and Evaluation project being developed by the DoD, is needed to serve as an early warning sensor of enemy air attack systems that fly at low altitudes to avoid detection. The elevated (airborne) sensor of the JLENS extends communication ranges, overcoming terrain restrictions associated with ground-based sensors. The JLENS provides the ability to look down at the battlefield at various ranges unhampered by terrain masking or earth curvature and distribute information simultaneously to all the joint theater air and missile defense weapons on the battlefield.

The Proposed Action is to establish land-based testing sites to determine the effectiveness of JLENS for cruise missile defense and defense against other forms of low altitude aerial attack in various terrains. The JLENS system must be tested before it is put into full production. It must undergo a series of tests, validations, and operational mission scenarios to determine its capabilities as an early warning sensor system. Therefore, the purpose for testing is to acquire information to make milestone decisions in the acquisition, production, and fielding of this defense system.

1.3 LOCATION OF PROPOSED ACTION

Testing the JLENS would require military airspace and a large area of DoD land. This combination of land and airspace is available at the U.S. Army Dugway Proving Ground (DPG) and U.S. Air Force (USAF) Utah Test and Training Range (UTTR) in the northwestern portion of the State of Utah (see Figure 1).

Located approximately 85 miles southwest of Salt Lake City, DPG is proposed by the DoD and JCS to support JLENS testing. Operated by the U.S. Army Developmental Test Command, DPG encompasses over 798,000 acres of the Great Salt Lake Desert in Tooele County. The West Desert Test Center (WDTC) is the organizational unit that carries out the DPG test mission and provides management control of mission-specific testing efforts. Michael Army Airfield (MAAF) is located on and operated by DPG. The airfield supports transport of test equipment and troops for training exercises, and serves as a recovery airfield for in-flight emergencies. Components of the JLENS testing that would be located on DPG include storage and maintenance of targets and drones, the aerial mission operating area, one of two mission operating support areas, and towed target support from MAAF.

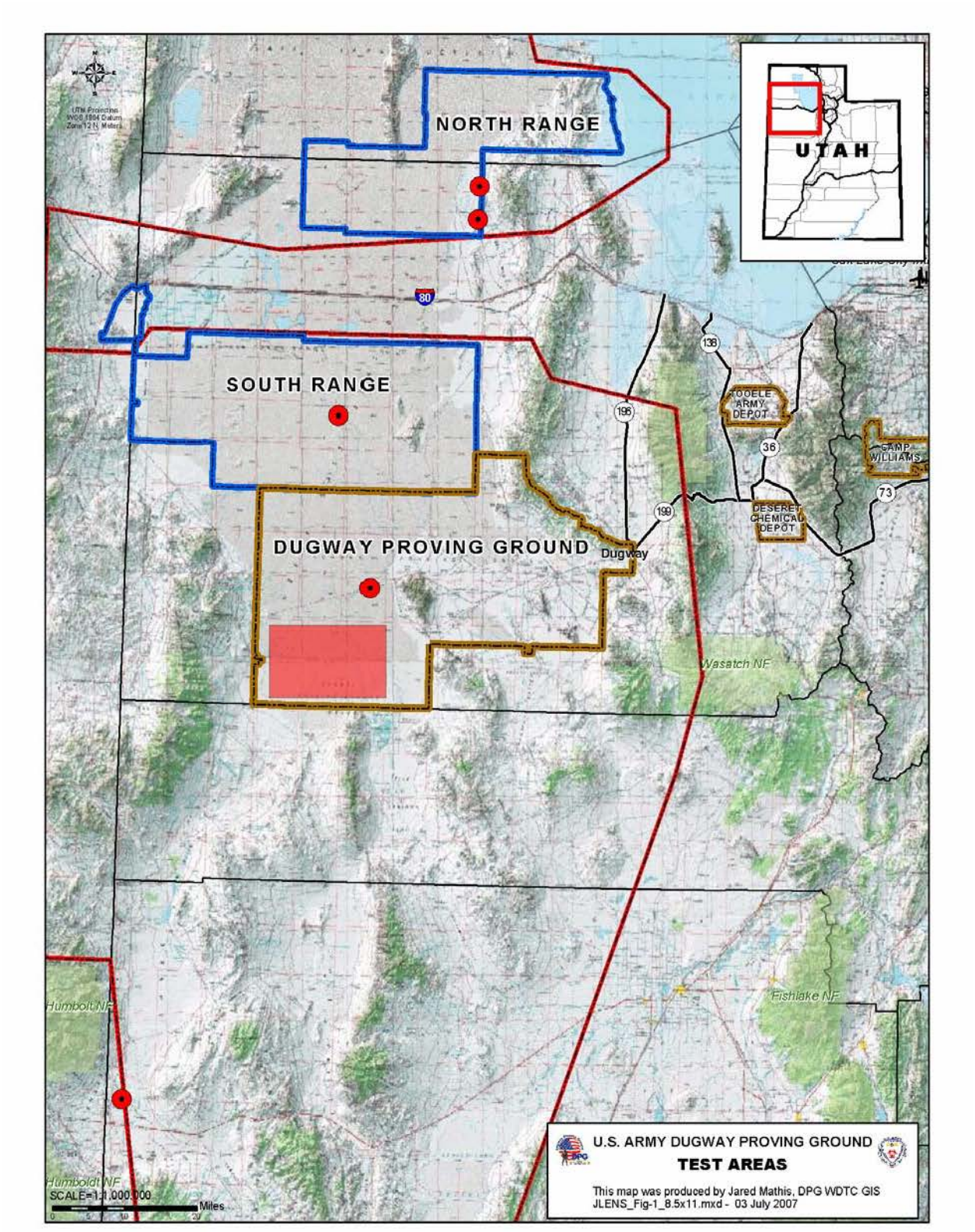

Figure 1. Location of JLENS Test Areas

The UTTR is the largest combination of land and airspace available in the DoD for aircrew training and weapons testing. It consists of over 19,000 square miles of military operations areas (A military operations area is airspace designated outside of Class A airspace, to separate or segregate certain nonhazardous military activities from instrument flight rules traffic and to identify for visual flight rules traffic where these activities are conducted) and restricted airspace (An area under military jurisdiction in which special security measures are employed to prevent unauthorized entry), and 2,675 square miles of restricted access DoD land primarily in Box Elder, Tooele, Juab, and Millard counties. The UTTR is divided by the Interstate 80 highway corridor into two areas referred to as the North Range and the South Range. Base operating support facilities are located at "Oasis" on the North Range. The 388th Range Squadron at Hill Air Force Base (AFB) manages air operations for the UTTR and the 75th Range Squadron maintains Oasis and provides ground support operations. Components of the JLENS testing that would be located on the UTTR.

If the JLENS testing is approved, the U.S. Army would lease a section of land (approximately 640 acres) in Millard County from the State of Utah. The land is managed by the School and Institutional Trust Lands Administration (SITLA) and is located north of U.S. Highway 6/50 near the Nevada border (see Figure 2). The south test site would be the component of the JLENS testing located on the SITLA land.

Other land off DoD property would be needed to support the JLENS testing. This other land includes rights-of-way (ROW) from Tooele and Box Elder counties and from the Bureau of Land Management (BLM) for installation of fiber optic lines for voice and data communications. Fiber lines would be installed along the county road leading to Oasis from Interstate 80 (locally referred to as Puddle Valley Road) and in an existing utility corridor that parallels Lambert Boulevard (see Figure 3). A portion of Lambert Boulevard and the existing utility corridor cross BLM land adjacent to the UTTR-North Range.

The USAF maintains a radar facility near Trout Creek in the Snake Valley area of Juab County (see Figure 4). This facility would be used in support of test activities.

1.4 NEPA REQUIREMENTS AND ENVIRONMENTAL DOCUMENTATION

The *National Environmental Policy Act* (NEPA) of 1969, as amended, requires federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) issued regulations (40 Code of Federal Regulations [CFR] § 1500-1508) to implement NEPA that include provisions for both the content and procedural aspects of the required environmental analysis. The U.S. Army implements NEPA in accordance with 32 CFR Part 651, and thus the preparation of this Environmental Assessment (EA) followed these regulations.

If approved, the JLENS testing would occur on land and in airspace managed by other federal and state agencies (see Section 1.3). These agencies must also consider environmental consequences before approving construction and/or testing activities to support JLENS. This EA supports the decision-making of the federal agencies in compliance with NEPA and has incorporated requirements of the environmental impact analysis process for the Air Force (32 CFR 989) and BLM (NEPA Handbook H-1790-1).

The JLENS Product Office completed a Life Cycle Environmental Assessment (LCEA) for the JLENS system in July 2005. The LCEA identified the potential environmental consequences that may place limitations on system operations during design, development, testing, production, storage, transport, training, fielding, maintenance, and demilitarization/disposal of the JLENS program. The analysis concluded no significant impacts to the environment were anticipated from the continuation of the JLENS program and acknowledged that site-specific analyses would be prepared at the installations hosting the life cycle activities (U.S. Army, 2005).

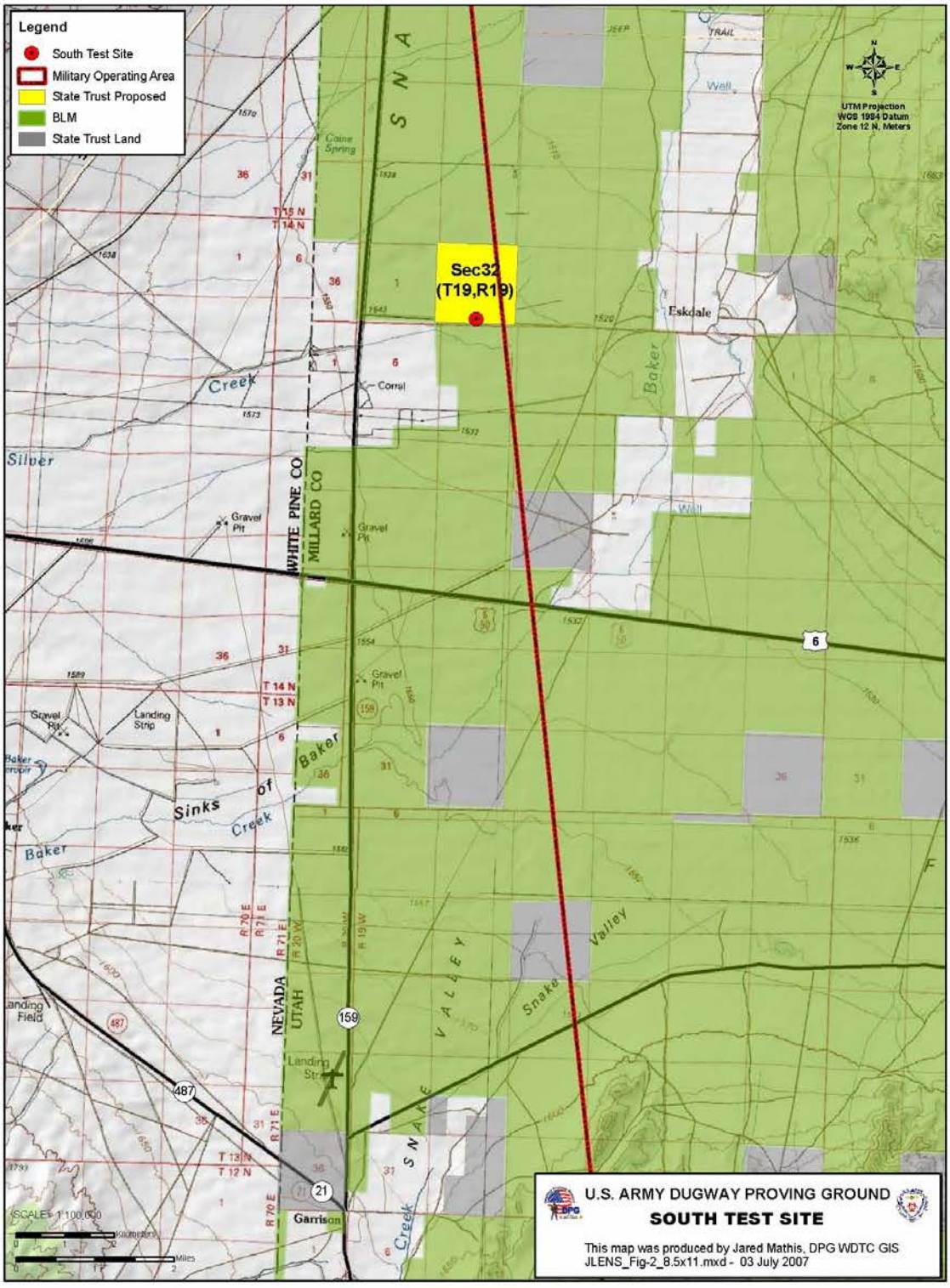

Figure 2. Location of South Test Site

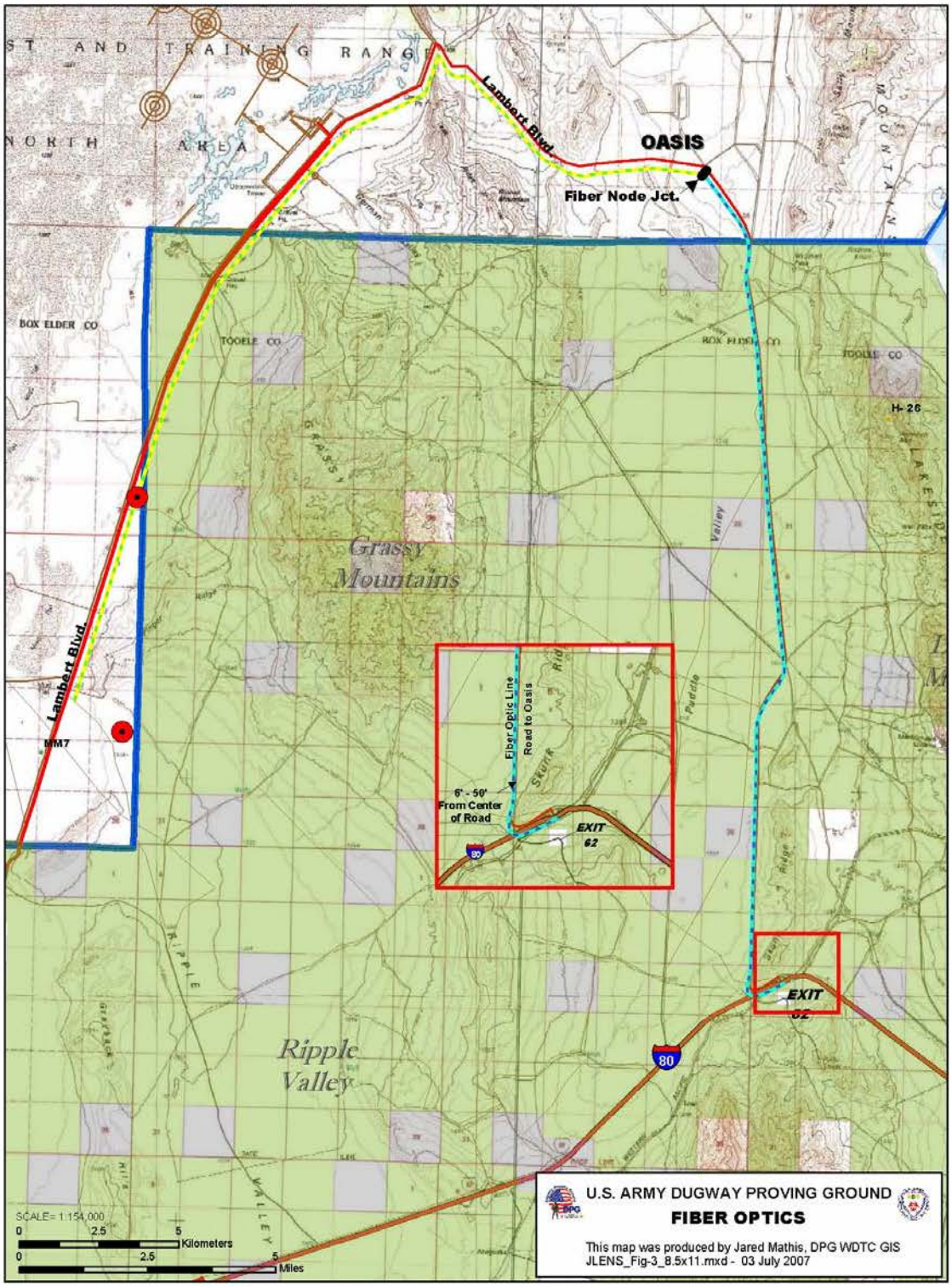

Figure 3. Location of Fiber Optics

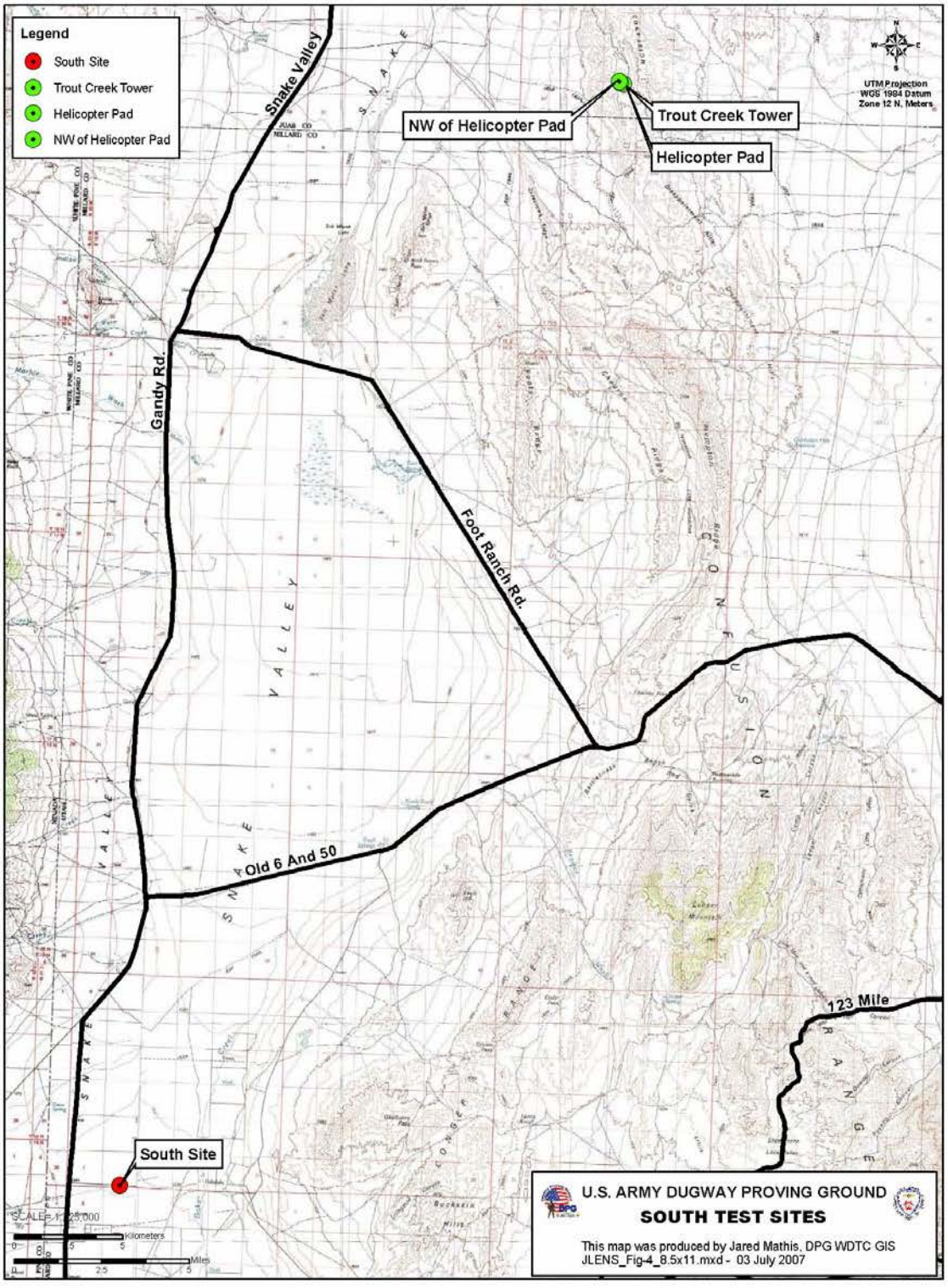

Figure 4. Location of South Test Sites

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action is to establish land-based testing sites on which to test the JLENS system to determine its effectiveness against cruise missiles and other forms of aerial attack. The testing sites consist of two JLENS test sites on the UTTR. Other sites, facilities, and operations that would be used to support the testing include billeting at Oasis, towed target sorties from MAAF, target staging and maintenance, target storage, two mission support sites, an aerial mission operating area, a target tracking site, and a launch site. These components of the JLENS testing and the testing process are described in the following sections.

