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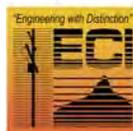
ENVIROMENTAL  
ASSESSMENT



VALLEY ELECTRIC ASSOCIATION  
DESERT VIEW to NORTHWEST  
230 KV TRANSMISSION LINE PROJECT

BLM Serial No. N-62861  
August 2011

Electrical Consultants, Inc.  
Environmental Services  
*Group*



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## Acronyms and Abbreviations

AAM	Annual Arithmetic Mean
ac	Acres
AC	Alternating Current
ACSR	Aluminum Conductor, Steel Reinforced
APE	Area of Potential Effect
BAPC	Bureau of Air Pollution Control
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CCRFCDD	Clark County Regional Flood Control District
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CO	Carbon Monoxide
DAQEM	Department of Air Quality and Environmental Management
EA	Environmental Assessment
EMF	Electric and magnetic fields
EPA	Environmental Protection Agency
EPM	Environmental Protection Measure
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy Management Act
ft	Feet
GIS	Global Information System
GPS	Global Positioning System
HMA	Herd Management Area
KCM	One Thousand Circular Mils
KOP	Key Observation Point
kV	Kilovolt
LVPT	Las Vegas Paiute Tribe
LVPR	Las Vegas Paiute Snow Mountain Reservation
mi	Mile
MP	Milepost
NAC	Nevada Administrative Code

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NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>2</sub>	Nitrogen Dioxide
NPC	NV Energy formerly known as Nevada Power Company
NRS	Nevada Revised Statute
NV	Nevada
NVE	NV Energy
O <sub>3</sub>	Ozone
Pb	Lead
PM <sub>2.5</sub>	Particulate Matter 2.5 micrometers
PM <sub>10</sub>	Particulate Matter of 10 micrometers
POD	Plan of Development
ppm	Parts Per Million
RMP	Resource Management Plan
ROW	Right-of-way
RRCNCA	Red Rock Canyon National Conservation Area
SO <sub>2</sub>	Sulfur Dioxide
SNRPC	Southern Nevada Regional Planning Coalition
US	United States
USAF	United States Air Force
USC	United States Code
USFWS	United States Fish and Wildlife Service
Valley Electric	Valley Electric Association
VEA	Valley Electric Association
VRM	Visual Resource Management
WAPA	Western Area Power Administration
WECC	Western Electricity Coordinating Council
Western	Western Area Power Administration
WSA	Wilderness Study Area
µg/m <sup>3</sup>	micrograms per cubic meter

# EXECUTIVE SUMMARY

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## Executive Summary

This Environmental Assessment analyzes a 230 kV electrical transmission line that would cross 1.5 miles of public lands subject to Bureau of Land Management supervision and an additional 4.2 miles located on Indian trust lands. The latter segment is located within the exterior boundaries of the Las Vegas Paiute Snow Mountain Reservation. Federal law and the Tribe's federally-approved governing documents provide that the Tribal Council must grant its written consent on the Tribe's behalf before the Bureau of Indian Affairs may grant any rights-of-way on the Tribe's trust lands, including the 4.2 mile segment of the Proposed Desert View to Northwest 230 kV electrical transmission line. The Proposed Project would also include the construction of a 10 acre Desert View Substation on Bureau of Land Management land just north of the Snow Mountain Reservation. The project would be permitted, constructed, operated, owned and maintained by Valley Electric Association.

One Proposed Project alignment alternative with a No Action Alternative is proposed for consideration in this Environmental Assessment. The selection of the No Action Alternative would cause the interconnection between NV Energy's existing Northwest Substation and Valley Electric Association's existing Stirling Mountain 230 kV Transmission Line to not be built. This would result in increased reliability issues and use constraints within Valley Electric's power transmission system.

Construction of the Proposed Project is anticipated to result in impacts to some environmental resources in the project area. Ground disturbance within the project area would result in the generation of dust requiring dust control management and permitting. These measures will ensure compliance with the substantive standards applicable within Clark County, Nevada. Appropriate mitigation measures would be employed to minimize the temporary effects on air quality as a result of construction activities. Best Management Practices would be employed during construction to reduce any impacts to the surrounding water quality.

A review of the area vegetation was conducted in 2010. No federally listed botanical species were identified within the project area. Impacts to area vegetation as a result of project construction would result from crushing, and removal or transplantation of vegetation in the area. Right-of-way grant stipulations ensure that state protected species (cacti) will be treated in accordance with state standards and under state regulation, where applicable.

The project area is known desert tortoise habitat. Surveys of the project area utilizing the USFWS 100 percent coverage method were conducted between September 28 and October 5, 2010. As a result 129 tortoise sign were observed. Approximately 16.41 acres of habitat is anticipated to be permanently removed as a result of the Proposed Project (5.79 acres on tribal, 10.62 on Bureau of Land Management).

The portion of the project area located north of the Reservation primarily includes undeveloped public lands under Bureau of Land Management supervision. There is a limited amount of residential development on the western half of the Reservation. More removed from the project area on the eastern half of the Reservation the Las Vegas Paiute Tribe (LVPT) has developed a high end golf course project. Impacts on the area land use would be reduced through planning and coordination efforts with the LVPT's designated representatives.

The project area has been surveyed in the recent past for cultural resources. No historic or cultural properties have been identified within the Las Vegas Paiute Snow Mountain Reservation

## EXECUTIVE SUMMARY

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or on Bureau of Land Management project lands within the project area. No further evaluation of cultural resources was recommended.

The existing visual condition of the landscape is varied. Borrow pits and existing utility lines and substations along U.S. Highway 95 have caused some minor landform and structural modifications as well as vegetation disturbances. Introduced structures within the project area include the Mercury Line, a 138 kV transmission line operated by a privately held investor-owned utility company and some distribution and telephone lines in the area. The entire project area is located in VRM Class III area. Impacts to the visual quality of the area are expected to be additive.

Socioeconomic impacts would be temporary as a result of the construction personnel in the area. The duration of construction is anticipated to last up to six months and is not expected to result in a permanent migration to the area. The area is rural and sparsely populated. No displacement or infrastructure disturbance is anticipated as a result of the Proposed Project.

The Proposed Project would be designed and constructed to meet or exceed all applicable requirements of the National Electrical Safety Code. In addition, the Proposed Project generally avoids population centers and maximize distances from homes in concert with prudent measures to reduce any potential or perceived impacts to human health and safety. With respect to the on-Reservation segment of the Proposed Project, the alignment alternative was selected by the Tribal Council, to minimize the potential impact on the LVPT's community and commercial development plans.

## 1.1 INTRODUCTION

New electrical transmission and distribution facilities are needed throughout the western United States to satisfy the increasing demand for power, with these needs driven largely by population growth as more individuals relocate to the west and southwest. There are also renewable energy projects -like wind and solar plants- that require new lines and/or upgrades to increase transmission capacity to access power markets. . The trend associated with non-centralized renewable energy development and regional population growth increases will put a demand on the existing power transmission system that cannot be met without system upgrades and improvements to the existing power transmission system.

The objective of increasing the supply and availability of energy without sacrificing safety and other intangible values -like the environment and tribal sovereignty-- is reflected in high level pronouncements on federal energy policy. For example, Executive Order 13212, dated May 18, 2001, provides as follows: “The increased production and transmission of energy in a safe and environmentally sound manner is essential to the well-being of the American people...agencies shall take appropriate actions, *to the extent consistent with applicable law*, to expedite projects that will increase the production, transmission, or conservation of energy.” (emphasis supplied)

On August 29, 2006 Valley Electric Association (Valley Electric, VEA) executed an Interconnection Agreement with NV Energy (NVE) to accept 230 kV electric service at Desert View Substation as identified in NVE’s Valley Electric Association’s Interconnection Project. Under the agreement, VEA was to be responsible for permitting, constructing, operating and maintaining approximately 36.7 miles of new 230 kV overhead transmission line extending from Desert View Substation to VEA’s Stirling Mountain Substation. In return, NVE would permit, construct, operate and maintain an additional 5.7 miles of 230 kV transmission line from the proposed Desert View Substation south to NVE’s Existing Northwest Substation. (Figure 1-1) It was anticipated that most of the 5.7 mile segment would require an on-Reservation alignment on Tribal trust lands, necessitating the Tribe's written consent in order for the Secretary of the Interior to issue a right-of-way.

VEA completed the permitting of the Stirling Mountain to Northwest Project from Stirling Mountain Substation located in Section 7, T. 16 S., R. 54 E. extending generally southeast and terminating in Section 16, T. 18 S., R. 59 E.. This portion of the project received a completed right-of-way (ROW) grant (N-62861) from the Bureau of Land Management (BLM) in October of 2007. Following the attainment of this right-of-way grant and associated notice to proceed, VEA initiated construction efforts on this transmission line segment in the fall of 2010.

From 2007 through the spring of 2010, the Tribal Council committed significant time, attention and Tribal financial resources towards the Interconnection Project. These efforts included the review of the overall Interconnection Project and the specific features identified in NVE's Preliminary Plan of Development dated May 1, 2007 (IP-POD). Technical consultants were retained at the Tribe's own expense, including a widely recognized expert on electrical transmission economics and development, to lead discussions with utility representatives. Despite the Tribe's effort and unreimbursed expenses, the effort to negotiate a right-of-way agreement was not successful.

In the Spring of 2010, NV Energy (formerly known as Nevada Power Company or NPC) agreed to provide VEA with an opportunity to secure the permits and approvals (including Tribal consent) needed in order for the construction, operation, and maintenance of the remaining 5.7 miles of the proposed 230 kV transmission line from Desert View Substation to Northwest Substation. Therefore, NV Energy requested that VEA pursue the necessary approvals and permits for the last 5.7 miles of this transmission line.

This Environmental Assessment will address the details of the last 5.7 miles necessary to complete the interconnection of VEA's Stirling Mountain Substation to NV Energy's Northwest Substation through the Desert View Substation (Proposed Project). The BIA has indicated that it will use the designation LV 804 on their records as the designation for the project right-of-way that it is responsible for granting.