Construction and preparation of the sites for the JLENS testing would occur over a period of two to three years based on funding. Testing of the JLENS system is programmed for 2009 through 2012.

2.1.1 JLENS

The JLENS utilizes elevated surveillance sensors to provide over-the-horizon detection and tracking of low-flying cruise missiles and unmanned aerial vehicles (drones). The elevated sensors allow incoming targets, such as cruise missiles, to be detected, tracked, and engaged by ground-based air defense systems.

The JLENS system consists of long-range surveillance radar (SuR) and high performance fire control radar (FCR), each integrated in a separate large aerostat tethered to ground-based mooring and processing stations (see Figure 5). The aerostat is an unmanned, non-rigid aerodynamic structure filled with a helium mixture. The aerostat is 74 meters long and almost as wide as a football field. It is connected to the ground by a tether through which power and data are transmitted. The tether enables the aerostat to operate at altitudes of up to 15,000 feet mean sea level (MSL).

A mooring station controls the deployment and retrieval of the aerostat. The mooring station is a transportable unit connected to a ground-mounted power plant and processing station. The processing station performs mission operations and is the "brains" of the whole JLENS system. Each processing station contains an operator workstation, a flight-director control station, weather-monitoring equipment, and a computer that controls radar functions and processes radar data.

2.1.2 Testing Process

The testing process basically begins with the deployment of the two aerostats. The aerostats need to be located at separate test sites. The FCR and SuR aerostats would be located on the UTTR (see Figure 6).

The SuR provides the initial target detection in a 360º coverage area and then cues to the FCR, which provides precise tracking. When the radar picks up a target, it sends tracking information to the computers in the processing station by means of fiber optics in the tether of the aerostat. The data is processed to identify the target and then distributed out to Army, Air Force, and Navy units.

The JLENS would be tested using targets towed by aircraft. The aircraft would have a target fitted and then would take-off from MAAF. The JLENS radars would be tested on these towed targets throughout the airspace of the UTTR. It is estimated that 90 additional sorties with towed targets would be conducted over a test period of 2010 through 2012 to support the JLENS testing program; however, the radars would also track other aircraft and cruise missile training and testing activities occurring in the UTTR to gather as much testing data as possible.

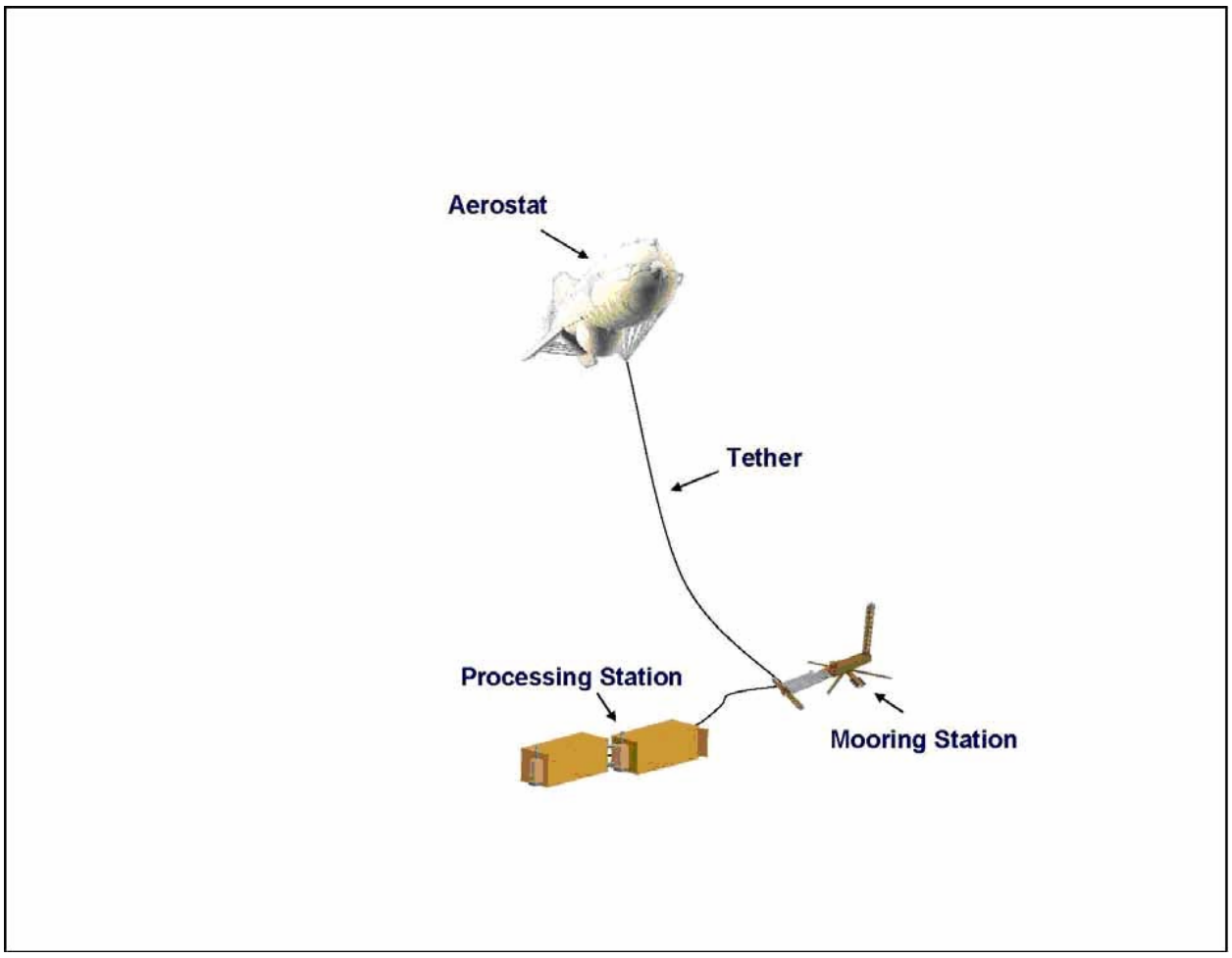

Figure 5. JLENS System

Drones, which are unmanned aerial vehicles, would also be used to test the JLENS radars. The drones would be launched from a site located southwest of the test sites and programmed to fly towards the operating area on DPG where they would land (see Figure 1). The drones would follow the same flight path established by the USAF for cruise missile test operations at the UTTR. A communications relay system would be set up at the USAF radar facility near Trout Creek to expand the capacity of the land-mobile radios used by personnel monitoring the launches and the aerial path of the drones. The JLENS radars would be tested on these drones to track their flight and transmit location data to ground-based weapons systems in the areas on DPG and the UTTR.

Approximately 30 drone launches would take place for the JLENS testing over a test period of 2011 through 2012. The drones would be retrieved from the aerial mission operating area by DPG personnel using a helicopter and a tracked-wheeled vehicle for access and to minimize ground disturbance. This is similar to the retrieval of other drones, ordnance, and equipment from other test and training activities occurring on DPG. The drones would be transported to the secured building in the Avery Area for maintenance and storage.

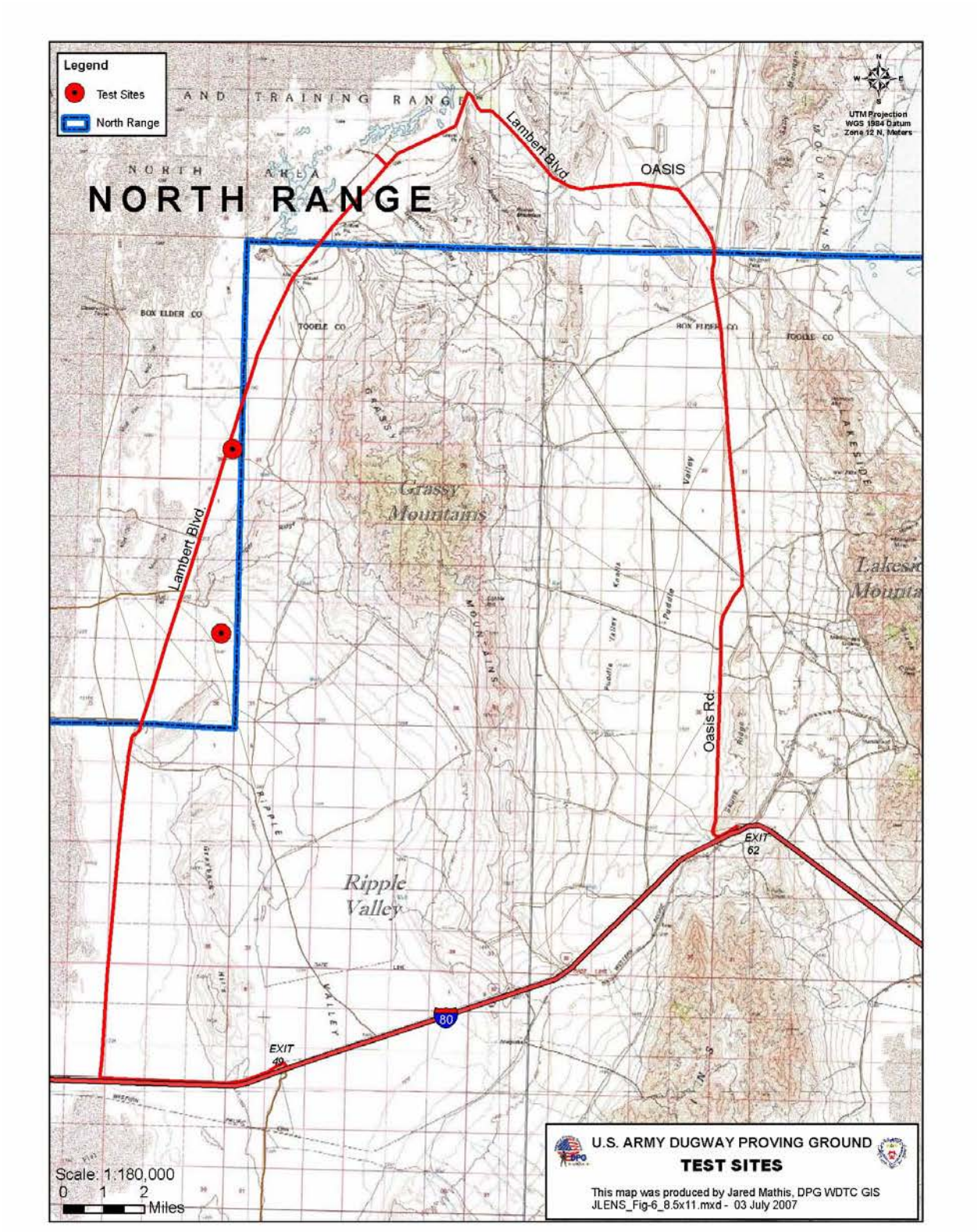

Figure 6. Location of JLENS Test Sites

2.1.3 North Test Sites

The JLENS test sites would be located on the UTTR (see Figure 6). Each site would encompass a square area 1,300 feet by 1,300 feet (approximately 38 acres) for the aerostat pad with mobile mooring station, data processing station, assembly and maintenance buildings, back-up generators and fuel storage, offices and training classrooms, and restroom and shower facilities. The entire test site would be surrounded by a security fence. A portable guard shack (manned full-time) and a gravel parking lot for up to 70 vehicles would be constructed outside the fenced area. Access into the fenced area would be through a personnel gate nearest the parking lot or through a vehicle entrance gate. Lambert Boulevard provides the primary access to both sites, but the dirt trail leading to the sites would be widened and graveled. The proposed layout of each site is shown in Figure 7.

The support buildings would be placed on concrete pads and the aerostat pad would be compacted gravel. The gravel would be compacted to 8,600 pounds per square foot to cover a circular zone with a 350-foot radius. The gravel would be mined from two pits located on the UTTR. The gravel pits would be operated for approximately five months to crush enough rock to build the aerostat pads, to cover the entrance roads and parking lots, and for the access road to site S-2. Two shifts working 10 to 12 hours per day would be required to crush the gravel needed for the JLENS project. It would take approximately 100 working days to transport the gravel from the pits to the JLENS sites to construct the pads, and 140 working days to construct both test sites.

Power would be provided from the nearest above ground electrical line, which parallels Lambert Boulevard, and placed underground within one-quarter mile of the test site. Fiber optic lines for voice and data communications would be installed to each site. The communication lines would be placed adjacent to the county road (Puddle Valley Road) from an existing communication distribution substation near Interstate 80 to Oasis, and then in an existing ROW that parallels Lambert Boulevard. The communication lines would branch off from the ROW to each of the test sites.

2.1.4 Target Support Buildings

Two facilities would be needed on DPG for storage and maintenance of the tow targets and drones (see Figure 8). A building for the drones would be constructed east of MAAF and near Building 1080 in the Avery Area. This metal building would be 50 feet by 100 feet and would include a storage area, offices, a tool and parts cage, mechanical room, break room, and restroom facilities. It would be used for storing drones and for conducting maintenance on drones after recovery from a test operation. The building would have paved access from the nearest road and would be enclosed by a security fence. A metal building approximately 25 feet by 25 feet would be constructed adjacent to the apron at MAAF for maintaining the towed targets. Its proximity to the apron and runway would facilitate fitting the targets to the tow aircraft. This building would be installed with electricity, heating, cooling, and plumbing.

2.1.5 South Test Site

The south test site would be located in Millard County on a one square mile section (approximately 640 acres) of Utah SITLA property (see Figure 2). One metal building (50 feet by 150 feet) would be erected on top of a concrete pad on the south end of the property. The building would be used for preparing the drones for launch. Portable generators would supply power for lighting, heating, and cooling for the building. Water and plumbing would also be provided by portable equipment. The building, portable generators, and equipment would be surrounded by a security fence.

Two concrete pads (16 feet by 43 feet) separated by 40 feet of compacted dirt and surrounded by security fence would be constructed approximately 300 feet from the building. A dirt road would be graded from the building to the pads. A portable generator would provide power for the pads and lights. An area approximately 1,600 feet wide by 3,000 feet long from the pad would be cleared and grubbed of vegetation for use as a safety zone. A dirt road would be graded from the existing county road located south of the site to the test site.

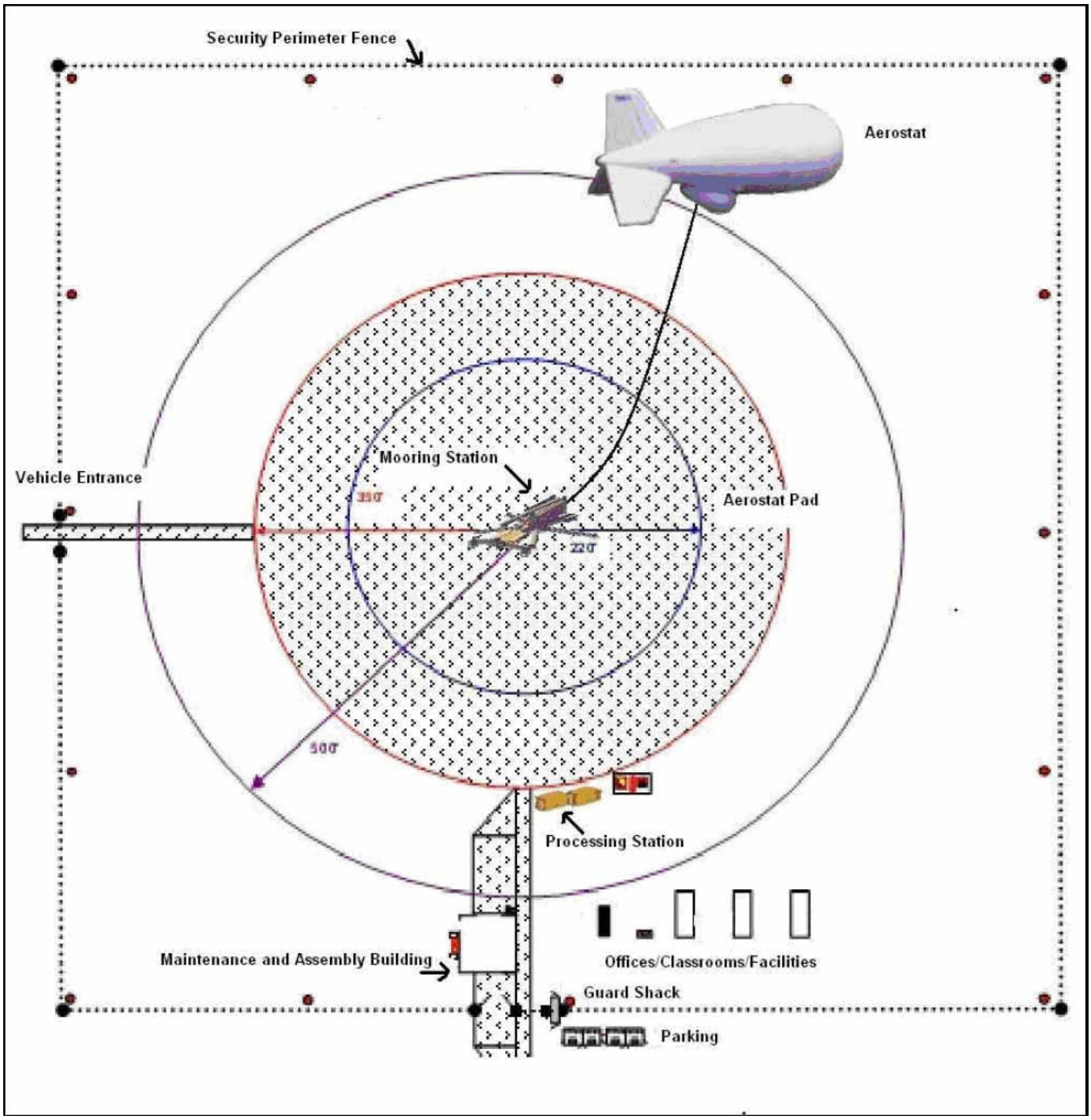

Figure 7. Layout of Pad and Buildings at Test Site

If the JLENS testing is approved, the property would be leased from the State of Utah for up to a ten-year period. Upon completion of the testing, the building, fence, and launch pads would be removed and the site would be re-stored.

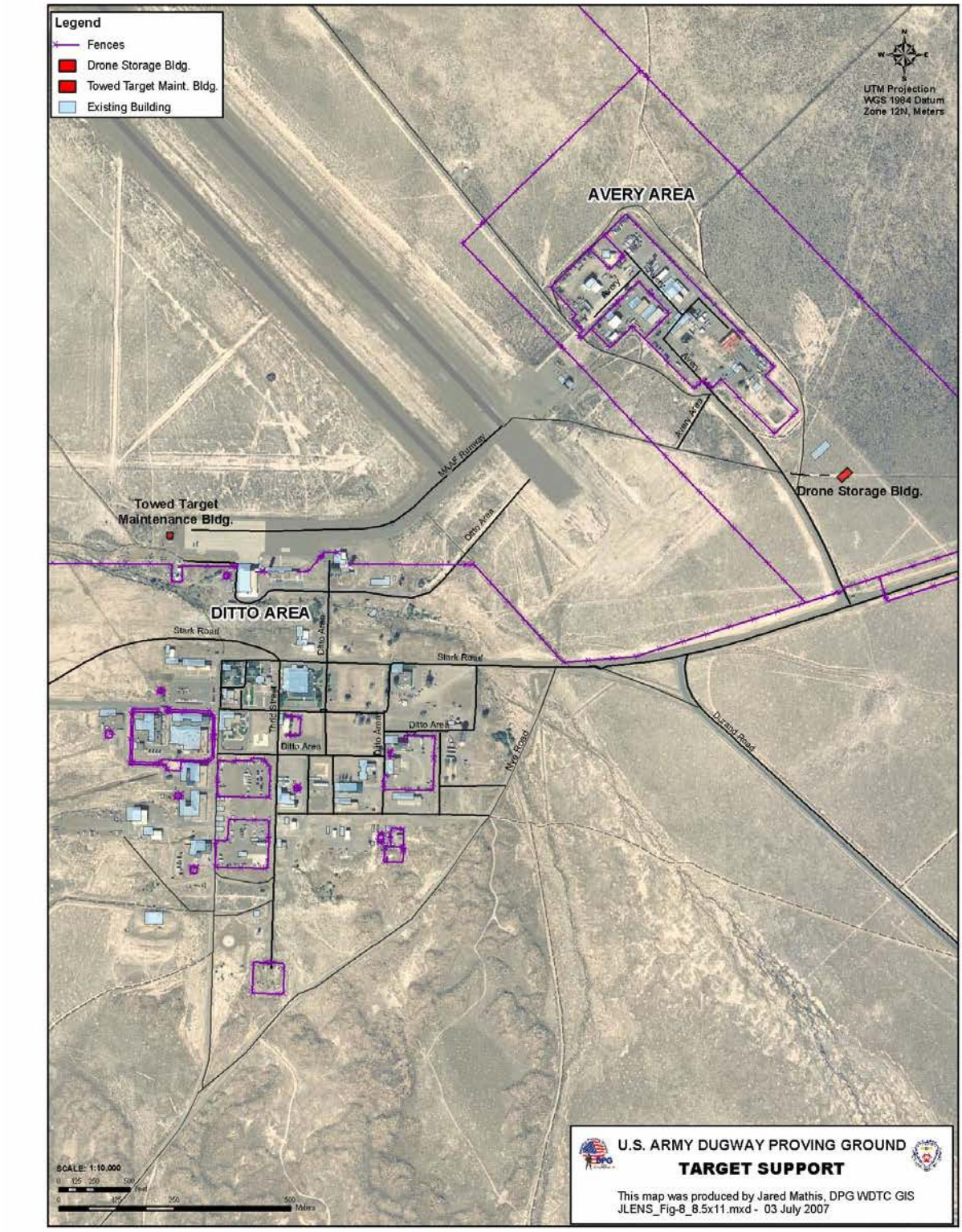

Figure 8. Location of Target Support Buildings

2.1.6 Mission Operations Support Areas

The mission operations support areas would be established on DPG and the UTTR-South Range (see Figure 1). If used during the JLENS testing, these support areas would be occupied by ground-based systems and support vehicles. Existing roads would be used to enter and exit these areas. Some grading and graveling of the roads and for the staging areas for the support vehicles would be required to support JLENS test operations. No additional construction is planned for the support area on DPG but an extension to the road on the UTTR-South Range would be needed to by-pass the Wildcat Training Area. The road extension was identified by the USAF in 2003 for mission requirements but would also be available to support the JLENS testing. The route was surveyed for archaeological resources and the USAF has completed the approval process for the grading and graveling of this new extension.