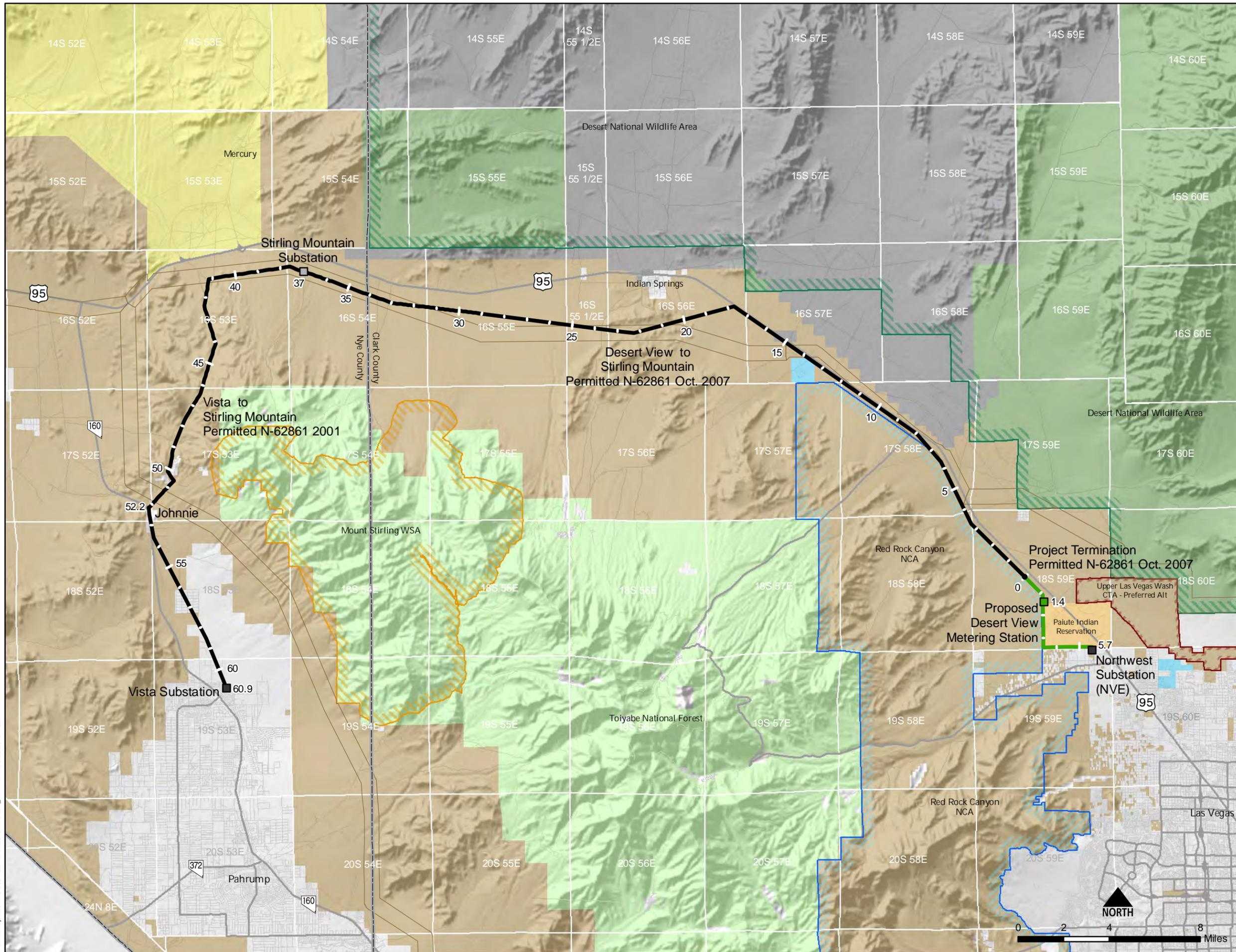
## **1.2 PROJECT OVERVIEW**

The Desert View to Northwest 230 kV Transmission Line Project location is shown on the Proposed Project Route Map in green (Figure 1-1). The proposed route is approximately 5.7 miles in length crossing 1.5 miles of BLM land with the remaining 4.2 miles located within the boundaries of the Las Vegas Paiute Reservation on lands that are held in trust by the United States for the Las Vegas Paiute Tribe. Issuing a right-of-way on these tribal trust lands requires both the Tribe's written consent as well as Bureau of Indian Affairs (BIA) approval. The Desert View to Northwest 230 kV Transmission Line would be permitted, constructed, operated, owned and maintained by Valley Electric Association.

On August 30, 2010 a kick-off meeting for the Proposed Project was held at the BLM Las Vegas office. Representatives from the BLM, BIA, and Las Vegas Paiute Tribe in addition to Valley Electric Association were in attendance. At this meeting it was determined that the BLM would serve as the Lead

Figure 1-1

**Desert View to Northwest  
230 kV Transmission Line  
Project Overview  
N-62861**



- Existing Facility
  - Proposed Facility
  - Permitted Facility
  - Project Termination
  - Proposed Transmission Line
  - Transmission Line Under Construction
  - Road
  - 368 Utility Corridor
  - ▨ Wilderness Study Area
  - ▨ Wildlife Refuge
  - ▨ National Conservation Area
  - ▨ Upper Las Vegas Wash CTA
- Jurisdiction**
- Bureau of Indian Affairs
  - Bureau of Land Management
  - Department of Defense
  - Department of Energy
  - Fish and Wildlife Service
  - Forest Service
  - State
  - Private



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Source: USFWS, NV BLM, US Census TIGER, 368 Programatic, NPS, USFS, VEA, ESRI, ECI

Agency with the BIA accepting a role as cooperating agency for the evaluation of the Proposed Project under NEPA. Subsequent written correspondence to confirm this determination was issued from the BIA Southern Paiute Agency to Mr. Robert Ross, Field Manager for the Bureau of Land Management, Las Vegas Office on September 2, 2010. The BLM will serve as the lead federal agency for preparing the environmental document evaluating this project with both the BIA and the Tribe participating as a cooperating agency.

Construction for the Proposed Project is anticipated to begin November 1, 2011 with an in-service date set for March 2012. The Proposed Project would consist of the following new or expanded facilities:

- Approximately 1.5 miles of 230 kV transmission line from the termination of the permitted project N-62861 to Desert View Substation located just north of the LVPT Snow Mountain Reservation on BLM land (Section 22, T. 18 S., R. 59 E.).
- Construction of the new 10 acre Desert View Substation (Section 22, T. 18 S., R. 59 E.).
- Approximately 4.2 miles of 230 kV transmission line from Desert View Substation across the Las Vegas Paiute Reservation to terminate at NVE's Northwest substation located south of LVPT Snow Mountain Reservation (Section 1, T. 19 S., R. 59 E.) to be designated LV 804 by the BIA.
- Construction and operation of new and improved existing access roads to each structure site along the 5.7 miles of 230 kV transmission line.
- Associated improvements to NVE's Northwest Substation to accommodate the interconnection.
- Temporary work areas associated with construction activities.

### **1.3 PURPOSE AND NEED**

Valley Electric provides safe, reliable and cost-effective electric service to its retail customers via the development of comprehensive transmission facilities that deliver power into Valley Electric's service area. Historical growth rates have resulted in an increase of electrical demand for residential and commercial use. In addition to the area growth, the development of renewable resource generation (i.e. solar) within Nevada has prompted the need for additional transmission infrastructure. The overall reliability of the existing electrical system is also an ongoing concern.

The Proposed Project will provide the final segment necessary to interconnect Vista Substation to Northwest Substation completing a circuit that can provide increased reliability and emergency management capabilities in the event of an outage. The existing electrical system in this area was constructed 30 years ago and is not sufficient to meet the anticipated load growth or the renewable resource requirements (i.e. solar).

In a partial response to this purpose and need, BLM issued ROW grant N-62861 for the Vista-Mercury-Stirling Mountain Environmental Assessment in 2001. A second ROW grant under N-62861 for the Stirling to Northwest Environmental Assessment was issued in 2008. These projects are currently under construction and are scheduled to be completed in November of 2011. This Proposed Project would serve as the final segment required to complete this interconnection.

The BLM purpose for this proposal is to issue a right-of-way for the transmission line and substation to accommodate the requested project in accordance with Valley Electric Association's Purpose and Need.

The BLM need for the proposal is to satisfy the requirements under the various laws and regulations (FLPMA and any other laws pertaining to issuance of rights of way) to allow for issuance of the requested right-of-way.

## **1.4 POLICIES, PLANS, AND OTHER AUTHORIZING ACTIONS AND PERMIT REQUIREMENTS**

### **1.4.1 BIA/LVPT**

As provided by federal statutes concerning rights-of-way on Indian land as well as the LVPT's federally-approved Tribal Constitution, there is a requirement that the Tribal Council must grant its written consent before the Bureau of Indian Affairs may undertake to grant a right-of-way on the Tribe's trust lands, including the 4.2 mile segment of the Proposed Desert View to Northwest 230 kV electrical transmission line. Section 1813 of Public Law 109-58, the Energy Policy Act of 2005, directed the United States Department of the Interior and the Department of Energy to evaluate and report to Congress on the tribal consent requirement in the context of rights-of-way for energy projects involving tribal lands like Snow Mountain. The report that was subsequently submitted to Congress is entitled the Energy Policy Act of 2005, Section 1813 Indian Lands Rights-of-Way Study (2007) or more commonly it is called the "1813 Report". The 1813 Report incorporates extensive submissions and case studies prepared by and on behalf of the energy development and distribution industry as well as tribal representatives. One of the key findings and conclusions of the 1813 Report is that "Negotiations between Indian tribes and energy companies for the grant, expansion, or renewal of energy rights-of-way across tribal lands have had no demonstrable effect on energy costs for consumers, energy reliability, or energy supplies to date." (1813 Report at 53)

The 1813 Report also notes that the tribal consent requirement plays the essential role in fulfilling the government's obligations as trustee and in furthering the federal government's policy of tribal self-determination, as follows:

A tribe's determination of whether to consent to an energy ROW across its land is an exercise of its sovereignty and an expression of self-determination. Any reduction in the tribe's authority to make that determination is a reduction in the tribe's authority and control over its land and resources, with a corresponding reduction in its sovereignty and abilities for self-determination. Granting a ROW on tribal land only with the consent of a tribe is in accordance with the Federal policy promoting tribal self-determination and self-governance. The tribal consent requirement has been virtually unchanged since 1951. It reflects a longstanding interpretation of the pertinent statutes by the agency charged with their administration. (1813 Report at 21)

With respect to the Proposed Project's on-Reservation alignment, the tribal consent requirement enables the Tribal Council to have the pivotal role in evaluating alternative alignments on the Reservation. The Tribal Council evaluated these alternatives in light of various possible scenarios for on-Reservation economic development. This careful evaluation was undertaken with input from land management professionals employed by the Tribe and with input from the Tribe's membership. This analysis revealed that transmission lines located diagonally across the Reservation are inconsistent with the Tribe's development objectives. The Tribe's independent

evaluation resulted in the selection of an alignment and an overall design for the on-Reservation segment that shares several attributes of the IP-POD from 2007. For example, the Project will follow the Reservation's south and western boundaries and will accommodate the realignment of the Mercury Line. Nevertheless, unlike the alignment proposed in the IP-POD, the Tribal Council determined that it was not in the Tribe's best interest to construct the Project immediately adjacent to the Reservation's south and western borders; instead in order to best utilize the Tribe's finite Tribal lands the Tribal Council selected an alignment for the Project that is parallel and 250 feet east of the Reservation's western boundary and 100 feet from the southern boundary.

The Tribe consulted closely with VEA in selecting the proposed alignment. The Tribe's leaders and technical advisors also conferred with entities --including the Southern Nevada, Water Authority, the City of Las Vegas, the CCRFCD, and NVE-- to obtain information about possible adjacent infrastructure and utility projects. The Tribal Council's painstaking effort to evaluate the implications of various possible alignments thorough and complete review of the alternatives is relatively modest in comparison to the decades-long tenure of the right-of-way grant under consideration. Federal law accommodates this painstaking and deliberative evaluation by requiring tribal consent before a right-of-way can be granted.

#### 1.4.2 BLM

The Proposed Project conforms to the BLM's Resource Management Plan (RMP) for the Las Vegas Field Office and to relevant federal, state, and local statutes, regulations, and plans. Table 1-1 documents the federal, Tribal, state, and local agencies' approvals, reviews, and permitting requirements anticipated for the construction of the proposed transmission line.

**Table 1-1 Authorizations, Permits, Reviews, and Approvals**

Action Requiring Permit, Approval, or Review	Permit/Approval	Accepting authority/ approving agency	Statutory Reference
<b>FEDERAL/TRIBAL</b>			
Right-of-way Over Land Under Federal Management	Right-of-way Grant	Bureau of Land Management (BLM)	FLPMA 1976 (PL94-579) USC 1761-1771 and 43 CFR 2800
National Environmental Policy Act (NEPA) Compliance to Grant right-of-way	Environmental Assessment (EA)	BLM	NEPA, 40 CFR Part 1500-et. seq.
Grant of right-of-way by BLM	National Historic Preservation Act Compliance with Section 106	BLM and State Historic Preservation Office	National Historic Preservation Act of 1966, 36 CFR part 800, 16 USC 47

**Table 1-1 Authorizations, Permits, Reviews, and Approvals**

<b>Action Requiring Permit, Approval, or Review</b>	<b>Permit/Approval</b>	<b>Accepting authority/ approving agency</b>	<b>Statutory Reference</b>
Grant of right-of-way by BLM	Section 7 Endangered Species Act Compliance by BLM/USFWS Biological Opinion	BLM & U.S. Fish and Wildlife Service	Endangered Species Act Section 7 Consultation, 50 CFR Part 17, 16 USC 1536
Desert Tortoise Handling	Section 7 Endangered Species Act Compliance by BLM/USFWS Biological Opinion	BLM & U.S. Fish and Wildlife Service	Endangered Species Act Section 7 Consultation, 50 CFR Part 17, 16 USC 1536
Consent to right-of-way by the LVPT and BIA grant of right-of-way by the BIA	Right-of-way Grant	LVPT/Bureau of Indian Affairs (BIA)	Constitution of the LVPT; 25 U.S.C. § 323 et seq.; 25 CFR Part 169
Non Hazard Declaration	Notice of Proposed Construction or Alteration	Federal Aviation Administration (FAA)	14 CFR Part 77; Form 7460-1
<b>STATE OF NEVADA</b>			
Desert Tortoise Handling Permit/Authorization	Handling Authorization	Nevada Division of Wildlife	NAC 503.090, 503.093
<b>LOCAL/CLARK COUNTY</b>			
Construction and Operation	Special Use	Clark County and Nye County Board of Commissioners	Clark County Zoning Ordinance
Construction/Fugitive Dust – PM10	Dust Control Permit	Clark County Department of Air Quality Management	Clean Air Act of 1977 and Amendments NRS 321.001, 40 CFR Subpart C, 42 USC 7408, 42 USC 7409.
National Pollution Elimination Discharge Permit	Storm Water Pollution Prevention Program	Nevada Division of Environmental Protection	Clean Water Act

Source: Electrical Consultants, Inc. (ECI) 2011

## 2.1 INTRODUCTION

Alternatives were analyzed by evaluating constraints, opportunities and engineering design standards. The overall objective was to identify alternatives that addressed tribal, public, environmental, and social concerns while being responsive to the project purpose and need, as well as meeting the engineering criteria for service of the Proposed Project. There are no alternative routes proposed for the alignment of this project. Only a No Action Alternative was considered.