2.1.7 Aerial Mission Operating Area

The aerial mission operating area is south of Goodyear Road and covers the southwest corner of DPG. It is approximately 10 miles by 16 miles or 160 square miles of remote, uninhabited area with no buildings. The area is currently used as a target area and as an impact area for testing artillery. No new construction or ground disturbance is planned for this area to support the JLENS testing.

2.1.8 Personnel

If the JLENS testing is approved, approximately 150 military personnel and 100 to 150 contractor and government personnel would be assigned to DPG to support the JLENS program. Personnel would be housed on DPG, Oasis, and in the local communities.

2.2 NO ACTION ALTERNATIVE

Testing the JLENS system would not occur under the No Action Alternative. Land-based test sites would not be established at DPG, on the UTTR, or on SITLA land. Communication lines would not be needed and therefore ROWs would not be requested from BLM or from Tooele and Box Elder counties.

The JLENS requires testing prior to acquisition and production of the system. The JLENS would not proceed to full production under this alternative and thus JLENS would not fulfill DoD's requirement for an aerial sensor system that can detect LACMs in various terrains. Not conducting JLENS testing would result in costly delays in fielding a defense system against LACMs. The No Action Alternative would not be responsive to the need for broader defense against the increasing threat posed by cruise missiles. Defensive capabilities of military units would therefore remain unchanged.

2.3 ALTERNATIVE LOCATIONS CONSIDERED AND ELIMINATED

The U.S. Army Program Executive Office for Missiles and Space conducted an in-depth review of DoD locations that have the range size, special facilities, and ability to provide adequate Government controls over a test program. Parameters were developed to identify military ranges that could support the JLENS test program. Three locations met these parameters – Eglin AFB; White Sands Missile Range with McGregor Range; and DPG with UTTR. These locations were evaluated further using an expanded list of 53 different criteria such as availability of utilities (power and communication), roadway accessibility, housing, security, technical capabilities, environment, and other parameters that could impact the overall cost and schedule for testing. Also, the target and the anti-cruise missile firing device must fly through or over a DoD controlled impact area for the entire tracking journey.

The combined test ranges at DPG and UTTR is the preferred DoD asset that provides sufficient land and airspace to test this type of defense system. The facilities at Eglin AFB and White Sands Missile Range did not meet the testing site evaluation criteria as fully as DPG and UTTR.

Although Eglin AFB in Florida scored high against the evaluation criteria, it was eliminated from further consideration as the primary location to test the JLENS system because there is not enough DoD controlled impact area surrounding the base to conduct the JLENS tests.

White Sands Missile Range with McGregor Range in New Mexico was also eliminated from further consideration as an alternative location to test the JLENS system. These two ranges together do not have as large a DoD controlled impact area as does DPG with UTTR, and therefore, the U.S. Army would need leases with other land management agencies and a number of private landowners to acquire an adequate size land mass on which to conduct JLENS tests.

CHAPTER 3
AFFECTED ENVIRONMENT

3.1 INTRODUCTION

The affected environment is the natural, physical, and social resources that occur in the vicinity of the project area or have the potential to be affected by the Proposed Action. This chapter describes the relevant environment in the project area, providing baseline information to allow the evaluation of potential environmental impacts that could result from the Proposed Action or No Action Alternative. The baseline conditions used for the analyses of impacts are the conditions that currently exist (or as near to current conditions as are reasonably ascertainable). The baseline setting is compared to the projected conditions that would exist as a result of implementing the JLENS testing program or that would result if no action were taken.

The project area covers land owned and operated by the DoD, including DPG and the UTTR, the State of Utah, and the BLM. The environmental baseline resource areas described in this chapter were selected after identifying the potential issues and concerns associated with the JLENS program, and include the areas of air, geology, water, biology, visual, and cultural resources, and hazardous materials, solid and hazardous waste, airspace, transportation, noise, socioeconomics, environmental justice, land use, and range and fire management.

The Proposed Action encompasses eight different site locations within Box Elder, Millard, Juab, and Tooele counties. If the affected environment is different among the sites, then those sites will be described separately. Otherwise, the description in this chapter will be all encompassing.

3.2 AIR RESOURCES

Air resources are characterized by the existing concentrations of various pollutants and the climatic and meteorological conditions that influence the quality of the air. Precipitation, wind direction and speed (horizontal flow), and atmospheric stability (vertical flow) are factors that determine the extent of pollutant dispersion.

3.2.1 Climate and Meteorological Conditions

The project area is characterized by an arid climate, highly variable temperature, and low relative humidity. Precipitation is mainly from rain and snow during the winter months and amounts range from 5 to 30 inches depending on the elevation and topography. Average daily temperatures range from 10 degrees Fahrenheit (°F) to 50°F in January and from 50° to 100°F in July.

The general north-south orientation of the mountain ranges results in valley surface winds primarily from the north or south. Topographical differences cause wind speed and direction to vary locally, as well as seasonally. Average wind speed varies from 5 to 10 miles per hour, but speeds up to 50 miles per hour with gusts as high as 75 miles per hour have been recorded in the winter months.

3.2.2 Air Quality

The National Ambient Air Quality Standards (NAAQS), established by the U.S. Environmental Protection Agency (EPA), define the maximum allowable concentrations of criteria pollutants that may be reached but not exceeded within a given time period. These standards were selected to protect human health with a reasonable margin of safety. The criteria pollutants (see Table 1) include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter smaller than 10 microns in diameter (PM_{10}), particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$), and sulfur dioxide (SO_2). Generally, criteria pollutants originate directly from mobile and stationary

Table 1. Ambient Air Quality Standards

Pollutant	Standard	Standard Value*	Standard Type
Ozone	8-hour	0.085 ppm	Primary, Secondary, Utah
CO	8-hour	9 ppm (10,000 µg/m^3)	Primary, Utah
	1-hour	35 ppm (40,000 µg/m^3)	Primary, Utah
NO_2	Annual Arithmetic Mean	0.053 ppm (100 µg/m^3)	Primary, Secondary, Utah
SO_2	Annual Arithmetic Mean	0.03 ppm (80 µg/m^3)	Primary, Utah
	24-hour	0.14 ppm (365 µg/m^3)	Primary, Utah
	3-hour	0.5 ppm (1,300 µg/m^3)	Secondary, Utah
PM_{10}	24-hour	150 µg/m^3	Primary, Secondary, Utah
$PM_{2.5}$	Annual Arithmetic Mean	15 µg/m^3	Primary, Secondary, Utah
	24-hour	35 µg/m^3	Primary, Secondary, Utah
Pb	Quarterly Average	1.5 µg/m^3	Primary, Secondary, Utah

* Parenthetical value is an approximate equivalent concentration.
µg/m^3 : micrograms per cubic meter ppm: parts per million
Source: U.S. EPA, 2007

sources with the exception of O_3. It is not emitted directly from sources but is formed by a combination of nitrogen oxides and volatile organic compounds reacting with sunlight in the atmosphere.

Air quality is determined by comparing ambient air levels with the appropriate primary or secondary NAAQS for each criteria pollutant. The State of Utah has adopted the federal standards. The air quality of a region is based on the amount of pollutants emitted and climatic and geographic conditions that affect the formation and dispersion of pollutants. Areas not meeting ambient air quality standards are designated as non-attainment for the specific pollutant that is in violation of the standard. Non-attainment areas are further classified based on the seriousness of the violation. The eastern edge of Tooele County above 5,600 feet is included with the Salt Lake County designation of non-attainment for SO_2; however, redesignation of the area to maintenance status is pending. Box Elder, Juab, and Millard counties and the remainder of Tooele County are in attainment for all criteria pollutants.

Section 110 of the *Clean Air Act* (CAA) requires states to develop air pollution regulations and control strategies to ensure that state air quality meets the NAAQS established by EPA. Each state must submit these regulations and control strategies for approval and incorporation into the federally-enforceable State Implementation Plan (SIP).

3.2.3 Emissions Inventories

An air emissions inventory was completed for DPG for calendar year 2005. The installation-wide criteria pollutant totals are shown in Table 2. The base has a CAA Title V Operating Permit from the Utah Department of Air Quality (UDAQ) valid until June 12, 2011. A Title V Operating Permit consolidates all air quality regulatory requirements in a single document, so a permittee can clearly determine compliance with the air quality environmental laws governing its operation. Any stationary source of air pollutants which emits, or has the potential to emit (i.e., the maximum emissions that equipment can produce under permit limitations and operational capacity), 100 tons per year (tpy) or more of any pollutant regulated under the CAA is a major stationary source. Dugway Proving Ground is a major stationary source as the emissions of, and the potential to emit, several regulated pollutants is 100 or more tpy (see Table 2). Therefore, the installation is subject to prevention of significant deterioration (PSD review requirements of 40 CFR Sec. 52.21 and Utah Administrative Code R307-405 for modifications to stationary sources which would increase emissions of pollutants.

Hill AFB completed an air emissions inventory for the UTTR (North Range and South Range) for calendar year 2005. The criteria pollutant totals are shown in Table 3. The base has two Title V Operating Permits, one specifically is-

sued for the UTTR operations valid through June 19, 2011. The UTTR is also regulated under the CAA as a major source of emissions in the State of Utah.

Table 2. DPG Air Emissions Inventory Totals for 2005

Process	PM10 (tpy)	PM2.5 (tpy)	SOx (tpy)	NOx (tpy)	VOC (tpy)	CO (tpy)	Lead (tpy)	Lead (lbs/yr)	NH3 (tpy)
Process & Fuel Emissions	0.584	0.476	31.096	12.752	0.294	2.718	0.001	1.088	0.346
Fugitive Emissions	11.152	10.067	0.234	8.344	25.932	8.204	0.026	52.612	-
Roads	332.510	49.828	-	-	-	-	-	-	-
Mobile Sources	0.265	0.265	0.451	4.078	0.194	1.625	-	-	-
Vapor Degreasers	-	-	-	-	0.207		-	-	-
Engines	1.042	1.042	1.280	16.567	1.218	3.665	-	-	-
Tanks	-	-	-	-	0.021		-	-	-
Totals	345.6	61.68	33.06	41.74	27.87	16.21	0.027	53.70	0.346

Table 3. UTTR Air Emissions Inventory Totals for 2005

Process	PM10	PM2.5	SOx	NOx	VOC	CO
External Combustion	0.01	0.01	0.00	0.19	0.01	0.16
Fuel Dispensing	0.00	0.00	0.00	0.00	0.19	0.00
Fuel Storage	0.00	0.00	0.00	0.00	2.25	0.00
Gravels Pits	1.27	0.44	0.00	0.00	0.00	0.00
Internal Combustion	0.44	0.44	0.41	6.28	0.50	1.35
Missile Testing (Static Fire)	3.98	3.98	0.00	0.35	0.00	0.01
Open Burn	18.18	18.18	0.00	0.11	1.77	0.01
Open Detonation	45.46	40.31	0.00	13.00	6.03	2.52
Ozone Depleting Chemicals	0.00	0.00	0.00	0.00	0.00	0.00
Roads	3.30	0.49	0.00	0.00	0.00	0.00
Surface Coating	0.00	0.00	0.00	0.00	0.02	0.00
Test and Training	20.00	9.23	0.00	0.11	0.00	0.00
Waste Solvent Reclamation	0.00	0.00	0.00	0.00	0.00	0.00
Totals	92.64	73.08	0.41	20.04	10.77	4.05

3.2.4 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the population at large. Sensitive receptors include health care facilities, retirement homes, schools, playgrounds, and child care centers. There are no such facilities or receptors within one mile of the JLENS test sites.

3.3 GEOLOGICAL RESOURCES

Geological resources include the physical surface and subsurface features including topography, soils, geologic hazards, and minerals.

3.3.1 Geology and Topography

The project area is located within the Great Basin subdivision of the Basin and Range Physiographic Province, which is characterized by a series of mostly isolated north-south trending mountain ranges that are separated by wide de-

sert plains. The Onaqui Mountains and Davis Mountains lie to the east of the project area. The Deep Creek Range lies to the west and marks the boundary of the Great Salt Lake. The Stansbury Mountains lie to the northeast of the Cedar Mountains. Elevations range from 4,200 feet above mean sea level at the edge of the Great Salt Lake to over 11,000 at Deseret Peak in the Stansbury Mountains (USDA, 2005).

The basin areas are broken by the topographic relief of the Cedar Mountains, Little David Mountain, Simpson Buttes, Camels Back Ridge, Wig Mountain, Granite Peak, and Sapphire Mountain. Two large playas, the DPG Playa and the Downwind Grid Playa, are located in the western and southern portions of the project area (U.S. Army, 2004).

The mountain ranges are composed primarily of Paleozoic era sedimentary rocks of marine origin and small exposures of volcanic and intrusive Tertiary igneous rocks with the exception of Granite Peak and the Simpson Mountains, which are composed mainly of Precambrian metamorphic and igneous rocks. The low-lying basin areas are filled with thick accumulations of sediment derived from erosion of the uplifted mountain ranges. The sediments consist of Tertiary to Quaternary alluvial, colluvial, lacustrine, eolian, and volcanic material.

Lake Bonneville, a large freshwater lake, covered much of western Utah and adjacent parts of Idaho and Nevada during the Pleistocene. Preserved segments of two major Lake Bonneville shorelines, the Bonneville and Provo, are evident in the eastern portion of the project area. The Bonneville shoreline is the highest of the lake's shorelines; its elevation varied across Skull Valley from approximately 5,230 feet in the southern portion of the valley to 5,310 feet in the northern portion of the valley. During the recession of Lake Bonneville, the Old River Bed, located in the southeastern portion of the project area carried drainage from the Sevier Desert toward the Great Salt Lake Desert (USDA, 2005).

3.3.2 Soils

There are 39 identified soil types within the project area. The UTTR-North Range, UTTR-South Range and the DPG West Desert Test Range are primarily covered by Playas and Playas-Saltair Complex soils.

The Playas are found on lake plains that are relatively barren, undrained basins subject to repeated inundation by water and salinization by evaporation of accumulated water. The soil material in the Playa is strongly calcareous, stratified silt, clay, and sand containing sufficient amounts of salt to limit or prohibit the growth of vegetation. The Playas-Saltair and Playas soils are a very deep and poorly drained soil that is also found on lake plains. This soil type is formed in alluvium and lacustrine sediments derived from mixed rock sources. The Playa water capacity is very low, while the Playas-Saltair water capacity is very low to low. Mudflat soils are poorly drained, strongly saline soils that consist of the Playas-Saltair Association. These soils are found on nearly level lake plains or basins that are subject to repeated salt water flooding and salinization by evaporation of accumulated salt water. Mudflat soils are usually smooth, crusted with salt, and patterned by cracks when dry. These soils are also strongly calcareous and have a silty clay, silty clay loam, or silt loam texture. Table 4 references the most common soil types, their description, and the project site where the soil type was identified during field data collection.

Most of the remaining soils are found covering slopes and upland areas. These consist primarily of silt loam, sand, gravelly-sandy loam, thin cobbly loams, and rock outcrops. Most of these soils are alkaline and covered with sparse vegetation. Very few of the soils that cover the project area are suitable for rangeland wildlife, cropland, or road and building site development or have very high range site productivity.

Table 4. Soils in the Project Area

Soil Name	Percent Slopes	Permeability	Runoff Potential	Water Erosion Hazard	Wind Erosion Hazard	Test Site Location
Cliffdown Gravelly Sandy Loam	2 to 15	Moderately Rapid	Medium	Slight	Moderate	Communication Line
Dynal-tooele saline complex	0 to 15	Moderately Rapid to Rapid	Very Slow to Slow	Slight	Moderate to Very Severe	Aerial Mission Operating Area; Mission Operation Support Area-UTTR
Playas						Aerial Mission Operating Area; Mission Operation Support Area-DPG
Skumpah Silt Loam	0 to 2	Moderately Slow	Slow	Slight	Moderate	Communication Line; S-6; Aerial Mission Operating Area; South Test Site
Timpie Silt Loam	0 to 2	Moderately Slow	Slow	Slight	Moderate	S-2; Communication Line; S-2 Road Access
Tooele Fine Sand Loam	0 to 5	Moderately Rapid	Slow	slight	Moderate	Communication Line

USAF, 2007; NRCS, 1992

3.4 WATER RESOURCES

Water resources include the surface and groundwater sources, water quality, and floodplains.

3.4.1 Groundwater

The major groundwater reservoir beneath the project area is the unconsolidated to partially consolidated basin fill, which is more than 1,000 feet thick and provides three major aquifers in the region – shallow-brine, alluvial-fan, and basin-fill.

The shallow-brine aquifer underlies the mud flat area of playa soils and consists of the upper 25 feet of lake bed clay, silt, and crystalline salt. Brine moves through the crystalline salt and the fractures in the underlying clay. Recharge to the aquifer is primarily from infiltration of precipitation and lateral inflow from adjacent basins. Discharge from the aquifer occurs by evaporation and by flow into brine-collection ditches. The alluvial-fan aquifer consists primarily of sand and gravel in surficial and buried alluvial fans along the flanks of mountain ranges such as the Newfoundland and Lakeside Mountains. Recharge to the aquifer is primarily from infiltration of precipitation and subsurface inflow. Discharge occurs by evapotranspiration where the aquifer is shallow, by pumping and flow from wells, and by subsurface outflow. The basin-fill aquifer consists of older alluvial sediments that underlies most of the project area at depth (Gates and Kruer, 1981). The alluvial-fan aquifer yields water of the highest quality, providing fresh to moderately saline water. Recharge to this aquifer is probably entirely by subsurface inflow from adjacent aquifers in the alluvial fans and bedrock. Discharge is primarily from pumping wells.

Shallow groundwater flow occurs in an approximate eastern direction and is characterized by a poor natural quality, due to the salinity and high total dissolved solids. The major constituents in the groundwater are calcium, potassium, magnesium and sodium bicarbonate. The principal source of recharge to the groundwater is from precipitation on the adjoining mountains. Recharge occurs primarily above an elevation of 4,600 feet MSL because most of the area below 4,600 feet MSL is underlain by fine-grained lakebed deposits of low permeability and of sufficient thickness to prevent much recharge to the older valley fill. Some underflow from adjoining valley fill and Paleozoic bedrock may also provide recharge.

The source of water for Oasis is from two groundwater wells located southwest of the Oasis facilities. The groundwater is treated by reverse osmosis before it is suitable for human use. Four additional wells (one for JLENS) are plan-

ned for the Oasis. The pressure and yield of the existing and new wells is more than adequate to support growth and construction on Oasis for additional missions.

3.4.2 Surface Water

No perennial streams originate in the project area, although there are perennial streams in the Deep Creek Mountains to the southwest, in the Pilot Mountains to the west, and in the Raft River, Grouse Creek, and Goose Creek Mountains to the north. Most precipitation (4.5 to 5 inches per year) quickly evaporates. However, puddles and ponding may occur on the alkali mud flats during periods of high precipitation. There are numerous perennial springs associated with the mountains, the most notable of which are Blue Lake and Mosquito Willy's on the UTTR-South Range and Fish Springs just south of DPG. On the ranges, any spring water or surface water flow generally infiltrates within a short distance, although minimal amounts of saline surface water (that has not transpired or evaporated) may seasonally flow into an internal basin where it evaporates further (Gates and Kruer 1981). Particularly in springtime, the mudflats are inundated with water from snow that has fallen locally as well as from snowmelt that runs off the surrounding mountains. During wet years, the UTTR-North Range mudflats may be flooded by rising water levels in the Great Salt Lake.

3.4.3 Floodplains

National Flood Insurance Rate Maps (FIRM) are not available for the project area; however, there are no permanent streams or other surface water within 1,000 feet of any of the project sites. The absence of any perennial or intermittent waterways or ephemeral washes would likely indicate the project area is outside any potential flood hazard zones. Surface water from precipitation flows through established drainage channels into the project area and evaporates. Like other arid regions, the project area is subject to flash flooding following heavy precipitation.

The FIRMs available for five communities in Tooele County (Stockton, Tooele, Vernon, Rush Valley, and Wendover) show that the maximum width of the 100-year flood plain for any drainage way, perennial or ephemeral, is less than 1,000 feet.

3.5 BIOLOGICAL RESOURCES

The biological resources of interest include the native and introduced plants and animals, and the vegetation communities on and in the vicinity of the proposed test sites. A thorough description of the vegetation communities and wildlife species of DPG is presented in the *Final Environmental Impact Statement for Activities Associated with Future Programs at U.S. Army Dugway Proving Ground* dated August 31, 2004, and of the UTTR in the *Environmental Assessment of Cruise Missile Test Operations at the Utah Test and Training Range, Final Report* dated September 14, 2000.

Field surveys of the natural resources of the JLENS test sites were completed during April and May 2007. This section describes the plant and animal species by common name that were identified during these surveys. Scientific nomenclature for the species is provided in the above references. Only distinct differences in communities and habitat among the sites are described separately by location.

3.5.1 Vegetation

Vegetation habitat types for the test sites (S-2 and S-6), access road, and communication line ROW located on UTTR-North and along Puddle Valley Road and Lambert Boulevard are shadscale/cheatgrass and greasewood. These xerophytic communities have widely spaced native shrubs of greasewood and shadscale. Cryptogams (spore plants such as lichens, mosses, and ferns) are growing throughout the area. Introduced (non-native) plants include buttercup, cheatgrass, pepper grass, fixweed, burdock, and kochia. With the exception of the ROW that parallels Lambert Boulevard, these sites are relatively undisturbed.

The mission operations support area on UTTR-South Range is a dunes habitat. The plant cover is sparse and consists of Indian rice grass, budsage, and shadscale, which are native plants, and halogeton, which is an introduced forb. The mission operations support area on DPG is a halophytic (plants adapted to living in a saline environment) habitat type with red swampfire, a native annual forb and iodine bush, a native perennial shrub as the dominant plants. Each of these areas had low disturbance in the location of the survey.

The habitat type in the aerial mission operating area on DPG is described as halophytic with an area of greasewood. The area supports native grasses, forbs, and shrubs such as salt grass, sedges, iodine bush, red swampfire, Gardner saltbush, rabbitbrush, and greasewood. Non-native plants include salt cedar, Russian olive, kochia, and Medusahead rye. As an existing target area, portions of this area have some ground disturbance.

The south test site is predominantly a greasewood habitat with shadscale and cryptogams. The area is largely undistributed desert pavement. Desert pavement is a desert surface that is covered with closely packed, interlocking angular or rounded rock fragments of pebble and cobble size.

3.5.2 Noxious Weeds and Invasive Species

Executive Order 13112 Invasive Species directs federal agencies to make efforts to prevent the introduction and spread of invasive plant species, which are usually destructive, difficult to control or eradicate, and generally cause ecological and economic harm. Invasive species are generally found in disturbed soil conditions. A noxious weed is any plant designated by a federal, state or county government as injurious to public health, agriculture, recreation, wildlife or property. The control of noxious weeds is regulated by the Utah Administrative Code (U.A.C.), Rule R68-9.

Cheatgrass and salt cedar are the two invasive species identified on DPG and the UTTR during the field surveys of the JLENS test sites. Cheatgrass increases fire frequency and intensity on rangelands, and degrades sagebrush and grassland habitats. It is invading DPG at a fast pace and is estimated to cover approximately 11 percent of the installation (U.S. Army, 2004). Salt cedar lowers stream flows and water tables, increases soil salinity, and displaces native species and wildlife habitat. Medusahead rye was the only noxious weed identified during the surveys. This annual grass crowds out native species and forage used by livestock.

3.5.3 Wildlife

The vegetation on and around the JLENS test sites provides habitat for a number of target wildlife species. Burrows and trails of rodents and larger mammals were observed during the field surveys. Small mammal trapping was conducted on the launch site since no existing data were available for that location. After three days of trapping, the antelope squirrel, deer mouse, western harvest mouse, and Ord's kangaroo rat were the small mammals observed, along with a western whiptail lizard.

3.5.4 Migratory Birds

Most birds are protected by the Migratory Bird Treaty Act (MTBA). The MBTA provides protection to birds and their habitat generally during nesting, roosting, and fledging of young. Partners in Flight was established in 1990 in response to growing concerns about declines in the populations of many land bird species, and in order to emphasize the conservation of birds not covered by existing conservation initiatives. Numerous birds were observed perched, foraging, hunting, socializing, and flying over the JLENS test sites during the field surveys. The least diversity of species was noted in the mission operations support areas on UTTR-South Range and DPG, and on the south test site in Millard County. The test sites, communications line locations, and the aerial mission operating area showed the greatest diversity of species, with herons, shorebirds, and grebes (white-faced ibis, long-billed curlew, American bittern, Wilson's snipe, and eared grebe) observed only at the aerial mission operating area. The sage thrasher and sage sparrow, two of the three species on DPG on the Partners in Flight Priority List, were observed on UTTR-North near the location of the test sites and communication lines, and on the aerial mission operations area on DPG in

greasewood habitat. Some of the other birds observed included horned lark, common raven, prairie falcon, American kestrel, loggerhead shrike, western meadowlark, northern harrier, rough-legged hawk, golden eagle, rock wren, Cooper's hawk, burrowing owl, red-winged blackbird, killdeer, and numerous different sparrow species.

3.5.5 Threatened, Endangered, and Special Status Species

The bald eagle receives protection under the Bald and Golden Eagle Protection Act. No other plants or wildlife listed as threatened or endangered occur on DPG. No endangered or threatened species are known to occur or were identified during natural resource site assessments on any of the JLENS sites associated with UTTR properties. Of the species designated as special status by the Utah Division of Wildlife Resources, only the peregrine falcon, burrowing owl, and long-billed curlew were observed during the field surveys.

3.6 CULTURAL RESOURCES AND NATIVE AMERICAN CONCERNS

Cultural resources collectively include archaeological, historic, and architectural resources, and locations associated with the traditional beliefs and events of Native American groups. These resources are pre-historic and historic structures, items, places, or events considered important to a culture or community for reasons of history, tradition, religion, or science. Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to consider the effects of their undertakings on cultural resources. Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR 800).

Cultural resources staff at DPG and Hill AFB has each prepared an Integrated Cultural Resources Management Plan (ICRMP) for their respective installations. These plans present the agencies' philosophy on how cultural resources should be recorded and managed at the installations. The cultural resources staff works closely with other units and tenants on their installations to ensure that the requirements of each ICRMP are met. DPG and Hill AFB have ongoing Tribal consultation programs with affiliated tribes as outlined in their respective ICRMPs in order to identify Traditional Cultural Properties within the area of potential effects. Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800). No Traditional Cultural Properties have been previously identified within the area of potential effects.

3.6.1 Archaeological and Historic Resources

Prehistoric habitation of the region spans some 11,000 years and is generally described by archaeologists in four periods that correlated with climatic shifts. These periods include Paleoarchaic, Archaic, Fremont, and Late Prehistoric.

The Paleoarchaic Period marks the onset of human occupation in the Great Basin. Occupations were widespread and generally located in low elevations along water sources. Groups were highly mobile in response to varying plant and animal abundance. Diagnostic artifacts of this period include fluted and stemmed projectile points.

The Archaic Period spans over 5,000 years and marks changes in human population size and adaptation. Sites indicate hunter-gatherers became more mobile with occupations near riverine resources in valley bottoms to upland habitats in mountain foothills. Netting was used to capture a wide variety of vertebrates, including mammals, fish, and birds.

The Fremont Period spans over 1,500 years during a time that humans exhibited high variability in behavior and adaptations. This period is defined by farming and habitation sites with structures and subterranean storage pits. The bow and arrow and ceramic pottery emerged as tools used in hunting, gathering resources, and processing tasks.

The Late Prehistoric Period marks the end of farming and return to foraging. Archaeological sites occur in a variety of environmental settings near riparian habitats and sheltered uplands. Most groups practiced low residential mobility but the number and distribution of sites suggests some peoples were highly nomadic. Changes in projectile point morphology and basketry occurred during this period, as well as the introduction of a paddle-shaped seed harvesting tool.

The Historic Period begins with the arrival of Euro-Americans in the area, with the expeditions of Jedediah S. Smith to California in 1826 as the first documented for western Utah. The Mormon pioneers arrived in the area in 1847 and the community of Tooele was established in 1849. The Pony Express operated from 1860 to 1861 on a route that passed south of DPG. Sheep and cattle ranching occurred during the late 1800s and early 1900s, and small gold, silver, copper, and zinc mining claims were scattered around the area in the late 1800s. Silver deposits discovered at the northern end of the Dugway Mountains prompted the construction of a smelter in 1876, which remained in operation for a couple of years. The Lincoln Highway, which passed through what is now DPG, was completed in 1919 as the first transcontinental highway from New York to San Francisco. The Lincoln Highway Bridge located on DPG is listed on the National Register of Historic Places (NRHP).

The land area that was to become DPG and the UTTR was withdrawn from public use in 1940 as part of a War Department aerial bombing and gunnery range. In 1942, DPG was established as a chemical weapon testing facility and Wendover Army Air Base was activated as a heavy bombardment training base and bombing range. Testing expanded at DPG in 1943 to include biological warfare research and cruise missile testing began in the 1970s at UTTR.

An abandoned military launch site consisting of a concrete blockhouse and a launch pad is located off the UTTR-North Range in close proximity to Diddle Knoll. This is the site of the first successful test of the supersonic ground-to-air pilotless aircraft (GAPA) missile. Between 1946 and 1947, 38 two-stage solid rocket-propelled aerodynamic test vehicles were launched from the GAPA Launch Site, which is now listed on the NRHP.

3.6.2 Archaeological Surveys and Results

There have been numerous investigations for cultural resources previously conducted within two miles of the JLENS test sites (test sites and communications line ROW) on the UTTR-North Range and on surrounding land in Tooele and Box Elder counties. There have been 12 sites identified within the two miles with seven of them recommended as eligible for the NRHP. The sites include undiagnostic pre-historic sites, pre-historic artifact scatter in a rock shelter, historic military site, and Euro-American transportation and/or communication historic sites. There have been three cultural resources inventories conducted within two miles of the mission operations support area on the UTTR-South Range in Tooele County. There were 16 sites (Paleoindian lithic scatters) recorded with six determined eligible for the NRHP. In Millard County in the vicinity of the SITLA parcel, four previous investigations revealed segments of two ditches that were not eligible for NRHP listing.

The JLENS test areas that had not been part of previous cultural resources investigations were surveyed in April 2007. These surveys encompassed over 1,700 acres for the test sites and the communications line ROW. There were no archaeological sites identified from the surveys but four isolated artifacts were recorded along the county road (Puddle Valley Road) leading to Oasis. These artifacts included a quartzite secondary flake, aqua glass utility line insulator, “Glasbake” mug base, and U.S. General Land Office section marker.

3.6.3 Native American Concerns

Many Native American people have inhabited or migrated through the area surrounding DPG and the UTTR. Ethnographic and historic accounts indicate the Goshute and possibly other tribes used the area until very recently for traditional purposes. Little other information is available regarding traditional use areas and sacred sites, thus DPG maintains relationships with local Native American tribes in attempts to identify and avoid sacred sites in carrying out its mission. There are numerous federally-recognized Native American tribes and bands with ancestral ties to the DPG area that are consulted. For activities occurring on the UTTR, the USAF also consults with additional tribes located in states further to the north and south of the UTTR.

3.7 HAZARDOUS MATERIALS

Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a danger to public health or the environment if released. When substances are not stored, transported, or otherwise managed, hazardous materials can affect human health and safety and the environment. The Occupational Safety and Health Administration regulates the safe use of hazardous materials in the workplace and at construction sites. Other environmental, safety, and public health issues associated with hazardous materials are regulated by the EPA through specific criteria applied to areas such as air emissions and water discharge.

The UTTR and DPG both maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan that establishes procedures for spill reporting, containment, cleanup, and disposal. Numerous hazardous materials are stored and used by the Air Force and Army in support of its mission activities. Fuels, oils, solvents, paints, thinners, lithium batteries, chlorine, and sulfuric acid are examples of hazardous materials that are typically used to support operations.

The Air Force controls the use of hazardous materials through a hazardous materials management program that tracks the material from the purchase request stage through its end use or disposal. After a hazardous material arrives at the Air Force's central receiving, information about the chemical is entered into a database and classified as not hazardous, hazardous requiring tracking and included in the Hazard Communication Program, or hazardous requiring authorization for use. Hazardous materials may be recycled or treated as hazardous solid waste and disposed.

Aboveground storage tanks (ASTs) are governed by 40 CFR Part 112. Various types of petroleum fuels are currently used and stored by the installations. Both DPG and the USAF maintain Pollution Prevention Plans and SPCC plans and manage ASTs in accordance with agency applicable instructions and guidance. Bulk petroleum products are generally stored in organizational tanks when operational inconveniences or impracticalities make it difficult to get fuel from centralized base fuels facilities. Organizational fuel tanks can be fixed or portable and used to issue fuel for generators.

The DoD's Defense Environmental Restoration Program (Air Force Instruction 32-7020) requires installations to identify, confirm, quantify, and remediate suspected problems associated with past hazardous material disposal sites. The Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act (42 U.S.C. 9601, *et seq*.) provides federal agencies with the authority to inventory, investigate, and clean up uncontrolled or abandoned hazardous waste sites. Areas that may be contaminated by hazardous materials or wastes through spills or leaks caused by DoD activities are being investigated and cleaned up through the Installation Restoration Program (IRP). The IRP is the Air Force's Comprehensive Environmental Response, Compensation, and Liability Act-based environmental restoration program. There are no IRP sites located on any of the JLENS test sites or on any adjacent properties.

3.8 SOLID AND HAZARDOUS WASTE

Solid waste generated by the Air Force and Army is regulated under the Subtitle D regulations of the Resource Conservation and Recovery Act (RCRA), Utah Solid Waste Management Act (Title 19, Chapter 6, U.C.A.), and Solid Waste Management Regulations (R315-301 U.A.C.). Solid waste can be either hazardous or non-hazardous. Hazardous solid waste is disposed of in a properly permitted RCRA facility or collected and recycled by a vendor. Recyclable items typically include oil, oil filters, antifreeze, batteries, silver, solvents, and hydraulic fluid. Oil filters are collected for oil and metal reclamation. Non-hazardous solid waste refers to any physical forms of waste (solids, liquids, semisolids, or gases) that are not regulated as RCRA hazardous wastes and are disposed of by landfilling or incineration, or are recycled or recovered. Solid wastes generated at facilities in the project area are placed in dumpsters and picked up as needed by contractor personnel.

Generally, a hazardous waste is generated when a hazardous material is spilled, spent, or contaminated to the extent that it cannot be used for its original purpose, or cannot be converted to a useable product. Hazardous wastes are managed in accordance with RCRA regulations, Utah Solid and Hazardous Waste Act (Title 9, Chapter 6, U.C.A.), and Hazardous Waste Management Regulations (R315-1 U.C.A.). Hazardous wastes are generated at DPG and the UTTR during daily routine operations and maintenance activities. The wastes are collected at the generation site or taken to a satellite accumulation point. Oasis and Hill AFB both have 90-day storage facilities. Hazardous waste from the 90-day storage facility or satellite storage areas at Oasis are manifested and shipped by the hazardous waste contractor directly to the hazardous waste disposal facility.

3.9 AIRSPACE

Airspace use is governed by federal legislation and by federal and military regulations and procedures. The final authority in assigning airspace is the Federal Aviation Administration (FAA). Airspace for military use is established by the FAA at the request of the DoD. The UTTR is the largest DoD special use airspace within the continental U.S. when airspace starting at or near the surface is considered and lies above ground managed by the DoD, other federal agencies, the State of Utah, and private lands. The UTTR airspace encompasses 16,651 square miles over 2,751 square miles or 1,760,765 acres of DoD land. The DoD ground is owned and managed by the Air Force (North Range at 368,875 acres) and (South Range at 589,775 acres) and by the Army (DPG at 802,115 acres). The UTTR is located in western Utah and eastern Nevada occupying much of Box Elder, Tooele, Juab, and Millard Counties and extending slightly into Beaver County in Utah and in Elko and White Pine Counties in Nevada. The UTTR airspace includes both restricted area and military operating area airspace.

The airspace is used by all military services to fly more than 22,000 training and 1,000 test sorties annually. The UTTR also provides support capabilities for testing and evaluating cruise missiles, unmanned air vehicles, munitions, and weapons systems.

3.10 VISUAL RESOURCES

Visual resources include the physical (natural and artificial) and biological features of the landscape that contribute to the scenic quality of an area. Scenic quality is a measure of the visual appeal of the landscape and is perhaps best described as the overall impression retained after passing through an area. Although relative values can be used to evaluate scenic quality, visual appeal is subjective and can vary among observers.

The visual character of the area around the JLENS test sites is typical of the Great Salt Lake Desert. The area is characterized by isolation, remoteness, expansive open space, and dramatic basin and range landforms. Although the desert basin is relatively flat, isolated mountain peaks and north-south mountain ranges are visible. The most visible (i.e., nearby) peaks and ranges include Diddle Knoll and Grassy Mountains generally to the east of the test sites, Granite Peak and Dugway Range to the east-southeast of the aerial mission operating area, and Snake Range

and Conger Range to the west and east, respectively, of the south test site. Visible manmade elements in the vicinity of the test sites include roads and trails, power lines, railroad tracks, fences, and DPG and UTTR test facilities.

In the summer, views of Great Salt Lake Desert are characterized by scrubby low-growing gray-green vegetation, reflective sand or mud flats, distant mountains, and an intense blue sky. Winter views can be monochromatic gray when weather inversions result in dense fogs. Also typical are clear blue skies above the gray-brown dormant desert with snow-capped mountain peaks in the distance.

Lands managed by BLM are classified based on relative value of the visual resource. Visual resource management (VRM) Class I and Class II are the most valued, Class III represents a moderate value, and Class IV is of least value. The objective of these classes is to limit future impacts on the visual and aesthetic character of the public land. Activities on DoD, state, or private lands adjacent to BLM land are not restricted by the VRM classifications.

The BLM lands adjacent to the JLENS test sites are Class IV, which allow activities involving major modification to the existing landscape character. Class III lands are located in the mountain ranges that surround DPG and UTTR and in the Bonneville Salt Flat north of Interstate 80. Class II lands are located in the Fish Springs Range and Deep Creek Range south and west of DPG.

3.11 TRANSPORTATION

Transportation systems facilitate the movement of people, goods, and materials on the ground or through the air. For transportation systems to be adequate, users must be able to reach their destination within reasonable limits of time, cost, and convenience. Several transportation corridors cross or come close to the project area, including three railroad corridors (Southern Pacific Lucin Cutoff, Western Pacific, and Union Pacific) and four east-west highway corridors (UT-30, I-80, US-6/50, and UT-21). The main initial access route to the project area is Interstate 80. Numerous county and other roads provide access to other areas beneath the UTTR airspace. Approximately 125 miles of these roads are paved, whereas the others are dirt with varying amounts of gravel. The roads vary in design but some are well-crowned and more usable under wet conditions that others. Within the Air Force and Army ranges, improved access routes are generally utilitarian and associated with specific frequent activities. Elsewhere on the ranges, ground vehicular access is difficult because the area is isolated and undeveloped, the environment is harsh, and the mud flats provide a very poor road base.