Considerations for siting the alignment of Proposed Project included use of existing ROWs, most direct pathways, use of existing access roads and avoidance of sensitive environmental resources as well as coordination with LVPT in consideration of other on-going planning efforts within the reservation boundaries. Review of BLM land use planning documents, discussions with the BIA and LVPT as well as reviews of area resources indicates no environmental fatal flaws would be encountered for the Proposed Project. A summary of the ground disturbance associated with the Proposed Project is shown in Table 2-1. Detailed discussion regarding resource values and environmental impacts are described in Section 4 of this EA document.

## 2.2 NO ACTION

Under the No Action Alternative, the BLM would not authorize VEA to construct the Proposed Project across federal lands and the BIA would not grant a right-of-way on Tribal lands under the laws that authorize such grants with the consent of the applicable tribal beneficial owner. The No Action Alternative would negatively affect the quality of life issue for VEA's service area including the residents in Pahrump regarding the reliability of electric power. The No Action Alternative would also mean the continuation of increased power based risks to community services, businesses and residents that would be associated with an unreliable power supply. These risks would include the potential loss of electrical power to residential homes and cooling/heating systems, computer-based and dependent businesses, medical services and facilities and electrical operating systems for regional infrastructures, such as the wastewater treatment plant and highway communications networks. In addition, the No Action Alternative would curtail the ability of the electric system to support future proposed renewable generation within Valley Electric's service area.

The No Action Alternative would also eliminate the most viable and minimally disruptive means for relocating the Mercury Line from its present alignment parallel to Highway 95. The Tribe has identified relocating the Mercury Line as a land use management and infrastructure priority on Snow Mountain. Accordingly, the No Action Alternative would have a detrimental impact on the Tribe because the quad circuit structures provides a technically feasible means for relocating the existing 138kV circuit, as originally proposed to the Tribe via NVE's IP-POD. The Tribe has negotiated with VEA so that the quad- circuit structures will continue for an additional length, approximately 0.3 of a mile north of the Reservation (i.e. to the point where the Proposed Project intersects the exiting Mercury Line north of the Reservation).

The Proposed Project would not be approved if undue degradation would result, which is prohibited by 43 CFR § 2805.11(a)(5). Denial of transmission line construction on federal lands would preclude potential environmental impacts on public lands. The existing environmental



Source: USFWS, NV BLM, US Census TIGER, 368 Programatic, NPS, USFS, VEA, ESRI, ECI

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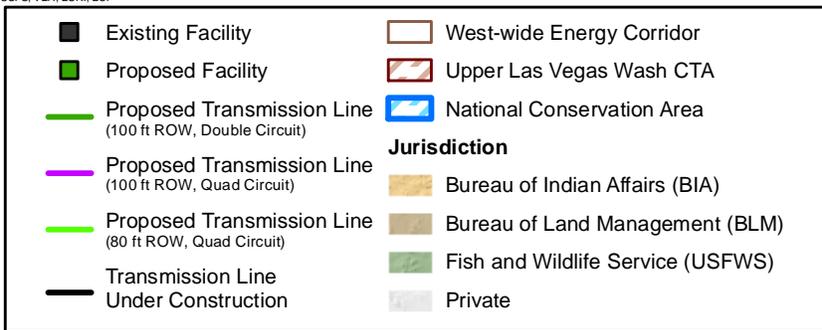


Table 2-1 Summary of Ground Disturbance\*

Segment		Right-of-way <sup>1</sup>		New Access Roads <sup>2</sup>		Structures <sup>3</sup>			Pulling Sites <sup>4</sup>		Laydown Areas <sup>5</sup>		Total <sup>7</sup>	
Description	Length (mi.)	Permanent (ft. or acre)	Temporary (ft. or acre)	Short-term (Acres)	Long-term (Acres)	Number	Short-term Acres	Long-term Acres	Number	Short-term Acres	Number	Short-term Acres	Short-term Acres*	Long-term Acres
<b>BLM</b>														
Sections 16, 21, 22 of T18S R59E	1.5	100 ft.	300 ft.	1.45	0.36	13	3.25	0.26	1	0.46	13	2.21	7.37	0.62
<b>Non-BLM – LVPT Snow Mountain Reservation</b>														
Sections 27, 34, 35, 36 of T18S R59E	4.2	80 ft.	180 ft.	7.64	5.08	35	8.75	0.70	3	1.38	35	8.05	25.82	5.78
<b>BLM - Desert View Substation<sup>6</sup></b>														
Section 22 of T18S R59E	--	10 ac	15 ac	1.00	--	--	--	--	--	--	--	--	16	10
<b>Total Project</b>														
	5.7	--	--	9.09	5.44	48	12.00	0.96	4	1.84	48	10.26	49.19	16.41

Source: ECI, 2011

\* all short-term disturbance calculations include long-term disturbance numbers also. Long-term disturbance reflects residual disturbance that will remain after all of the short-term construction disturbance has been reclaimed

<sup>1</sup> ROW width 100 ft within BLM and 80 ft within LVPT jurisdiction; Temp = Temporary right-of-way area (shown as width in feet or area in acres) used during construction.

<sup>2</sup> Short-term access = 15 ft wide, Long-term access = 10 ft wide; first 1.2 miles on BLM will use existing access with temporary spur roads approximately 250 ft long at each structure site (total of 10) equaling 0.9 acres of temporary disturbance (0 acres permanent). The remaining portion of the project (0.3 miles on BLM and 4.2 miles on LVPT) will require new access roads parallel to the existing transmission line (1.82 acres per mile temporary and 1.21 acres per mile permanent).

<sup>3</sup> Structure – Short-term 0.25 ac and Long-term 0.02 ac; 650 feet span between structures

<sup>4</sup> Pulling Site – 0.46 ac (100 x 200 ft).

<sup>5</sup> Laydown Area – 50 x 200 ft for a quad circuit structure = 0.23 ac per area; 50x150 ft for a double circuit structure = 0.17 ac per area.