3.12 NOISE

Noise pollution is regulated by the *Noise Control Act (NCA) of 1972*. The NCA requires federal facilities to implement measures to reduce noise emissions. Generally, federal agencies whose activities result in increased environmental noise in the surrounding community are responsible for compliance with state and local environmental noise requirements. The State of Utah has no noise control regulations, although Utah Code 10-8-16 gives cities the authority to develop noise control regulations or standards. Sounds that disrupt normal activities or otherwise diminish the quality of the environment are designated as noise. Noise can be stationary or transient, intermittent or continuous.

3.12.1 Noise Descriptors

Community response to noise is not based on a single event, but on a series of events over the day. Factors that have been found to affect the subjective assessment of the daily noise environment include the noise levels of individual events, the number of events per day, and the time of day at which the events occur. Most environmental descriptors of noise are based on these three factors, although they may differ considerably in the manner in which the factors are taken into account. Three types of noise measures are used to describe impacts on an existing environment. These include the decibel, the equivalent sound level, and the day-night average sound level. These measures and their application to noise environments are discussed below.

A decibel (dB) is the physical unit commonly used to describe instantaneous sound levels. Sound measurement is further refined by using an "A-weighted" decibel (dBA) scale which emphasizes the audio frequency response curve audible to the human ear. Thus, the dBA measurement more closely describes how a person perceives sound. For example, typical noise levels include a quiet urban nighttime (40 dBA), an air conditioner operating 100 feet away (55 dBA), and a heavy truck moving 50 feet away (85 dBA).

Equipment noise impacts to nearby receptors during a typical day is normally measured over an 8-hour time period, using the equivalent sound level (L_{eq}). There are two basic considerations for protecting the community from increased noise from short-term sources. To protect human health, noise levels must not exceed limits identified with potential loss of hearing. An L_{eq} of 75 dB sustained over 8 hours for 250 days or more per year can cause hearing loss to a general population over a prolonged time period (about 40 years) (WHO, 1995; U.S. EPA, 1974). The other consideration for protecting the public is noise interference with activity, or annoyance. The L_{eq} is normally averaged over 24 hours ($L_{eq\ (24)}$) to assess annoyance. The level of annoyance or interference depends on the setting in which the increased noise takes place, for both indoor and outdoor activities. Thresholds for various uses vary from 45 $L_{eq\ (24)}$ within hospitals, educational facilities, residences, and other locations based on a quiet use to 55 $L_{eq\ (24)}$ for outdoor exposure in recreational, commercial, and industrial areas (U.S. EPA, 1974). Communities that typically experience higher noise levels generally tolerate higher increases in noise (typically 5 dB more) without complaints.

Because noise could be continuous, steady or fluctuating, intermittent or impulsive, and because human response to noise is extremely diverse, the EPA examined noise evaluation methods that could be employed for the protection of public health and welfare with a reasonable margin of safety (U.S. EPA, 1974). The EPA recommended use of the L_{dn} as a descriptor of the 24-hour daily noise environment. The L_{dn} is the energy-equivalent average A-weighted sound level over a 24-hour period, with a 10 dB penalty added to noise that occurs during the hours of 10:00 p.m. to 7:00 a.m. because nighttime events are considered more annoying than noise occurring during daytime. This measurement is used extensively to assess non-impulsive noise environments and has been adopted in various guidelines for land-use compatibility, such as by the EPA, Department of Transportation, Housing and Urban Development, and the DoD. Ambient L_{dn} levels in remote uninhabited areas would typically range from 33 dB to 40 dB. The L_{dn} measurement is used extensively to assess the noise environment caused by aircraft operations around civilian and military airfields and has been adopted by the USAF as the measure for noise regulations.

The other developments of L_{dn} are applicable to aircraft noise in other circumstances, such as measuring noise caused by low-level sorties and measuring noise from sonic booms caused by supersonic flights. Noise caused by low-level flying is measured by the onset-rate adjusted monthly day-night average sound levels (L_{dnmr}), which is identical to L_{dn} except that a penalty of up to 5 dB is applied to aircraft noise events that have a more sudden rate of onset (which could induce a surprise effect on humans), and the average daily noise is evaluated for the calendar month with the highest number of low-level overflights.

3.12.2 Existing Noise Conditions

Noise produced by aircraft during takeoff and landing operations fall within a broad range of "transient" noises, which come and go in a finite period of time. Dependent primarily on the type of aircraft, the type of operations, and distance from the observer to the aircraft, the maximum fly-over noise levels vary widely in magnitude. The noise can range from levels undetectable in the presence of other background noise, to levels sufficiently high to create feelings of annoyance or to interfere with speech or sleep. The duration of the noise would also vary depending on the proximity of the aircraft, speed, and orientation with respect to the observer.

Noise in the project area results from several primary sources and activities including aircraft noise and sonic booms from air testing and training activities; detonations from conventional munitions; artillery firing from conventional munitions; and demolition and construction activity. Almost all of the land under the flight operation area is rural countryside with low background noise levels, but with existing conditions of sporadic overflight by low-level military aircraft.

Estimated L_{dnmr} noise exposures from low-level operations in the project area range from 50 dB to 64 dB in the over-flown valleys and less in the adjacent mountain areas (USAF, 2000b).

Since aircraft do not fly along fixed routes, the existing aircraft activity within the UTTR is not well defined. With the exceptions of avoiding identified noise sensitive areas and altitude minimums and maximums, the aircraft are free to maneuver throughout the area. However, the Air Force has evaluated noise exposure on the UTTR-South range using ROUTEMAP which is computed using the number of flights, aircraft types, flight altitudes, speeds, and engine power settings. The ROUTEMAP contours previously generated for the UTTR-South Range indicated noise contours of L_{dnmr} 65 dB predominantly along the eastern boundary due to a concentration of flight activity en route to target areas. Of the towns and ranches located under the UTTR-South Range airspace but outside of DoD controlled lands, only three ranches were estimated to have noise exposures of 65 L_{dnmr} or greater due to aircraft operations. Estimates of aircraft noise indicate that the towns of Callao, Trout Creek, Gandy, and Eskdale lie within a range of 60 to 62 dB L_{dnmr}, and the town of Partoun has an L_{dnmr} of 57 dB due to aircraft noise. The number of persons expected to be highly annoyed under the baseline aircraft noise conditions was estimated to be 16 residents from a total of 385 residents located within the UTTR-south airspace (USAF, 2000b).

Because aircraft operations can generate high noise levels causing complaints from the public, the 388th Range Squadron sponsors an annual three-day community outreach tour to residents in three small outlying communities under the UTTR (Wendover and Callao, Utah, and Montello, Nevada). The outreach program has been ongoing for a number of years with a goal to explain the activities on the UTTR and listen to their concerns in an attempt to improve community relations. This has been a successful program with positive results and communication between the Air Force and residents.

3.13 SOCIOECONOMICS

The majority of the workforce to support the JLENS program is anticipated to live in Tooele County; therefore, the socioeconomic study focuses on Tooele County. Tooele County had a 2005 population of 52,133 according to the Utah Department of Workforce Services, which was up 4.1 percent from 2004. Tooele County is the second largest county in Utah in terms of land area, with 6,923 square miles. Salt Lake and Utah counties bound Tooele County to the east, Juab County to the south, Davis and Box Elder counties to the north, and to the west the State of Nevada. Three-fourths of the population lives in the eastern valleys where most of the irrigated and dry farm land is located. The western sectors make up the Great Salt Lake Desert and are more arid and generally uncultivated. Tooele County includes seven municipalities: Grantsville City, Ophir Town, Rush Valley Town, Stockton Town, Tooele City, Vernon Town, and the city of Wendover. Within Tooele County, the Tooele Valley includes the majority of the resident population base and has been the fastest growing area in Utah since the last Federal Census (2000). Tooele County was also reported to be the third fastest growing county in Utah over the period 1990 to 2000 (Tooele County, 2007). Population growth is expected to continue in the medium to long term, with projected growth rates at or above 5 percent per year from 2005 to 2020.

The workforce at DPG includes approximately 1,200 personnel which are 5 percent Army military personnel; 40 percent civilians employed by the Army; 40 percent contractors to the Army; 10 percent non-mission related personnel (Postal Service, Tooele County Schools, credit union, etc.); and 5 percent Air Force military personnel, contractors, or civilians employed by the Air Force.

Land surrounding the project area is owned or managed by federal, state, and tribal governments or by private individuals. The lands are used to a limited extent for commercial and residential purposes and for recreation, and are supported by limited infrastructure. The project area is in an isolated location with large parcels of lands managed by the DoD and BLM. Population in the project area is less than 2,000 with most people living in small communities.

3.13.1 Housing

This section discusses residence patterns of DPG personnel and describes Tooele County housing characteristics. A total of 16,973 housing units, including those at DPG, exist in Tooele County (as of 2005 county assessor data). According to the county assessor's office, Tooele County has 201 duplexes and fourplexes and 70 apartment complexes. Duplexes, fourplexes, and apartments are in high demand. Tooele County currently has a 5 percent vacancy rate for housing units.

There are approximately 512 housing units in service at DPG, along with dormitories that provide about 200 rooms. English Village is a self-contained residential community at DPG. English Village includes housing for families and unaccompanied personnel and community support facilities for personnel and their families assigned to DPG. The following table shows the housing available on DPG.

Table 5. Housing Units at DPG and Oasis

Subdivision	Number of Units	Number of Bedrooms	Year Built
Wherry	340	2, 3, 4, & 6	1959
St. John Park	66	3	1964
Mountain View	103	2, 3, & 4	1987
Armitage	3	3 & 4	1956/1987
Total Housing Units at DPG	512		
Oasis	80-100 units		

Source: Allinson, 2007

Federal and contractor personnel assigned to DPG are eligible to apply for family housing. Monthly rents vary by size of unit and are established by periodic housing market surveys conducted by the U.S. Army Corps of Engineers to determine prevailing rent rates in nearby communities. Transient housing is necessitated by the distance from DPG to overnight lodging facilities in Tooele or the Salt Lake City metropolitan area. Transient housing at DPG includes 30 family housing units, the Antelope Inn which has 44 rooms, and the Desert Lodge with 60 rooms.

3.13.2 Schools

The Tooele County School District, based in the City of Tooele, is responsible for public primary and secondary education throughout the county. The district operates 23 schools, including Dugway Elementary and Dugway High Schools. The two schools on DPG also serve students from the surrounding area including Terra and Skull Valley.

At the beginning of the 2003-2004 school year the District's total kindergarten through 12th grade enrollment was 11,039 students. The District's enrollment has risen sharply in recent years due to population growth in the northeastern portion of the County. The District's enrollment for 2005-2006 was 11,793. During 2006, the District completed construction of Rose Springs Elementary and made significant progress toward the completion of Clarke Johnsen Junior High School and the substantial remodel of Grantsville Junior High School. There are plans for a new high school in Stansbury Park. Even with these new schools, area schools are projected to operate at 97 percent capacity in 2008-2009. Elementary schools in the District are currently averaging 94 percent capacity (2007) with a projected 102 percent capacity by the end of 2009 (Johnson, 2007). The District is preparing to address the issues related to new growth by adding additional school buildings. The issuance of general obligation bonds plus ongoing capital funding from taxes and state capital equalization would be used to construct, renovate, and maintain facilities to address anticipated growth for the foreseeable future. In the near future, the District is planning to build elementary schools in Grantsville and Stansbury Park and possibly another elementary school elsewhere in Tooele.

Federal and state aid increases are a reflection of increased funding for specific programs and increased student enrollment. State aid increased by 11 percent. Estimated new growth for the next five years is expected to add

3,352 students to the District's current enrollment; this is an overall student increase of 28.4 percent. Tables 6 and 7 show enrollment information based on counts taken on October 1 of each year (UT State Office of Education, 2007).

Table 6. Tooele County School District Actual Enrollment

School Year	Enrollment	Percent Increase
2002-2003	9,989	6.19%
2003-2004	10,507	5.19%
2004-2005	11,039	7.04%
2005-2006	11,793	6.83%
2006-2007	12,507	6.05%
Tooele County School District Estimated Enrollment		
2007-2008	13,142	5.08%
2008-2009	13,819	5.15%
2009-2010	14,470	4.71%
2010-2011	15,145	4.66%
2011-2012	15,781	4.20%

Table 7. DPG School Capacity

School	Grades	Student Capacity	Staff 2006-2007	2000-2001 Enrollment	2006-2007 Enrollment
Dugway Elementary	K-6	300	7	153	144
Dugway Junior/Senior High	7-12	325	10	135	124
Total	625				

3.13.3 Employment

Key measures of the economic strength of a given region include the number of individuals employed, employment growth, economic diversification, the rate of unemployment, and per capita income. Employment in Tooele County is based on four main types of industry according to the Employment Distribution of 2000: Government and Local Government (Federal Defense – Tooele Army Depot and Dugway) – 30.9 percent; Trade (restaurants, grocery stores, department stores) – 19.4 percent; Services (health care, engineering services, and business services) – 17.5 percent; and Manufacturing – 13.3 percent. Some of the largest employers include Tooele County School District, Dugway Proving Grounds, EG&G Defense Materials, Detroit Diesel, Magnesium Corporation of America, Wal-Mart, Tooele County, Tooele Valley Regional Medical Center, Battelle Memorial Institute, and Envirocare of Utah.

In 2005 the per capita income in Tooele County was $22,215 compared to the state per capita income of $27,321 (Bureau of Economic Analysis, 2007). The per capita income is a measure commonly used to compare incomes of different areas and is calculated by dividing the total personal income of an area by the total population. The unemployment rate as of March 2007 was at a low of 2.8 percent (Utah Department of Workforce Services, 2007).

3.14 ENVIRONMENTAL JUSTICE

To address environmental justice issues, federal agencies must identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations (Executive Order 12898). An environmental justice (EJ) population is defined as a population being at least half minority status or at least half low-income status, or this status is meaningfully greater than the general population. A minority is defined as Black or African-American, Hispanic or Latino, Asian, American Indian and Alaskan Native, Native Hawaiian and other Pacific Islander. The U.S. Census Bureau defines the average poverty threshold as a maximum annual income of $17,603 or less for a family of four for the year 2000 (U.S. Census, 2000).

The JLENS test sites are within the counties of Box Elder, Juab, Millard, and Tooele. Data from five census tracts encompassing the test sites are compared in Table 8 to the population and income characteristics of these counties using the 2000 census data. These census tracts are defined as the area of potential effect of the JLENS testing. Although the census tracts surrounding the JLENS test sites are more racially diverse, the one to two percent increase would not be considered meaningfully greater, and thus, no minority or low-income populations meet the definition of an EJ population in the census tracts or the counties.

Table 8. Population and Income Characteristics

Area	Total[1]	White	Black	American Indian[2]	Asian	Pacific Islander	Hispanic	Other	Median Household Income[3]
CensusTracts[4]	24,427	21,646	424	677	140	43	2,249	1,097	$38,242
Percent of Total Population[1]		88	1	2	<1	<1	9	4	
Counties[5]	104,123	95,637	617	1,959	740	135	8,113	3,721	$37,158
Percent of Total Population[1]		91	<1	1	<1	<1	7	3	

[1] Does not equal total population or 100% by race and ethnicity because of census reporting by individuals.

[2] Data represents ethnic grouping of American Indian alone or in any combination.

[3] Data represents median income of all tracts/counties.

[4] Includes tracts 9601-Box Elder County, 102-Juab County, 9742-Millard County, 1306 and 1307-Tooele County.

[5] Includes Box Elder, Juab, Millard, and Tooele counties.

Source: U.S. Census Bureau, 2000a, 2000b, 2000c

The estimated 2006 population of Box Elder, Juab, and Tooele counties increased by 9 percent, 12 percent, and 23 percent, respectively, whereas Millard County population decreased slightly. Although race data are not available for the counties, it is assumed the proportion of minority populations has not reached the threshold of an EJ population.

3.15 LAND USE

The JLENS test sites, with the exception of the south test site, are on military lands closed to the public and are used for military personnel and weapons systems training and testing exercises for national defense. Operations include air-to-air operations, air-to-surface operations, visual and radar bombing, and tactical maneuvers to test equipment and train personnel. The majority of lands surrounding the test sites are publicly accessible, although some land in the vicinity is privately owned.

Most of the project area is isolated and undeveloped because of the harsh physical environment. Agricultural activities in much of the project area are constrained because of limited arable land. The isolation and harsh physical environment characteristics are ideal for military land uses. Federal lands surrounding the project area are managed by the DoD and the BLM. The BLM manages the land for multiple uses as directed under the Federal Land Policy and Management Act of 1976. Some of these uses include livestock grazing, wildlife management, mining, and recreation (USAF, 2000b).

Recreation on lands adjacent to and near the DoD land boundaries is generally associated with the mountain ranges, springs, and seeps in the basin. There are few developed facilities but the primitive camping, trails, and off-road vehicle access provide opportunities for pristine solitude and 100-mile vistas. Although much of the land administered by the BLM is open to off-road vehicle (ORV) use, some sensitive areas are closed to ORVs or have restrictions on them. The backcountry routes that BLM has designated as backways or byways are undeveloped dirt roads but in good weather are passable in two-wheel drive vehicles. The Bonneville Salt Flats speedway is also managed by the BLM. There have been no major conflicts regarding trespass on DoD lands for recreational activities because the ranges are remote, the nearby population is sparse, and there are large tracts of nearby land available for public access.

The south test site is located on land owned by the State of Utah. The U.S. government transferred ownership to more than seven million acres of federal land in Utah at statehood in 1896. Since then, about half of the granted lands have been sold to private owners. The SITLA currently manages 3.5 million acres of trust lands scattered throughout the State in a checkerboard pattern that was the result of the federal government's grant of sections 2, 16, 32, and 36 of each township. These trust lands are managed with the single purpose of providing financial support for 12 institutions of which the Utah public school system is the largest beneficiary. The SITLA section in Millard County proposed for the south test site is permitted for grazing use. Millard County contains almost 403,000 acres of trust lands.

3.16 RANGE MANAGEMENT

Range management is the federal program that permits livestock grazing operations on public lands. This section discusses the extension of that program onto state lands.

Congress enacted the Taylor Grazing Act in 1934 to provide for the orderly use, improvement, and development of public rangelands. The Act allowed the establishment of grazing allotments and the issuance of permits to graze livestock. The SITLA parcel in Millard County is surrounded by BLM land and is within the Knoll Springs allotment, which covers approximately 34,000 acres. The Knoll Springs permittee is Baker Ranches, Incorporated.

The BLM manages the rangeland resources according to the Standards for Rangeland Health and Guidelines for Grazing Management. Grazing allotments are categorized to establish management priorities to achieve cost-effective improvement of rangeland condition and production. Allotments are categorized as "maintain", "improve", or "custodial". The Knoll Springs allotment is categorized as "maintain", which generally indicates the present range condition and management are satisfactory. The allotment has a permitted active preference of approximately 1,000 animal unit months (AUMs). An AUM is the standard measure of forage utilization, which is the amount of dry forage required to feed a mature cow (or its equivalent) for one month. However, the actual use has averaged slightly over 300 AUMs (BLM, 1986). This variation is typically due to available forage, environmental conditions, livestock prices, and business decisions made by the livestock operators.

The SITLA section is included in the Knoll Springs allotment under an exchange-of-use grazing agreement. This agreement is issued in situations where the permittee owns or controls lands that are unfenced and intermingled with BLM lands in the same allotment. In this case, the permittee (Baker Ranches) controls the SITLA section via a grazing permit from the State. Under terms of the exchange-in-use agreement, the allotment management plan prepared by the BLM for the Knoll Springs allotment controls the permittee's use of the SITLA section. The grazing permit issued to Baker Ranches by the State provides for up to 27 AUMs for cattle for winter grazing use. The permittee currently pays $3.55 per AUM or approximately $100 annually for its grazing permit for the SITLA section.

3.17 FIRE MANAGEMENT

The Oasis Fire Department under the 75th Civil Engineering Group provides fire prevention and protection for the UTTR. The department responds to aircraft and structural fires and wildland fires, and is also tasked with responding to hazardous materials incidents, natural disaster incidents, medical emergencies, munitions and missile testing standbys, as well as standbys on incoming aircraft.