<sup>6</sup> Desert View Substation will be a maximum permanent impact of 10 acres fenced. Temporary area for construction activities, material storage and staging will require an addition 5 acres of temporary impact, totaling 15 acres of impact that will temporarily be disturbed during construction with 10 acres remaining disturbed following completion of the project. An existing disturbed access road to the site will be used during construction (15 ft wide x 2,913 ft long = 1.00 acres temporary impact) This site will also be utilized for material storage, handling and construction staging.

<sup>7</sup> Long-term acres are the residual impact acres once construction has been completed. Acres include areas disturbed by structures, substations, new access roads, pulling sites and laydown areas as appropriate. Material storage areas would be located within the location for Desert View Substation.

conditions, described in Section 3 of this EA, would continue unchanged by activities related to this project.

### 2.3 PROPOSED PROJECT

The Desert View to Northwest 230 kV Transmission Line Project location is shown on the Proposed Project Route Map (Figure 2-1). The proposed route is approximately 5.7 miles in length crossing 1.5 miles of public lands under Bureau of Land Management supervision and an additional 4.2 miles located on Indian trust lands. The Desert View to Northwest 230 kV Transmission Line would begin at the termination point of Project N-62861 as granted in October of 2007 within Section 16, T. 18 S., R. 59 E. From this point, the Proposed Project alignment for the double circuit structures would continue along the same alignment i.e. parallel and to the north and east of the existing NVE 138 kV transmission line for approximately 1.2 miles. At this point the Proposed Project alignment turns directly south to cross the existing 138 kV transmission line. Quad circuit structures will be construed for the remaining 4.5 miles of the Proposed Project. The Proposed Project transmission lines will then drop into and out of the Proposed Desert View Substation, which is located east of the right-of-way alignment and immediately north of the LVPR. The Proposed Project alignment for the quad circuit structures would then enter the Las Vegas Paiute Snow Mountain Reservation as reflected in Figure 2-2. As depicted, the on-Reservation alignment line would continue along the western border of the reservation to the southern edge of the reservation before it would turn east for approximately 2 miles then drop south to tie to the termination point designated by the NVE interconnection agreement at the Northwest Substation in Section 1 T. 18 S. R. 59 E.

### 2.4 PROJECT ACTIVITIES

The Proposed Project would consist of the following phases including (1) construction, (2) operation and maintenance, and (3) abandonment and reclamation. Before transmission line construction, detailed siting of access roads, structure placement, and conductor pulling sites would be completed. Material storage and staging activities are anticipated to take place at the location of the Proposed Desert View Substation and Northwest Substation. Consideration to siting of facilities and activities will be given to reduce or eliminate impacts to land use and avoid or minimize disturbance to sensitive environmental areas. In addition, the Proposed Project alignment within the LVPR would be located within the 80 feet (ft) easement width as proposed to the Tribe by Valley Electric, the submissions to the BIA and the right-of-way grant sought by Valley Electric will reflect this 80 ft width as depicted on Figure 2-3.

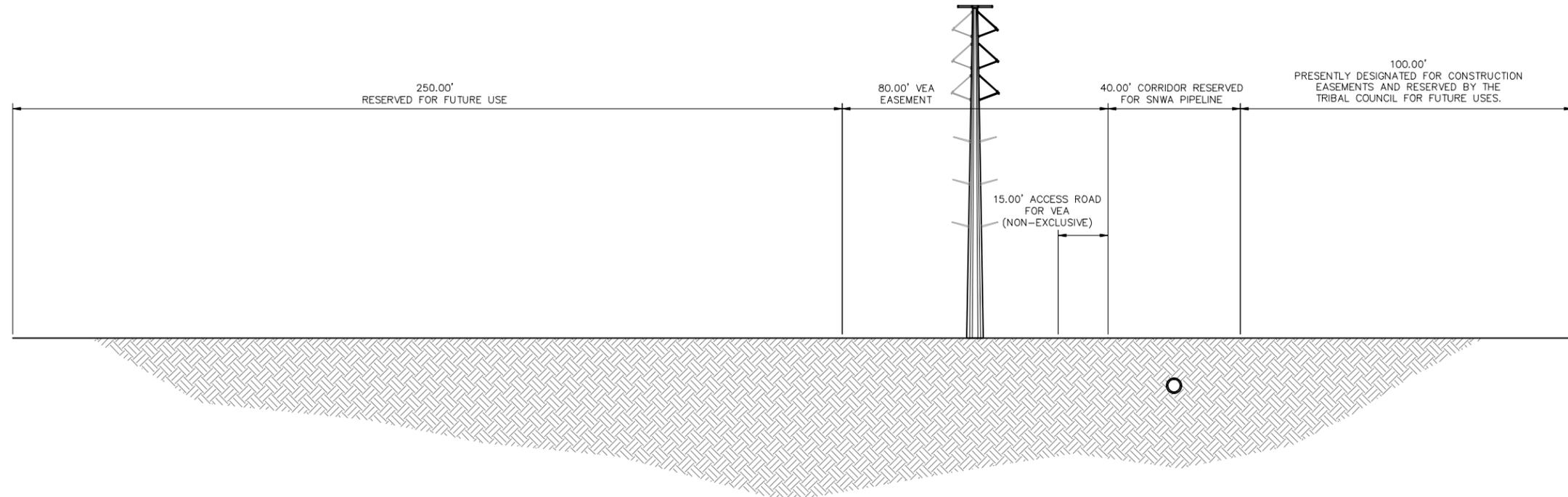
Table 2-2 provides a summary of construction time periods, equipment, personnel and equipment use factors required for each major project activity.