To reduce the possibility of a range fire and limit the extent of any fire started by mission activities, certain standard procedures are followed on the UTTR. A series of fire breaks a minimum of 15 feet wide have been cut along the perimeter fence and crisscross the range. The firebreaks are maintained annually and are designed to control potential fires that may occur during range operations. Fire breaks also serve as emergency egress routes for personnel on the UTTR.

Controlled burns are performed as needed around the UTTR operational area to clear brush and other vegetation away from testing and training sites more at risk of fires. The burn area is bounded by fire breaks.

The DPG Fire Department has two tankers used to fight fires in locations away from continuous water supplies. Each tanker has a capacity of 1,200 gallons and can be refilled from water storage tanks located in the developed portions of DPG.

On the adjacent public lands, the BLM manages wildfires to protect life, property, and high-risk resource values within the framework of applicable laws, regulations, and agency policies. Fires are managed in accordance with current fire management plans of the Field Offices, which detail prescriptions for or limitations on fire suppression, including areas where fire would be completely suppressed or allowed to burn. Areas of Puddle Valley and Ripple Valley (south of Oasis and in the vicinity of the test sites) support desert shrub/annual grass vegetation that could have potential for rehabilitation and thus prescribed fires could be used on a site specific basis.

Fire management on the private lands around DPG is approached with the primary goal of protecting structures and pastures. Therefore, disking is commonly used to create firebreaks and prevent the spread of fires. There is considerable coordination for joint wildland fire management among DPG, USAF, BLM, and private landowners, and thus the Oasis and DPG Fire Departments have mutual aid agreements with local volunteer fire departments and the BLM for fire-fighting response.

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CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter discusses the potential for significant impacts to the human environment as a result of implementing the Proposed Action or No Action Alternative. As defined in 40 CFR 1508.14, the human environment is interpreted to include natural and physical resources and the relationship of people with those resources. Accordingly, this analysis has focused on identifying types of impacts and analyzing their potential significance.

The concept of "significance" used in this EA includes consideration of both the context and the intensity or severity of the impact, as defined by 40 CFR 1508.27. Severity of an impact could be based on the magnitude of change, the likelihood of change, the potential for violation of laws or regulations, the context of the impact (both spatial and temporal), and the resilience of the resource. Significant impacts are effects that are most substantial and should receive the greatest attention in decision making. Impacts that are not significant result in little or no affect to the existing environment and cannot be easily detected. If a resource would not be affected by a proposed activity, a finding of no impact was declared. If a resource would be measurably improved by a proposed activity, a beneficial impact was noted.

This chapter is organized by resource element in the same order as introduced in Chapter 3. For each resource section, the analysis methods are described, significance criteria are defined, and the potential impacts are presented (as warranted, separated into site-specific subsections) for the Proposed Action and No Action Alternative, and then mitigation measures.

The proposed JLENS activities would proceed with other ongoing and future programs in the project area. The additive effect of the actions could result in cumulative impacts to the biological, physical, and socioeconomic environment. The significance of the individual impacts of the JLENS program, when considered collectively with the potential impacts of other actions, may change. Cumulative impacts are addressed at the end of this chapter.

4.2 AIR RESOURCES

The analysis was based on a review of existing air quality in the region, information on DPG and UTTR air emission sources, projections of emissions from the construction and ultimate operation of the JLENS project, a review of Federal regulations and of the state regulations and requirements per the Utah Administrative Code, and the use of air emission factors from USEPA or similar sources.

The significance of impacts to air quality is based on federal and state pollution regulations and standards. Significant impacts could occur if there were a violation of the NAAQS or an excessive or frequent exposure of sensitive receptors to increased pollutant concentrations due to high emission rates or proximity to a source. A beneficial impact to air quality would occur if there were a reduction in baseline emissions.

4.2.1 Impacts – Proposed Action

The proposed action would include construction of the target storage and maintenance building on DPG. The 9,900 square foot facility would house one diesel-fired emergency generator. The DPG Title V Operating Permit #4500003002 characterizes all diesel, propane, gasoline and emergency generators as significant sources, regardless of size (R307-415-4(3)). Any new generators installed at this new building would require modification to the existing Title V (R307-415-7e). Generator use is subject to specific monitoring, recordkeeping, and general reporting.

Two test sites would be constructed at the UTTR-North Range. Each site would require four 840kW military generators (only three would operate at one time). Per UTTR Title V Operating Permit #300036002, dated 19 Jun 06 for the UTTR location, generators larger than 400kW power output cannot be added without permit modification (R307-415-7f). Generator use is subject to specific monitoring, recordkeeping, and general reporting.

Three 60kW generators would be installed at the south test site (two would be operational and one would be used as a backup). Temporary generators do not require any permitting action and therefore were not considered in this analysis.

Air emissions from bombing activities at the UTTR are based on the number of test sorties and bomb payloads. The emission estimation methodology used to estimate the emissions from bombing activities at the UTTR is based on the *Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations.* Currently, approximately 22,000 sorties (including take offs and landings) are conducted as part of bombing activity training. An increase of approximately 30 sorties annually to support the JLENS testing is expected, which would result in a negligible increase in aircraft emissions.

Gravel pit operations to mine material for construction of test pads and access roads are estimated at approximately 960 shift-hours total. The UTTR Title V Operating Permit #300036002, dated 19 Jun 06 describes special provisions for the Range Maintenance – Fugitive Emission Sources (emission unit #18). This emission unit includes range-wide destruction of unexploded ordnance and operation of gravel pits. During permitted gravel pit operations, adherence to the Hill AFB Fugitive Dust Control Plan (Jan 04) is required. The plan is written in accordance with guidelines defined by R307-205, Emission Standards: Fugitive Emissions and Fugitive Dust.

A 100-day construction effort for test pad construction and access roads, including vehicular traffic, is expected for gravel transportation and placement. Fugitive emissions are expected to be generated during these operations. Observance of the Fugitive Dust Control plan for construction, demolition, and unpaved roads use is also required. There would be minimal long-term impacts with temporary emission increases during construction. Two stationary sources would be added and permit modification would be required.

4.2.2 Impacts – No Action Alternative

If the JLENS testing does not occur, air quality in the project area would remain unchanged.

4.2.3 Mitigation

Taking into account the normal application of best management practices during construction of the test sites, such as dust control, the impacts to air resources would be minimal and not significant. Best management practices outlined in the fugitive dust control plan would be implemented. No mitigation measures are necessary or suggested.

4.3 GEOLOGICAL RESOURCES

The geological resources within the proposed project area were studied to determine the potential impacts from implementing the JLENS program. Geological studies, soil surveys, previous EAs, topographic contours, and a USGS topographical map were reviewed to characterize the existing environment. Construction activities that could influence geological resources were evaluated to predict the type and magnitude of potential impacts. For example, soils would be disturbed during construction activities, especially during excavation for the test sites, proposed buildings, and parking areas. The predicted post-construction environment was compared to the existing environment and the change was evaluated to determine if significant changes in any existing conditions would occur.

The impact of an action on geological resources could be significant if it depletes the regional or local resource, activates a fault, causes many slumping events or an event with irreparable damage or injuries, accelerates the rate of erosion, or degrades the soil characteristics and causes a loss of productivity. No impact would occur if no measurable affect on geological resources were observed.

4.3.1 Impacts – Proposed Action

The depth to which the underlying geological layers would be impacted varies by project site. Excavations would not encounter groundwater and would not significantly impact the hydrogeologic properties. Impacts to geological resources would not be significant.

Minor impacts to soils would result during the site development phase of the JLENS project. Primary impacts would be an increase in erosion potential and ground disturbance from equipment anchoring activities at the north and south JLENS sites. Approximately 38 acres of soil would be disturbed at each of the test sites; other sites would have less disturbance. Soils in the project area have weak structure related to low levels of organic material or high levels of sodium and are naturally prone to wind erosion (NRCS, 1992). Construction impacts would increase soil exposure and reduce soil productivity. If vegetative loss is excessive, serious soil erosion may occur in a few years, leaving the land gullied and unsuitable for some types of future training exercises. Impacts to soils from construction activities would not be significant. To prevent excessive vegetative loss, topsoil would be restored to disturbed areas and vegetation would be reestablished, maintaining soil productivity. Long-term soil productivity in affected areas would not be significantly impacted.

The fiber optic cables for the communication lines would be buried three to six feet below ground. It is estimated that a trench about two feet wide would be dug to bury the cable. This right-of-way area has been disturbed previously for construction and burying of communication lines. Areas where vegetation is removed during trenching would be prone to moderate wind erosion.

Best management practices would be implemented during construction to minimize soil erosion, such as watering and limiting vegetation removal. Trenches excavated for burying the communication lines and power lines would be backfilled as soon as possible to minimize erosion.

4.3.2 Impacts – No Action Alternative

The JLENS testing program would not be implemented under the No Action Alternative; therefore, geological resources would not be impacted.

4.3.3 Mitigation

Best management practices would be implemented during construction to minimize soil erosion, such as watering and limiting vegetation removal. Trenches excavated for burying the communication lines and power lines would be backfilled as soon as possible to minimize erosion. Taking into account the normal application of best management practices during construction, the impacts to geology and soils would be minimal and not significant. No mitigation measures are necessary or suggested.

4.4 WATER RESOURCES

To establish the potential impacts of the JLENS testing, documents on the hydrology and hydrogeology of the area were reviewed. Maps showing topography, watersheds, aquifers, and drainage were examined. The review focused on the proximity of the proposed JLENS activities to surface waters and hydrogeology.

An impact to water resources could be significant if water quality is affected so that it exceeds federal or state maximum contaminant levels. An impact could also be significant if future water demand exceeds supply or distribution capability. If the change in water quality does not exceed maximum contaminant levels or if the change in water quantity attributable to a proposed action does not exceed available supply, the impact would not be significant.

4.4.1 Impacts – Proposed Action

Excavation ranging from 2 to 5 feet would be required to construct the JLENS buildings and anchor of the equipment. No significant impacts are expected to groundwater from JLENS activities at any of the proposed sites. Contact with the shallow-brine aquifer which is located approximately 25 feet beneath the mudflats is not expected.

There are no surface waters in the project area; therefore, any erosion occurring from stockpiled soil would not likely reach surface water. The erosion potential from runoff in the playa soils is slow. Runoff would be short-term and would depend on the amount of rainfall in an event. Revegetating areas of exposed soil with natural shrubs and grasses after construction would minimize soil erosion. Fish Springs Wildlife Refuge would not be impacted by JLENS activities. Drainage ways in the project area are expected to behave similarly to other drainages in Tooele County communities. There would be no significant impacts to floodplains as a result of the JLENS mission.

The groundwater extraction wells that currently serve Oasis and the additional four wells that the Air Force plans to add in the future (one for JLENS) are of sufficient yield and pressure to support the water needs for construction of and dust control at the test pads and support facilities. It is estimated that 50,000 gallons of water would be needed over the construction time period for the aerostat pads. Construction is estimated at 140 days, which would amount to less than 500 gallons per day on average of water usage. This is approximately one-fourth of a water truck load per day. Therefore, no significant impacts to water quantities would result during development for the JLENS test sites.

4.4.2 Impacts – No Action Alternative

Under the No Action Alternative, there would be no impacts to groundwater or surface waters.

4.4.3 Mitigation

No significant impacts to water resources were identified during the analysis; therefore, no mitigation measures are necessary or suggested.

4.5 BIOLOGICAL RESOURCES

Plants and wildlife species and their habitats are collectively referred to as biological resources. The analysis reviewed the locations of JLENS test sites and extent of surface disturbance relative to various habitat types. Existing natural resource field surveys and previously written environmental documents were reviewed to determine the extent and function of habitats and presence of protected species.

Impacts to biological resources would be significant if the viability of a federally protected species is jeopardized or the action would result in the need to list a species under the ESA or state regulation. An impact would also be significant if the actions would cause substantial change to the abundance, diversity, distribution, or habitat value of plants or wildlife.

4.5.1 Impacts – Proposed Action

Construction of the JLENS test sites would directly impact biological resources. Surface clearing and soil compaction to construct the test sites would result in direct loss of over 38 acres of shadscale/cheatgrass habitat at each site.

The construction at the south test site could impact upwards of 200 acres of greasewood habitat; however, a much smaller footprint for the south test facilities and perimeter fence is expected. The construction would displace wildlife and cause direct mortality of less mobile species. Fragmentation of habitat could affect some species with limited home range and mobility. Most of these species are common and widely distributed throughout the area and loss of some individuals and habitat would not have a significant impact on the species' populations throughout their home ranges. Large expanses of similar habitat surround the JLENS test sites and thus fragmentation of existing habitat would not be significant.

Wildlife may also be indirectly affected by subsequent increase in human activity and noise at the south test site. Wildlife may move away from the source of disturbance, which could result in altered distribution patterns and increased densities on adjacent land. Because of the vastness of adjacent similar habitat, any impact from human disturbance would not be significant.

The communications line would be installed in a previously disturbed utilities ROW and adjacent to the Puddle Valley Road which would minimize new disturbance to vegetation along the route. Animal burrows were noted during the field surveys that could, if abandoned, be used by nesting birds such as the burrowing owl. Grading and compacting the test sites would destroy these burrows and impact any birds or animals using them.

The flight path for the drones would follow the corridor through Snake Valley assessed for the testing of cruise missiles on the UTTR. There were no significant impacts associated with cruise missile testing and the launch of 30 drones over the approximate 3-year testing period (one drone per month) would have similar but likely less of an effect on wildlife in the corridor or near Fish Springs Wildlife Refuge because of less support facilities and aircraft needed for a drone. The drones would land in an existing and previously disturbed target area on DPG (aerial mission operations area), thereby minimizing any impact or disturbance to wildlife and vegetation.

4.5.2 Impacts – No Action Alternative

The JLENS testing would not proceed under the No Action Alternative and thus no new impacts to vegetation or wildlife from ground disturbance and increased human activity would occur.

4.5.3 Mitigation

Pre-construction surveys for nests and nesting activity may be necessary to prevent impacts to migratory birds if clearing and grading activities are scheduled to occur during breeding season (generally March 15-July 31). The survey will include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, construction will not be allowed to occur within an appropriately sized buffer area around the nest until it is no longer active or the young birds have fledged.

Upon completion of the JLENS testing program, the test sites will be reclaimed if not used to support another mission. Reclamation of the sites will follow accepted methods to reestablish preferred vegetation types and prevent the spread of noxious weeds and invasive species.

4.6 CULTURAL RESOURCES AND NATIVE AMERICAN CONCERNS

Cultural resources are limited, nonrenewable resources whose values may be easily diminished by physical disturbances. Existing resource inventories and previously written environmental documents were reviewed to determine the extent and value of known cultural resources. The analysis focused on the location of JLENS testing activities, extent of construction or ground disturbance anticipated at each location, and the probability that previously unknown cultural resources are in the area. Based on this information surveys were completed for appropriate locations of JLENS testing.

The criteria used to determine the significance of impacts on cultural resources include the effects on NRHP eligibility, future research potential, or suitability for religious or traditional uses. To be considered significant, resources must meet one or more of the criterion for inclusion on the NRHP. An impact would be significant if it resulted in the destruction, loss, or loss of use of a resource listed or determined eligible for listing on the NRHP, or the resource is physically altered in such a way that it no longer meets the criteria of the NRHP.

4.6.1 Impacts – Proposed Action

Ground disturbance has the greatest potential to impact cultural resources. The JLENS test sites that would require construction or ground disturbance and that have not been previously inventoried were surveyed for this project (see Section 3.6.2). There were no archaeological sites identified from the surveys of the JLENS sites and thus the testing program would not have any adverse impacts to pre-historic or historic cultural resources.

The aerial mission operating area was not surveyed for the JLENS testing. It is likely that pre-historic and historic properties exist throughout this area. Some of this area is a designated target impact area for ordnance; however, it would be used to land the drones and no impacts involving ordnance are planned for the JLENS testing. The aerial mission operating area covers approximately 280 square miles and only 30 drone launches are planned. Aerial operations for the JLENS testing have a very low potential for ground disturbance and risk to historic properties would be minimal; therefore any impacts would not be significant. Standard operating procedures would be followed to retrieve the drones, including the use of helicopters and tracked-wheeled vehicles to minimize ground disturbance, and review by cultural resources staff of any impacts.

The mission operations support area located on the UTTR-South Range is in an area of high sensitivity for Paleoindian archaeological sites with the potential for buried deposits. The road extension to by-pass the Wildcat Training Area that may be used for JLENS testing has been surveyed for archaeological resources. An archaeologist must be present to monitor any ground disturbing activities on the Wild Isle landform to ensure that if any archaeological discoveries are made during construction, proper measures would be taken to minimize impacts and protect the resources. Archaeological clearance and monitoring activities would ensure there are no impacts to sub-surface resources.

The GAPA Launch Site that is listed on the NRHP would not be affected. The power line that would be upgraded and the communication lines to the test site cross the access road to a camera pad for the GAPA site. The camera pad is located on Diddle Knoll. However, the GAPA Launch Site was not identified during the literature search for the cultural resources survey as being within two miles of the JLENS test sites and therefore no impact would occur.

The target storage building that would be constructed on MAAF would not impact the historic integrity of the hangar (building 4046). The hangar is eligible for listing on the NRHP. The storage building would be located off the apron and would be removed upon completion of the JLENS testing if another use for the building is not planned.

The Lincoln Highway Bridge (building 4017) is located over Government Creek on the north edge of the Ditto Area. There are no JLENS test sites or facilities located in close proximity to the bridge and thus its historic integrity would not be impacted.

To assess potential impact to unknown Native American traditional or sacred sites, DPG and Hill AFB have on-going consultation programs with local tribes. The DPG Commander has initiated nation-to-nation consultation with the tribes for their assistance in determining if any sites of concern are located within the vicinity of the JLENS testing activities. The tribes will be provided an opportunity to meet with DPG staff to learn about the testing program and express any concerns they may have regarding potential impacts to traditional or sacred sites. If any traditional or sacred sites are identified, DPG would protect the sites according to the ICRMP and other applicable laws and regulations. If the JLENS testing cannot avoid impacting a sacred Native American site, then further consultation with tribal representatives would occur to determine the extent and degree of the impact and appropriate mitigation meas-

ures. Therefore, procedures and guidelines within the ICRMP reduce the potential for the JLENS testing activities to disturb or adversely affect sacred Native American sites and thus any impact to a potential site would be minimized.

4.6.2 Impacts – No Action Alternative

Under the No Action Alternative, baseline operations and activities with previously planned changes in activity levels would continue at DPG and the UTTR. Therefore, no additional impacts to cultural resources, other than what have been previously assessed would be anticipated. The SITLA parcel would not be disturbed and thus there would be no potential to impact previously unknown cultural resources.

4.6.3 Mitigation

There were no archaeological sites identified on the JLENS test sites that were surveyed that would be impacted and thus no treatment or mitigation would be required. In the event of an unexpected discovery of artifacts during construction, the Cultural Resources Management Officer (CRMO) for DPG or Hill AFB will be contacted and appropriate measures will be taken to identify and appropriately treat the resource. If an unexpected discovery occurs off DoD property, the CRMO for DPG will coordinate with the respective land managing agency. An archaeological monitor will be present for the grading and graveling of the road and staging area at the mission operations support area located on the UTTR-South Range to ensure no disturbance to potential sub-surface resources.

The CRMO will continue to coordinate with local tribes to minimize any impacts to traditional or sacred sites identified during the nation-to-nation consultation process. Measures could include continued access to sacred sites, monitors during construction, and avoidance of sacred sites during sensitive times. Implementation of the ICRMP for both installations will assure all appropriate measures can be taken to minimize any adverse impacts.

As the lead federal agency, DPG consulted with the Utah State Historic Preservation Officer (SHPO) in accordance with Section 106 of the National Historic Preservation Act. The DPG Commander, as the lead agency official, has determined a finding of no historic properties affected by the JLENS program. No known archaeological sites or historic properties within the project area are determined eligible for the NRHP. DPG has received concurrence with the no historic properties affected determination from the SHPO via letter dated July 6, 2007 (see Appendix A).

4.7 HAZARDOUS MATERIALS

The analysis was based on a review of potential issues with hazardous materials. The analysis focused on the types of proposed activities associated with the JLENS testing program and where they would occur. The analysis looked at the mechanisms of potential spills or leaks, the likelihood of a spill or leak, and the severity of consequences that could occur.

An impact would be considered significant if workers or the general public were exposed to hazardous substances above health criteria levels, or suffered a permanent disability or loss of life. To determine significance, the following were considered: the type and overall quantity of material being generated; the duration of a particular activity that use hazardous materials; the potential for releases during handling, transport, storage, treatment, and disposal activities; and the reduction, minimization of cleanup of hazardous materials. An impact could be significant if the quantities generated exceeded regulatory limits.