#### 2.4.1 Construction

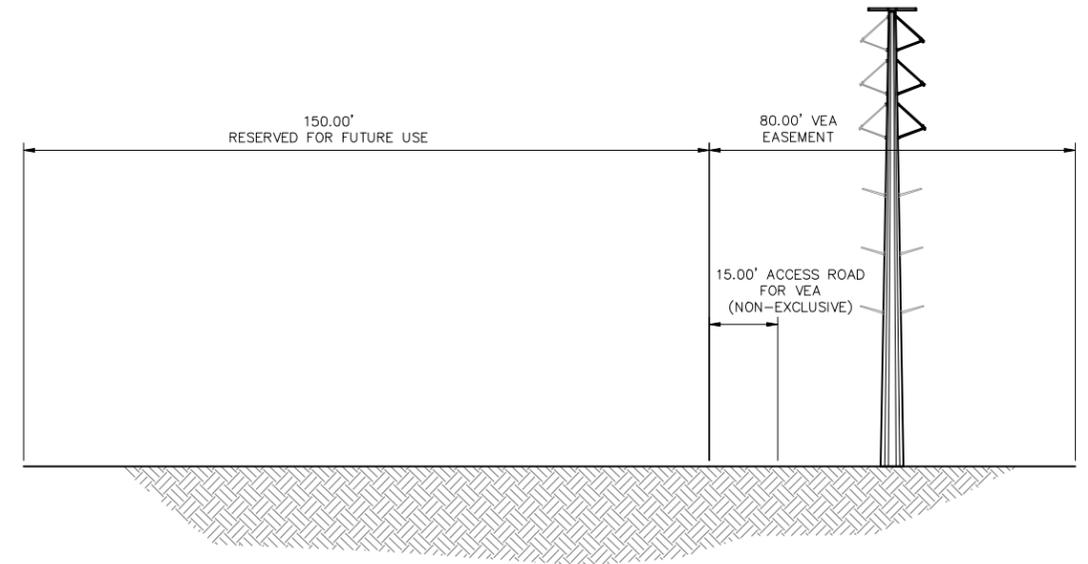
The Project would be constructed by VEA using conventional methods. The description of the proposed conventional construction methods includes a discussion of short-term and long-term landscape disturbance. Table 2-1 summarizes the short-term and long-term land disturbances associated with construction activities. “Short-term” refers to the construction period and subsequent time period during which vegetation would be re-established on disturbed areas brought about by the Proposed Project. “Long-term” pertains to impacts initially disturbed during construction that will remain permanently following the installation of the project that



RED ROCK CANYON  
N.C.A.



**SECTION A**  
NOT TO SCALE



**SECTION B**  
NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	APPROVED

**MAP FOR RIGHT-OF-WAY APPLICATION**  
 B.I.A. PROJECT NO. LV8014  
 VALLEY ELECTRIC ASSOCIATION - 230 KV TRANSMISSION LINE PROJECT  
 CROSS SECTION EXHIBIT

PROJECT No: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

**G. C. WALLACE COMPANIES**  
 ENGINEERS | PLANNERS | SURVEYORS  
 1555 S. RAINBOW BLVD. LAS VEGAS, NV 89146  
 T: 702.804.2000 F: 702.804.2099 GCWALLACE.COM

SCALE		DRAWING NO.
HORIZ:	N/A	
VERT:	N/A	1
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**Table 2-2 Conventional Construction Personnel and Equipment Requirements**

<b>Activity</b>	<b>No. of Personnel</b>	<b>Equipment</b>	<b>Length of Time</b>	<b>Use Factor<sup>3</sup></b>
Engineering Surveying	2 to 3 person crew	1 utility vehicle and all-terrain vehicle	10 miles per week	0.25
Access Roads, Wire Handling Areas and Construction Lay Down Sites	2 to 3 persons	1 D-6 Caterpillar dozer 1 all-wheel drive motor grader 1 10-wheel dump truck 1 water truck 1 pickup truck 1 master grader	1-2 months	0.50 0.75 0.50 0.50 0.75
Material Storage and Handling	2 persons per truck	2 pickup trucks 2 flatbed trucks with cranes 2 pole delivery trucks	1 month	0.50 0.25 0.25
Materials Hauling	4 to 8 laborers/ equipment operators	1-2 tractor trailers 1-2 hydrocranes 1-2 pickup trucks 1-2 flatbed trucks	2 months	0.25 0.25 0.50 0.25
Structure Holes	6 persons	2 rotary drilling rigs 2 backhoes 3 pickup trucks 1 water truck	2 months	0.50 0.50 0.25 0.25
Foundation Excavation (for Dead-end and Angle Structures only)	4-8 laborers/ equipment operators	2 tractors with augers 1 backhoe 2 pickup trucks 1 compressor	1-2 months (Lags access roads 1 week)	0.50 0.50 0.25 0.75
Foundation Setting/Pole Embedment (for Dead-end and Angle Structures only)	12-18 laborers/ equipment operators	3 flatbed trucks 3 crew pickup trucks 3 air compressors 3 hydro lifts	1-2 months (Lags excavation 1 week)	0.25 0.25 0.50 0.25
Tying and Hauling Rebar Cages (for Dead-end and Angle Structures only)	3-4 ironworkers and laborers	1 flatbed truck w/lift 2 welding machines	1-2 months (Lags excavation 1 week)	0.25 0.50
Concrete Placement (for Dead-end and Angle Structures only)	4-5 laborers	2 mixer trucks 1 pickup truck 1 man haul	1-2 months (Lags setting 1 week)	0.75 0.50 0.25

**Table 2-2 Conventional Construction Personnel and Equipment Requirements**

Activity	No. of Personnel	Equipment	Length of Time	Use Factor <sup>3</sup>
Stripping and Curing (for Dead-end and Angle Structures only)	2 laborers	1 flatbed truck	1-2 months (Lags setting 1 week)	0.25
Structure Assembly	6-12 linemen/groundmen, and crane operator	1-3 hydro cranes	2-4 months	0.50
		1-3 flatbed trucks		0.25
		1 pickup truck		0.25
		1 compressor		0.25
Structure Erection	2 to 3 persons/crew 2 to 3 crews	3 pickups/carry alls	3 months	0.25
		2 cranes (50-100 ton capacity)		0.75
		2 boom trucks		0.50
		2 material trucks (5 tons)		0.25
Guard Structures	3 linemen/groundmen	1 auger	1-2 days	0.25
		1 tractor/pole trailer w/lift		0.25
		1 pickup truck		0.25
Conductor and Shield Wire Installation and Stringing	8 to 12 persons	4 pickup trucks	3 months	0.25
		2 manlifts/boom trucks		0.25
		2 hydraulic tensioning machines		0.25
		2 wire reel stringing trailers		0.25
		2 drum pulling machines		0.25
		1 water truck		0.25
				0.25
Post Construction Cleanup	6 persons	2 pickup trucks	3 weeks	0.25
		1 dump truck		0.25
		2 flatbed trucks		0.25
		1 front end loader		0.25
Revegetation and Reclamation	4 to 6 persons	2 pickup trucks	4 weeks with field review in following spring	0.25
		1 blader		0.50
		1 backhoe		0.25
		1 tractor/harrow/disk		0.50
		1 water truck		0.50

Source: Valley Electric Association, Electrical Consultants Inc., 2011.