4.7.1 Impacts – Proposed Action

Fuels and lubricants would be used for equipment during grading and construction for the JLENS test sites and access roads. Other hazardous materials such as paints, thinners, and sealants may be used during the construction activities and would be controlled under standard safety and handling procedures. Fuel, oils, and lubricants would also be used in the generators at the test sites, support sites, and the south test site. Hazardous materials used with

the JLENS system are necessary to support their operation. The usage of hazardous materials is expected to increase slightly due to the JLENS program.

Table 9 lists the hazardous materials that would be used to maintain the integrity and support of the JLENS system. Normal usage and operation of the JLENS system does not require any handling of these materials on a regular basis. Some of the materials listed below are not used in a form that would cause personnel injury.

Table 9. Hazardous Materials to Support JLENS System

Hazardous Materials*	Location	Hazard
Silicon Paint	Telecommunications	Eye/skin irritation; toxic if swallowed
Methyl Ethyl Ketone	Aerostat Repair Kit	Eye/skin irritation; toxic if swallowed
Tellus Fluid 68 (Shell) Hydraulic Oil	Hydraulics in Mooring Station	Eye/skin irritation; toxic if swallowed
Lithium	TCOM Batteries	Not in form that can enter human body
Polyurethane/Polyethylene	Tether	Not in form that can enter human body
Kevlar	Tether	Not in form that can enter human body
Helium	Aerostat	Could burn skin under very low temperatures
Tedlar PVF	Telecommunications	Not in form that can enter human body
Ethylene Glycol	Fire Control Radar	Eye/skin irritation; toxic if swallowed
Nickel	Fire Control Radar/Platform	Can cause chemical pneumonitis
Xylene	Fire Control Radar/Aerostat	Respiratory tract irritant; can cause dizziness/coma
Beryllium	Fire Control Radar/Aerostat	Respiratory tract irritant if friable
Toluene	Platform (Lead Acid Batteries)	Eye/skin irritation; toxic if swallowed
Copper	Platform (all components)	Eye/skin irritant
Chlorobenzene	Aerostat	Eye/skin irritant; toxic if swallowed or inhaled
Urethane	Aerostat/Tether	Eye/skin/respiratory irritant if melted or burned
Acetonitile	Aerostat/Ground Support Equipment (Lithium Batteries)	Toxic; not in form that can enter human body unless improperly used
Methylenebis Phenyl Isocyanate (MDI)	Aerostat	Skin/eye/respiratory irritant; combustible
Benzene	Platform paint (all components); Ground Support Equipment Paint	Carcinogen; highly flammable; skin/eye respiratory irritant

Source: U.S. Army, 2005a
*All of these materials are potential groundwater/environmental contaminants and would be controlled accordingly.

Other hazardous materials were used in the design of the JLENS system. A Hazardous Materials Management Program Report was prepared to document the use of materials in the system, system components, and support items in accordance with the National Aerospace Standard (NAS) 411, paragraph 5.3. Hazardous materials would be handled in accordance with the Army and Air Force's hazardous management plans and permits, spill contingency plans, and other applicable federal regulations and guidance, as well as state and local regulations. Impacts from hazardous materials would not be significant.

4.7.2 Impacts – No Action Alternative

Under the No Action Alternative no additional hazardous materials would be used so there would be no new impacts.

4.7.3 Mitigation

No significant impacts were identified; therefore, no mitigation measures are necessary or suggested.

4.8 SOLID AND HAZARDOUS WASTE

To assess potential impacts, the analysis focused on issues relating to hazardous and solid waste generation, the proposed type of activities associated with the JLENS testing program, and where they would occur. The analysis looked at the mechanisms of potential spills or leaks, the likelihood of a spill or leak, the severity of consequences that could occur, and the extent of the proposed construction and the potential for generating additional wastes.

An impact could be significant if the quantities of any solid or hazardous waste generated by the JLENS program exceeded regulatory limits or existing transport or disposal capabilities, if the generation of hazardous wastes would have a detrimental impact on worker health and safety, or if a spill or leak of a hazardous substance occurred that could not be remediated as part of the action.

4.8.1 Impacts – Proposed Action

Although construction of the JLENS sites could temporarily increase the amount of hazardous waste generated, no new types of wastes would be generated. Typical hazardous wastes that would be generated include petroleum oil, greases, and maintenance chemicals. These wastes are currently generated from similar Air Force and Army activities and disposed of by each installation. Standard safety procedures would be required. Overall, construction activities would minimally change the short-term generation of wastes.

Maintenance of the JLENS system may generate negligible amounts of hazardous waste. The additional quantities of hazardous wastes generated from maintenance activities to keep the system operational would be handled by the Air Force and would not affect Hill AFB's hazardous waste program. There would not be any significant impact from hazardous wastes generated from maintenance activities associated with the JLENS program.

There would be a temporary increase in construction debris during the two-year construction period and a temporary increase in solid waste generation from operation of the JLENS test sites. These quantities would not affect disposal agreements or have a substantial effect on landfill capacities. The Air Force and Army are actively seeking to reduce additional solid waste through reduction and recycling efforts. The proposed JLENS testing program would not have a significant impact or increase to solid waste.

Power at the south test site and back-up power at the UTTR test sites would be supplied by diesel generators. Fuel for the generators would be stored onsite in double-walled ASTs up to 5,000 gallons in size at the south test site and up to 10,000 gallons at the UTTR test sites. Standard spill prevention measures would be followed during refilling operations to minimize the occurrence of any spills. If spills should occur, procedures outlined in the SPCC would be followed and the affected soil would be collected and disposed of properly.

4.8.2 Impacts – No Action Alternative

With the No Action Alternative no additional hazardous waste would be generated so there would be no new impacts.

4.8.3 Mitigation

No significant impacts were identified; therefore, no mitigation measures are necessary or suggested.

4.9 AIRSPACE

The analysis methods assessed the increase in aircraft activity and the potential changes to environmental media in the project area. Although the total number of aircraft operations in the UTTR may increase, the type of aircraft that perform the operations dictate the potential impact to air quality, noise, and land use.

An impact could be significant if the risk of an aircraft accident increased due to inadequate equipment or numbers of trained personnel, and if the risks were not mitigated through added aircraft handling capabilities. An increase in operations in non-congested airspace would not result in significant impacts as long as adequate aircraft handling capabilities existed or were added to cover the increase in operations.

4.9.1 Impacts – Proposed Action

No new airspace would be required to support the JLENS program. The existing airspace would be used by the F-16s and the proposed increase of 30 aircraft operations per year to support the JLENS testing is minimal. Aircraft traffic is handled through scheduling, trained personnel, and air and ground traffic control resources.

Airspace safety is a prime concern due to the potential of aircraft contact with an aerostat, a tether, or a drone. Aerostat deployment activities and drone launches would take place in existing restricted airspace. Close coordination with the Federal Aviation Administration for the issuance of Notices to Airmen (A notice containing information concerning the establishment, condition, or change in any aeronautical facility, service, procedures, or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.) for use of the restricted airspace and scheduling with the appropriate Air Traffic Control and Safety Offices would minimize the potential for any adverse impacts on airspace use. The timing of the drone launches would disrupt the primary training activities of the UTTR. Training activities in the south end of the UTTR restricted airspace would have to be curtailed to avoid conflicts with the JLENS testing.

4.9.2 Impacts – No Action Alternative

Under the No Action Alternative, operations in the UTTR would not change and airspace would not be affected.

4.9.3 Mitigation

No significant impacts to airspace were identified; therefore, no mitigation measures are necessary or suggested.

4.10 VISUAL RESOURCES

Visual resources are the features of the landscape that contribute to the scenic quality of the area. Potential impacts to these resources on DPG, UTTR, and the SITLA parcel were analyzed by comparing the visual character to the VRM classification scheme used by the BLM. The analysis was based on visual observations of the landscape surrounding the JLENS test sites and VRM classifications presented in the Resource Management Plans for the BLM field offices.

An impact on visual resources could be significant if an action substantially changes the physical features (natural or artificial) that provide the landscape its character and value as a resource. Development on DoD or SITLA land, such that VRM classifications on surrounding BLM land could not be achieved or maintained could also be significant.

4.10.1 Impacts – Proposed Action

Construction of facilities at the test sites would have an impact on the landscape and thus the visual resources of the surrounding area. The landscape would be altered by the removal of large areas of vegetation to construct the pad sites and associated facilities, but no change in landforms would occur because the topography at these sites is flat. Any impact would not be considered significant because the remoteness and accessibility of the sites would limit the number and type of observer (i.e., primarily DoD personnel familiar with military test processes) of the landscape.

The altitude of the aerostats may be visible from viewpoints off DoD land but this intrusion would be consistent with major modifications to the existing character of the landscape allowed with the Class IV designation of adjacent BLM

land. Although the VRM classification does not apply to activities on DoD land, it is presented as a means to compare potential impacts. In addition, the length of time the aerostats would be airborne and the duration of the testing would minimize any adverse impact to viewers' appreciation of visual resources on BLM lands designated as Class III, should the aerostats be visible and observed.

At the south test site, clearing vegetation and adding buildings to the landscape would not significantly affect the visual character of the area. This area is surrounded by the Class IV visual designation on BLM land and would therefore be a comparable classification and major modifications to the visual character are acceptable.
The design of the target storage and maintenance buildings would meet the comprehensive planning requirements for DPG and therefore would have no impact to the visual character of the installation.

4.10.2 Impacts – No Action Alternative

The missions of DPG and UTTR would continue under the No Action Alternative. Any impacts these missions have to the visual resources of the installations and surrounding areas would also continue.

4.10.3 Mitigation

Although no significant impacts to visual resources were identified, the testing of the JLENS system would temporarily alter the visual character of the landscape. Upon completion of the testing and other mission uses, as appropriate, the test sites and south test site would be reclaimed and the visual character of the areas would eventually return.

4.11 TRANSPORTATION

The analysis assessed changes to the existing road conditions as a result of implementing the JLENS program. The existing road conditions were reviewed and the routes that would be used for JLENS activities were assessed. Transportation on the traffic routes, type of vehicles, frequency of trips, and road improvement programs were examined and compared to baseline conditions to predict the types and extent of impacts that would likely occur from implementation of the JLENS program.

Transportation impacts could be significant if the projected peak traffic volume generated by the JLENS program exceeded the capacity of the roadways or if major damage was done to the roadways. Impacts were found to not be significant if the traffic volume stayed the same and if there was no major damage done to roadways.

4.11.1 Impacts – Proposed Action

There are no current traffic problems within the project area. There would be an increase in worker vehicles traveling to and from the proposed JLENS sites; however, these sites are in remote areas where there is minimal traffic. Construction would not occur all at once but would be spread out over a two-year period. Construction related traffic would add more vehicles to the project area; however, since there are no traffic problems, the impacts would not be significant.

Personnel supporting the JLENS testing program would carpool to the various sites by using government vehicles, vans, or a bus (contracted through a commercial provider) from DPG to the JLENS project sites.

Stress levels on gravel roads could cause damage in some local areas especially during wet weather conditions. All gravel roads would be surveyed for damage and restored back to county standards for existing gravel roads. While there could be some short-term impacts to roads, these roads would be repaired so there would be no long-term impacts. Millard County would continue to maintain the road near the south test site. The increase in traffic from JLENS testing activities would be minimal and therefore no excessive damage is anticipated.

4.11.2 Impacts – No Action Alternative

Under the No Action Alternative there would be no change to traffic within the project area and no upgrades to existing roads.

4.11.3 Mitigation

There were no significant impacts identified to area roads or the transportation network in the project area; therefore, no mitigation measures are necessary or suggested.

4.12 NOISE

The noise analysis was based partly on identifying any sensitive receptors (people in a residence, schools, hospitals, churches) located within an area potentially affected by noise generated by construction and implementation of the JLENS testing program. The analysis was also based on the assessment of the estimated noise levels generated from the proposed JLENS actions and a comparison with ambient noise levels.

The 65 dBA noise level approximates the division between a quiet and moderate sound level. A significant impact could occur if the noise level at a sensitive receptor location is above 65 dBA. If noise levels increase, but to a level below 65 dBA at noise-sensitive receptors, the impact would not be significant. A decrease in noise levels would be a beneficial impact.

4.12.1 Impacts – Proposed Action

Noise impacts from the operation of construction equipment are usually limited to a distance of 1,000 feet or less. Noise levels outside this perimeter would generally attenuate below 65 dBA, which is the level of potential noise concern. Most construction noise would attenuate to less than 75 dBA at about 200 feet from the construction activity. The 65 dBA noise level approximates the division between a quiet and moderate sound level. If construction equipment with a noise level of 88 dBA is operated in the vicinity of sensitive receptors, the sound would generally attenuate to below 65 dBA approximately 800 feet from the construction activity. There are no sensitive receptors (hospitals, residences, schools) in proximity to any of the JLENS construction sites.

Construction activity would occur over a 24-month period in different locations throughout the project area. The noise generated would be a short-term intermittent impact. There are no nearby sensitive receptors to any of the proposed JLENS test sites; therefore, there would be no impacts from construction noise. Support vehicles would generate typical noise levels on roadways during transportation of the system components and setup at the various project sites. During set up of the JLENS and during test activities noise sources would be from vehicle traffic and generators. With the external heating, ventilation and air conditioning unit operating, noise levels have been surveyed at 62-82 dBA (U.S. Army, 2005a).

Because the test sites are located on active ranges and installations where noise levels from aircraft, missiles, and tanks training in the area are already high, no significant impacts are expected from additional vehicle traffic and the generators at the JLENS test sites. Personnel involved with project activities would adhere to hearing protection requirements defined in health and safety plans and guidelines.

The majority of the JLENS testing data would be taken from aircraft currently flying in the UTTR ranges. An additional 30 aircraft flights annually to support JLENS testing, added to the current 23,000 annual flights in the project area would not create a significant increase in noise levels. Any additional flights added to support JLENS testing would fly the same flight profiles as are currently flown. There would be no significant aircraft noise impacts from implementing the JLENS test program.

4.12.2 Impacts – No Action Alternative

If No Action is taken to implement the JLENS test program noise levels would remain unchanged in the project area.

4.12.3 Mitigation

Significant impacts are not anticipated; therefore, no mitigation measures are necessary or required.

4.13 SOCIOECONOMICS

Measures used for impact analysis include population, employment, housing, and school enrollment. Population and housing data were obtained from the U.S. Census Bureau. Employment and income data were obtained from the U.S. Bureau of Economic Analysis and the Utah Department of Workforce Services. School data was provided by Utah State Office of Education and the Tooele County School District.

Because growth is the norm, regions are assumed to have a greater capacity for positive change (i.e., growth) than for negative change. Generally, increases in employment and income are considered beneficial, unless those increases are accompanied by large, rapid population increases that overwhelm the capacity of the local housing market, schools, and government services.

4.13.1 Impacts – Proposed Action

Housing unit vacancy data from the 2005 County Assessor's database for Tooele County show that approximately 5 percent of total units are vacant, representing more than 850 available housing units. The 150 military personnel and 100 to 150 contractor and government personnel expected to support the JLENS program would not arrive all at once; their arrival would be spread out between 2008 and 2010. Single military personnel would most likely be housed on DPG and at the Oasis. It is unknown at this time how many personnel would seek housing in Tooele or nearby towns and what the vacancy rates would be in the county at that time. Given this past and present scenario in Tooele County, the local housing market would most likely respond to the small increases in demand without experiencing shortages that would affect housing values.

It is assumed that incoming personnel would be distributed around Tooele County and the surrounding areas in a similar pattern as existing employees. Because the incoming population would be such a small percentage increase over the projected population levels, no adverse impacts are expected overall to the Tooele County schools. Since it is difficult to estimate where personnel would live, it is possible that short-term insignificant impacts could occur at individual schools if these schools were at or near capacity.

Small beneficial impacts to local employment and income from construction of the JLENS sites would occur. Local contractors furnishing construction services may provide temporary increases in construction employment for local workers. Increases in construction employment and expenditures would lead to small but beneficial increases in the overall income of the area. It is possible that project engineers and other workers who travel to the project area from Salt Lake City or other areas would stay in the area for one or more nights, resulting in small beneficial impacts to local motels, restaurant, and other retailers. Overall there would be a small but beneficial impact to the economy.

4.13.2 Impacts – No Action Alternative

Under the No Action Alternative there would be no socioeconomic impacts.

4.13.3 Mitigation

Impacts to socioeconomics would be minimal and not significant; therefore, no mitigation is necessary or suggested.

4.14 ENVIRONMENTAL JUSTICE

An environmental justice analysis determines whether a disproportionate share of adverse environmental or social impacts from implementing a federal action would be borne by minority or low-income populations. The first step of the analysis was to identify any EJ populations in the area of potential effect, which was defined as the census tracts that encompassed the JLENS test sites. The next step was to determine if any impacts of the JLENS testing would occur in EJ communities, and if so, to determine if these communities or populations would experience high and adverse impacts in comparison to other communities.

An impact could be significant if the health, safety, social structure, or economic viability of an EJ population is disproportionately and adversely impacted by the JLENS testing, and reasonable and feasible measures could not mitigate or eliminate the disproportionality.

4.14.1 Impacts – Proposed Action

There are no EJ populations identified in the area of potential effect for the JLENS testing or in the four counties in which the test sites are located. Therefore, the impacts of the JLENS testing would not be disproportionately or adversely borne by anyone of minority or low-income status. In addition, the JLENS program would not introduce a testing mission that would be dissimilar to other DPG and USAF missions and programs that can be mitigated and controlled, and thus, minimizing the adversity of any impacts.

4.14.2 Impacts – No Action Alternative

There would be no disproportionate or adverse impacts to minority or low-income status communities if the JLENS testing does not occur under the No Action Alternative, regardless that no EJ populations were identified. The ongoing mission of DPG without the JLENS program would have some adverse effects to minority and low-income populations identified on the Skull Valley and Confederated Tribes of the Goshute reservations and in the Ibapah-Gold Hill area. However, any identified environmental or health impacts are not localized or placed primarily on the minority or low-income populations (U.S. Army, 2004).

4.14.3 Mitigation

Because there were no EJ populations identified in the area of potential effect for the JLENS testing and no adverse direct or indirect impacts were identified that would disproportionately affect minority or low-income communities, no mitigation measures are necessary.

4.15 LAND USE

Land use in the project area was evaluated through visual observations and review of aerial photos, soil surveys, and land use data. The review focused on the regional and local land use and current land use restrictions. The analysis focused on whether land uses would be altered.

Degradation of land such that it could no longer be used for its current or proposed use would be considered a significant impact. An impact would not be significant if some noticeable degradation occurred, but the effect would be temporary and long-term use would not be affected. No impact would result if no noticeable change in land use occurred.

4.15.1 Impacts – Proposed Action

Construction of facilities at the test sites, with the exception of the south test site, would occur within the UTTR and on DPG where land use is designated for air-to-air operations, air-to-surface operations, visual and radar bombing,

and tactical maneuvers to test equipment and train personnel. The JLENS program is consistent with the operations in the UTTR and would not have a significant impact on land use.

The SITLA makes surface lands under state ownership available for many uses including leases and easements for telecommunication towers, commercial and industrial enterprises, roads, pipelines, and power lines. The SITLA also issues permits for grazing. The section in Millard County proposed for the JLENS south test site is currently under a grazing permit to Baker Ranches, Incorporated.

The JLENS program would apply for a special use lease from SITLA for approximately 640 acres for a period of up to 10 years. The proposed use of the section by the DoD for the JLENS program would be a higher and better use of the land than grazing. The lease fee would be based on the value of the land times the prime lending rate, which is significantly greater than the grazing permit annual payment. Considering that SITLA is charged with fiduciary duties to the Utah public school system, it is likely the agency would agree to a change in land use and terminate the grazing permit in favor of a lease to the DoD.

The design of the target storage and maintenance buildings would meet the comprehensive planning requirements for DPG and therefore would have no impact to the land use of the installation.

4.15.2 Impacts – No Action Alternative

The missions of DPG and UTTR would continue under the No Action Alternative. Any impacts these missions have to land use on the installations and surrounding areas would also continue.

4.15.3 Mitigation

Upon completion of the testing and other mission uses, as appropriate, the test sites and south test site would be reclaimed and the land use of the areas would eventually return.

4.16 RANGE MANAGEMENT

Range management is the analysis of rangeland resources and the effects to livestock grazing due to changes in land use. The review focused on available information and data on the BLM grazing allotment permitted and actual use and the AUMs permitted for the SITLA section.

Impacts to livestock grazing operations and range resources could be significant if a lease for JLENS testing would disrupt livestock movement, result in loss of forage such that the permittee would have to reduce their operations, or increase human disturbance or harassment of livestock.

4.16.1 Impacts – Proposed Action

The termination of the grazing permit for Baker Ranches for approximately 640 acres would not have a significant impact on the permittee's livestock operation. The Knoll Springs allotment, which encompasses the SITLA section, is approximately 34,000 acres with an average actual usage of approximately 300 AUMs. This is almost half of the permitted AUMs for the allotment and thus removal of 640 acres and 27 AUMs would not likely result in the loss of an important forage base.

Revenue from grazing and forestry permits was approximately one percent of the total revenues generated from SITLA lands throughout the State of Utah during fiscal year 2001. Although issuing a special use lease to the DoD for JLENS testing would result in a loss of rangeland resources, it would be a beneficial financial impact for the Utah public school system by generating a significant increase in lease payments.

4.16.2 Impacts – No Action Alternative

If the JLENS testing does not occur, there would be no need to lease the SITLA section and thus no change in the existing grazing permit and no loss of range forage.

4.16.3 Mitigation

As a condition of the SITLA lease, it will be the responsibility of the DoD to avoid harm to the Knoll Springs allotment permittee. The SITLA section will have to be fenced to prevent the permittee's livestock from entering the south test site.

4.17 FIRE MANAGEMENT

Fire management is for protection of both environmental resources and physical structures, but is primarily for the health and safety of DoD personnel and the general public. The analysis consisted of a review of fire response plans for DPG and the UTTR, and for fire management plans on adjacent public lands.

Impacts on fire management programs could be significant if the JLENS testing program increased the likelihood of human-caused fires or increased the frequency and costs related to suppression.

4.17.1 Impacts – Proposed Action

The activities involved with the JLENS testing would not introduce a new or different type of fire risk into the training and operations missions of the UTTR or DPG. These installations are remote and if a fire would spread beyond the immediate JLENS test sites, there is little threat to human health or facilities outside the boundaries of the UTTR or DPG. The fire breaks and sparse vegetation minimize the likelihood of a fire escaping beyond the installation boundaries before it can be brought under control by the Oasis or DPG fire departments. If the fire cannot be controlled by the installation fire department, the BLM and/or Hill AFB Fire Departments would be notified for aid. In addition, the Utah Highway Patrol would be notified of the fire and kept informed of any possible danger to the public.

Although unlikely, the greatest potential for a ground fire would be at the launch site. Vegetation at or near the launch pad or drone trajectory could catch fire during a launch, but precautionary planning would assure that suppression would be immediate. All vegetation would be cleared from around the facilities and in the large area extending from the launch pad designated as the safety zone. The RATO bottles that propel the drone from the launch pad are solid rocket fuel, which eliminates an ignition source upon dropping to the ground. Equipment would be located at the site to suppress any fires that could ignite.

4.17.2 Impacts – No Action Alternative

The JLENS program would cease under the No Action Alternative and therefore no additional risk from or increased likelihood of fires would occur.

4.17.3 Mitigation

The JLENS testing program would not have significant impacts on the fire management and suppression responsibilities of the installations and therefore no additional mitigation measures beyond standard operating procedures would be required. Equipment supporting fire suppression would be located at the test sites during operations, if necessary, due to prevailing fire conditions.

4.18 CUMULATIVE IMPACTS

As defined by 40 CFR 1500-1508, cumulative impacts results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taken place over a period of time.

As the Army and Air Force define new missions, for example JLENS, they are each analyzed individually while taking into consideration all the other activities occurring within the UTTR. The Air Force manages the UTTR for:

- Practice bombing and gunnery range for military aircraft
- Propagation testing
- Rocket motor test firing
- Missile storage
- Small arms
- Machine-gun-firing ranges

The UTTR maintains the facilities and balances training activities as necessary to support different missions. The facilities include:

- 23 target complexes with 220 target arrays
- Four surveillance radars
- Four communication relay sites
- Five Television Optical Scoring System sites
- 54 ground stations to support tracking

The use of construction-related vehicles and their impacts on noise, air quality, and traffic is unavoidable. The short-term increases in air emissions and noise during construction and the insignificant impacts predicted for other resource areas would be insignificant when considered cumulatively with other ongoing activities in the project area. The construction and operation activities would be affecting dispersed locations, not necessarily concurrently, and would not cause significant cumulative impacts.

Air quality is generally considered excellent and Tooele County is in attainment for all criteria pollutants below 5,600 feet. Emission levels in Tooele County are expected to continue to increase in the future; however, the County would remain in attainment status for the foreseeable future.

Soil compaction decreases the volume of soil and leads to a decrease and change in the vegetation due to the change in the soil's properties. These changes may then increase erosion from loss of plant species. Soil compaction has occurred in the project area during past activities, would occur for the JLENS program, and would continue to occur for future programs. Soil compaction also occurs on land surrounding the project area. These activities would continue to increase erosion in the region, thereby resulting in further changes to vegetation patterns. Soil erosion is linked with soil compaction and increased erosion would continue to occur as new activities are introduced in the project area.

Increased growth in the project area could impact the quantity of water certain users receive by lowering the regional water table. The water used for construction and dust suppression for JLENS would come from groundwater wells at Oasis. Although the Air Force is planning to add additional wells at Oasis, the wells used for JLENS would be a short-term increase in the use of water and is not expected to be a significant cumulative impact to regional resources.

Ground disturbance in the project area would continue to cumulatively affect vegetation communities in the region. Soil compaction leads to the spread of exotic vegetation, decreased native vegetation, and increased soil erosion. Changes in vegetation can affect wildlife distribution if habitat becomes unusable or is destroyed. Noxious weed

infestation in the Great Basin is increasing by approximately 14 percent annually (BLM, 1999). There would be no cumulative impacts to threatened or endangered species as testing and training activities would be located away from know locations of sensitive species.

Tooele County is growing as a result of proximity to Salt Lake City and availability of private land for development. With economic growth comes the need for additional housing. Hotel capacity in the region could become inadequate. There is substantial undeveloped land in Tooele County to provide for additional housing and the private housing sector would generally respond to the demand by building new housing and hotel units. Housing prices may also continue to rise as the demand is met. School systems could also become strained, along with budgets. Growth is in conflict with some residents' desires to maintain the traditional rural lifestyle and open space in the valley and seen as beneficial by other individuals.

Since most of the land in the JLENS project area is owned and actively used by either the Army, the Air Force, or BLM, area land use patterns are well established and there are few incompatibility issues. No major changes to existing land use patterns are anticipated. Future activities that occur on existing Government lands are not expected to cumulatively affect land use.

There would be moderate aggregate increases in the use of hazardous materials, generation of solid waste and hazardous waste. Non-hazardous solid waste generated would be handled at base facilities; therefore, there would be no cumulative effect on waste disposal at public landfills.

Cumulative adverse impacts to cultural resources are likely as growth increases and other training and testing missions are accommodated at DPG and the UTTR. The potential for increased public use on adjacent lands together with more testing missions within installation boundaries have the potential for cumulative impacts to cultural resources. Increased surface disturbing activities increases the potential for cumulative adverse impacts.

The potential for more fire risks also increases with added testing and training missions. However, emphasis on fire prevention and elimination of hazards, such as maintaining fire breaks would minimize cumulative impacts of a growing mission.

Introducing more testing and training programs within the installations boundaries of DPG and UTTR would not have cumulative impacts to range management (livestock grazing) programs on adjacent public lands. The need to establish military test facilities outside the boundaries of UTTR and DPG is rare because of the vast amount of land available within the installation boundaries.

4.19 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Management of the lands on DPG and the UTTR are for the sustainability of testing and training DoD personnel, equipment, and weapons systems. Implementation of the JLENS testing program would result in the short-term use of the physical, natural, and cultural resources of the installations for the long-term productivity of our Nation's defense. No croplands, wooded areas, or wetlands would be modified or affected as a result of the proposed JLENS program; therefore, productivity of those types of areas would not be degraded. The productivity of the grazing lands needed for the JLENS program is minimal, fluctuates annually based on weather, and not regularly utilized. Therefore, the short-term use of these lands would not be adverse.

4.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources would have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe. Irretrievable resource com-

mitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site).

Short-term commitments of labor, capital, and fuels would occur during construction of the JLENS sites. The JLENS construction would require the permanent use of construction materials; however, no unusual amount or type of materials would be required. These materials, except recyclable items, would be irretrievably committed.

Several hundred acres of land would be occupied by the JLENS program but this land could be restored to its existing condition of open space and could be revegetated after the testing is completed. Therefore, the commitment of land is not irreversible.

Short-term commitments of resources would occur from operation of the JLENS sites and maintenance of the facilities, and from the commitment of water, electricity, sewage, and waste disposal. The amounts of resource consumption are not expected to increase significantly from current usage such that additional sources for these services are required.

CHAPTER 5
CONSULTATION AND COORDINATION

The U.S. Army DPG coordinated with federal, state, and local agencies and Native American tribes, and engaged the general public during the NEPA process to ensure informed decision making on conducting the JLENS testing. This EA has been prepared by the WDTC in coordination with the 75th Civil Engineering Group, Hill AFB; 388th Range Squadron, Hill AFB; and 75th Range Support Division, UTTR.

The WDTC-Special Programs Division (SPD) has conducted public outreach to local city and county governments and civic organizations over the past year to inform the communities of the JLENS program. The SPD has also coordinated with the Utah SITLA, BLM Utah State Office, and BLM Salt Lake City Field Office regarding JLENS requirements for leases and ROWs for lands managed by these agencies.

The CRMO has represented DPG in coordinating with the SHPO regarding cultural resources issues in accordance with Section 106 of the National Historic Preservation Act. The DPG Commander initiated consultation on June 13, 2007 with the SHPO on the Army's determination of no historic properties affected by the JLENS testing. By letter dated July 6, 2007, the SHPO concurred with this determination. This consultation letter and SHPO concurrence letter are included in Appendix A.

The DPG Commander initiated nation-to-nation consultation with Native American tribes for the JLENS program. The CRMO and SPD hosted a preliminary scoping/informational meeting for tribal representatives in October 2006 to learn about the JLENS program. The tribes were invited to a second meeting on August 23, 2007. The second meeting was held to present a JLENS overview, cultural resources overview, and an update on the NEPA process. No tribes or tribal organizations attended the meeting. The following tribes and tribal organizations were consulted:

- Arapaho Tribe of the Wind River Reservation
- Blackfeet Tribe
- Confederated Salish & Kootenai Tribes of the Flathead Reservation
- Confederated Tribes of the Goshute Reservation
- Crow Tribe
- Hopi Tribe
- Navajo Nation
- Northwestern Band of Shoshone Nation
- Paiute Indian Tribe of Utah (Cedar City Band, Kanosh Band, Koosharem Band, Indian Peaks Band, Shivwits Band)
- Pueblo of Zuni (Zuni Tribe)
- San Juan Southern Paiute Tribe
- Shoshone-Bannock Tribes of the Fort Hall Reservation
- Shoshone-Paiute Tribes of the Duck Valley Reservation
- Shoshone Tribe of the Wind River Reservation (Eastern Shoshone Business Council)
- Skull Valley Band of Goshute Indians
- Te-Moak Tribe of Western Shoshone (Battle Mountain Band; Elko Band; South Fork Band; Wells Indian Colony Band)
- Ute Indians of the Uintah and Ouray Reservation
- Ute Mountain Tribe of the Ute Mountain Reservation
- White Mesa Ute Council

The WDTC coordinated and consulted with numerous specialists from the USAF and other agencies to obtain data and information in the preparation of this EA. The following people and organizations were contacted:

West Desert Test Center – Environmental Technology Office
Michael Robinson

West Desert Test Center – Special Programs Division
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Tim Johnson, CEUF
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Sam Johnson, CEVR
Glenn Palmer, CEV
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75th Range Squadron – Oasis
Ronald Short

388th Range Squadron – Hill AFB
Kathy Vaux

Utah State Institutional Trust Land Administration
Louis Brown

A public notice was published on August 14, 2007 in the Hilltop Times (Hill AFB paper), Ogden Standard Examiner, Tooele Transcript Bulletin, Wendover Times, Salt Lake Deseret News, and Salt Lake Tribune announcing the availability of the draft EA and draft Finding of No Significant Impact (FONSI) for a 30-day public review. The public comment period ended on September 12, 2007. No public comments were received. Copies of the draft EA and draft FONSI were placed in the following libraries:

- University of Utah Marriott Library, 295 South 1500 East, Salt Lake City, Utah
- Tooele Public Library, 128 West Vine, Tooele, Utah
- Dugway Community Library, 2243 Kister Avenue, Dugway, Utah
- Salt Lake County Whitmore Library, 2197 East Fort Union Boulevard, Salt Lake City, Utah

CHAPTER 6
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CHAPTER 7
LIST OF PREPARERS

This Environmental Assessment has been prepared by the U.S. Army Dugway Proving Ground, West Desert Test Center with contractual assistance from Bechtel-S Corporation, subcontractor to CEEC, Incorporated. The following individuals were primarily responsible for preparing and reviewing the EA.

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APPENDIX A
Consultation Letters

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY DUGWAY PROVING GROUND
DUGWAY, UTAH 84022-5000

13 JUN 2007

REPLY TO
ATTENTION OF

Office of the Commander

Dr. Matthew Seddon
Utah Deputy State Historic Preservation Officer - Archaeology
Utah Division of State History
300 Rio Grande
Salt Lake, City, Utah 84101-1182

Dear Dr. Seddon:

Please find enclosed a cultural resources project summary report for the project titled *A Class III Cultural Resources Inventory for the JLENS Project, Tooele, Box Elder, and Millard Counties, Utah.* This project may be referenced to Utah State Antiquities Project Number U-06-DU-1410b,m,s.

The inventory and report were performed in preparation for the Joint Land-Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) project. JLENS is a joint undertaking between US Army Dugway Proving Ground (DPG) and Hill Air Force Base (HAFB) and involves land in Box Elder, Tooele, and Millard counties under the administration of DPG, HAFB, State of Utah School and Institutional Trust Lands Administration (SITLA), and the Bureau of Land Management Salt Lake Field Office (BLM SLFO). DPG, as the lead agency, is coordinating the National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) compliance process for this undertaking.

The JLENS system consists of aerostats with radars to provide over-the-horizon surveillance for defense against cruise missiles. JLENS will be tested and evaluated at DPG and HAFB and will involve construction of new facilities (utility corridors for power and communication, access roads, storage buildings, maintenance buildings, operational sites), the use of military air space, and a short-term lease of a SITLA parcel of land.

The Area of Potential Effects (APE) for this project is several polygons located throughout Box Elder, Tooele, and Millard Counties. The APE are those areas with the possibility for ground disturbing activities resulting from the JLENS project, a total area of 181,801 acres (284 square miles). However, only those areas with a moderate or high potential for ground disturbing activities were inventoried for historic properties, to include planned actions such as new construction, off-road vehicle movement, or ground-based mission operations. Aerial operations of the JLENS project, specifically those activities occurring in the Aerial Mission Operating Area (280 square miles), have a very low potential for ground disturbance and risk to historic properties is minimal. Based on regional and reconnaissance data it is likely that prehistoric

archaeological historic properties and possibly historic road/trail remnants occur on the ground below the aerial operating area. Effects to historic properties in this area would result from an unplanned landing or other aerial mishap. In the unlikely occurrence of such an event, existing standard operating procedures would be followed for emergency actions and recovery operations and an after-action review of impacts, if any, to historic properties would be performed by DPG cultural resources staff. This determination of risk from aerial operations and the management of historic properties are similar to previous projects including the National Aeronautics and Space Administration's Stardust and Genesis space probe landings at DPG.

Total acreage of the APE is 181,801 acres (284 square miles); however, only 2,601 acres are likely to involve ground disturbing activities. The area newly inventoried for this project measures 2,356 acres; 609 acres of the newly inventoried area are not currently part of the APE as the planned operations have been relocated elsewhere (Parcels 1, 4 and 5). 854 total acres of the likely ground disturbance portion of the APE were previously inventoried during other projects and a re-inventory was not deemed necessary.

Below is a summary table listing the specific undertaking, the current land owner, acreage for each APE parcel, and the archaeological survey projects associated for each.

Undertaking Action	*Land Owner(s)*	*APE*	*Current Survey Parcel & Acres*	*Previous Survey Project & Acres*
Utility Corridor Construction	BLM SLFO & HAFB North Range	916 acres	Ripple Valley Corridor Oasis Corridor Puddle Valley Corridor (719 acres combined)	U-91-WC-0687m U-92-WC-0555m U-94-WC-0577m U-99-HL-0003m (197 acres of APE, combined)
South Launch Site Operation Area	SITLA (to be leased by DoD)	661 acres	Parcel 6 (661 acres)	n/a
JLENS S-6 Aerostat Operations	HAFB North Range	189 acres	Parcel 2 (189 acres)	n/a
JLENS S-2 Aerostat Operations & New Road	HAFB North Range	815 acres	Parcel 3 (178 acres)	U-91-WC-0687m (637 acres of APE)
Mission Operations 1	HAFB South Range	< 5 acres	n/a	U-98-DH-0376m (< 5 acres of APE)
Mission Operations 2	DPG	< 5 acres	n/a	n/a: < 5 acres existing gravel/concrete area
New "Sprung Shelter" Construction	DPG	< 5 acres	n/a	U-03-DA-0004m (< 5 acres of APE)
New Maintenance Building(s) Construction	DPG	< 5 acres	n/a	U-02-PD-0561m (< 5 acres of APE)
Aerial Mission Operations Area	DPG (airspace)	179,200 acres	n/a	n/a
n/a (Undertaking Relocated)	SITLA	n/a	Parcel 4 (349 acres)	n/a

Undertaking Action	*Land Owner(s)*	*APE*	*Current Survey Parcel & Acres*	*Previous Survey Project & Acres*
n/a (Undertaking Relocated)	BLM SLFO	n/a	Parcel 5 (25 acres)	n/a
n/a (Undertaking Relocated)	HAFB North Range	n/a	Parcel 1 (235 acres)	n/a
Totals		***181,801 acres***	***2,356 acres surveyed for current project***	***854 acres of APE previously surveyed***

Historic properties as defined in 36 CFR §800.16(l) were not found during the new inventory and none were found during previous inventories of the ground disturbing portion of the APE. Due to the potential for buried archaeological deposits near Mission Operations 1 (HAFB South Range), DPG and HAFB plan to have an archaeological monitor present during construction activities at this location. As such, I have determined a finding of **no historic properties affected** by this undertaking [36 CFR §800.4(d)(1)].

As required by the provisions of 36 CFR §800.4(d), I am providing the above-mentioned report for your comment. Please direct correspondence for this project to Ms. Rachel Quist, DPG Cultural Resource Management Officer, through the mail (IMWE-DUG-PWE-CP MS #1, 5330 Valdez Circle, Dugway, Utah 84022-5001), email (rachel.quist@us.army.mil), or telephone (435 831-3587). I appreciate your attention on this matter.

Sincerely,

Greg D. Olson
Colonel, US Army
Commanding

Enclosures
Copy Furnished:
Jaynie Hirschi, Archaeologist, OO-ALC/EM, 7274 Wardleigh Road, Building 5, Hill AFB, UT 84056-5134

Peter Ainsworth, Archaeologist, Bureau of Land Management Salt Lake Field Office, 2370 South 2300 West, Salt Lake City, UT 84119

Kenny Wintch, Archaeologist, State of Utah School and Institutional Trust Lands Administration, 675 East 500 South, Suite 500, Salt Lake City, UT 84102

EP-267-07

State of Utah

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Governor

GARY R. HERBERT
Lieutenant Governor

Department of Community and Culture

PALMER DePAULIS
Executive Director

State History

PHILIP F. NOTARIANNI
Division Director

July 6, 2007

Ms Rachel Quist
DPG Cultural Resource Management Officer
IMWE-DUG-PWE-CO MS #1
5330 Valdez Circle
Dugway UT 84022-5001

RE: "A Class III Cultural Resources Inventory for the JLENS Project, Tooele, Box Elder and Millard Counties, Utah" U-06-DU-1410bms

In Reply Please Refer to Case No. 07-1029

Dear Ms Quist:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced project on June 18, 2007. From the information you provided, it appears that no cultural resources were located in the project Area of Potential Effects. We concur with your determination of **No Historic Properties Affected** for this project.

This letter serves as our comment on the determinations you have made within the consultation process specified in §36CFR800.4. If you have questions, please contact me at (801) 533-3555 or mseddon@utah.gov

Sincerely,

Matthew T. Seddon, Ph.D., RPA
Deputy State Historic Preservation Officer - Archaeology

UTAH STATE HISTORY

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