<sup>1</sup> Approximate total work force at one time: 25 to 30 individuals in the field.

<sup>2</sup> Approximately 15 to 20 percent of work force is assumed local-hire.

<sup>3</sup> 0.25 use factor = 2 hours of usage per day.

**Table 2-3 Transmission Line Design Specification Summary**

<b>Design Specification</b>	<b>Description</b>
Line Length	5.7 miles (1.5 miles on BLM administered lands, 4.2 miles on LVPT).
Type of Structures	Self-supporting Corten steel double-circuit structures (MP 0 to 1.2) Self-supporting Corten steel quad-circuit poles (MP 1.2 to 5.7)
Right-of-way Width	100 feet on BLM; 80 ft on LVPT
Structure Heights	Double-circuit structures – 90-120 feet typ.; Quad-circuit structures – 120-140 feet typ.
Land Temporarily Disturbed (Short-Term Disturbance)	<p>Single Pole double-circuit structures</p> <ul style="list-style-type: none"> <li>• With conventional construction methods approximately 0.25 acres per structure will be temporarily disturbed during installation (105-foot x 105 ft)</li> <li>• Conductor pulling sites – approximately 0.46 acre per site (100-foot x 200-foot area).</li> <li>• Pole laydown areas - approximately 0.17 acre each (50-foot x 150-foot area).</li> </ul> <p>Single Pole quad-circuit structures</p> <ul style="list-style-type: none"> <li>• With conventional construction methods approximately 0.25 acres per structure will be temporarily disturbed during installation (105-foot x 105 ft)</li> <li>• Conductor pulling sites – approximately 0.46 acre per site (100-foot x 200-foot area).</li> <li>• Pole laydown areas - approximately 0.23 acre each (50-foot x 200-foot area).</li> </ul> <p>Desert View Substation</p> <ul style="list-style-type: none"> <li>• Temporary area for construction and grading approximately 15 acres</li> </ul> <p>Pulling/Stringing Sites</p> <ul style="list-style-type: none"> <li>• Occur at every angle point or every 20,000 feet maximum distance (100 feet x 200 feet)</li> </ul> <p>Material Storage &amp; Handling</p> <ul style="list-style-type: none"> <li>• Planned to occur at the Desert View Substation Site and/or the existing Northwest Substation. (15 acres)</li> </ul>
Land Permanently Disturbed (Long-Term Disturbance)	Pole structures 0.02 acres per structure (30 feet x 30 feet) Desert View Substation – 10 acres (660 feet x 660 feet)
Access Roads	Existing access roads would be used wherever feasible to reduce new access road construction. This would occur where the Proposed Project is adjacent to the existing NVE 138 kV

	<p>transmission line. In this location, spur roads from the existing access road to the structure location (approximately 250 feet long) would be constructed approximately every 700 feet.</p> <ul style="list-style-type: none"> <li>• Approximately 10 spur roads along 1.2 miles (0.90 acres temporary disturbance total) will be required. These spur roads would not be permanent.</li> </ul> <p>New temporary (15 feet wide) – 1.82 acres per mile for approximately:</p> <ul style="list-style-type: none"> <li>• 0.3 miles on BLM + 0.55 miles to Desert View Substation</li> <li>• 4.5 miles on LVPT</li> </ul> <p>New Permanent access roads (10 feet wide) – 1.21 acres per mile for approximately:</p> <ul style="list-style-type: none"> <li>• 0.3 miles on BLM</li> <li>• 4.5 miles on LVPT</li> </ul>
Voltage	Energized at 230 kV
Structure Base	Direct buried (with concrete pier foundations required on dead-end and angle structures).
Conductor Types	Conductor – 954 KCM ACSR; Shield wire – fiber optic cable
Clearance of Bottom Conductor	Minimum of 26 feet to ground
Structures	7 to 9 per mile
Span Length	650-800 feet average

Source: Valley Electric Association, Electrical Consultants, Inc. 2011

will not be reclaimed, but will be used during the operation and maintenance activities take place over the life of the Project.

Construction of the transmission line would generally follow a sequential set of activities performed by a number of small crews proceeding along the length of the line. Construction activities and considerations would include:

- Engineering surveys
- Access roads
- Wire handling areas and laydown sites
- Material storage and handling
- Structure holes and Foundation excavation (for dead-end and angle structures only)
- Structure assembly and erection
- Conductor and shield wire stringing
- Post construction cleanup and reclamation
- Hazardous materials
- Fire protection
- Construction monitoring

Engineering Surveys – Three types of preconstruction field surveys would be required.

Preliminary engineering surveying would include the proposed transmission line routing. The purpose of this survey would allow biological and cultural resource surveys to be initiated. A conventional centerline survey would be used to establish elevations along the centerline of the route. This survey would be used during the design process to establish potential structure locations, as well as assisting with developing design features and specifications for new access roads and other related facilities and activities. A third survey would be required, after design is complete, to mark the final identified new structure locations and to finalize other design details. Additional surveying may be required to tie section corners. Global Positioning System (GPS) equipment would be used to provide precise locations of the route on BLM lands.

Access Roads – Existing access roads would be used where possible, i.e. where the Proposed Project is adjacent to the existing NVE 138 kV transmission line. For the 4.5 mile segment on the Reservation the new access roads will be constructed as per the terms and conditions negotiated by the Tribe and VEA, which are incorporated by reference in the final right-of-way grant issued by the BIA. In addition, on both the Reservation and the BLM lands, new access roads will be constructed to minimize impact to land use, soils, vegetation, visual resources, and other sensitive resources as well as to serve multiple uses where appropriate (i.e. for use in adjacent construction or maintenance of other proposed projects). Access roads would cross intermittent streams and washes at right angles wherever possible. The environmental analysis has included an assessment of road spurs and other temporary and permanent new road access. See Figure 2-4 for a review of the general condition of access roads in the project area.

Construction crews would use BLM and LVPT approved existing access roads and trails. Where no roads or trails exist, access to structure sites would be by approved overland travel along the ROW. Where this occurs, some clearing of vegetation may be necessary and an access way or a travel path would be developed for use by construction vehicles. On the BLM managed lands, where the terrain along the ROW is steeper or broken by drainage ways, new temporary access ways or stub roads would be constructed from existing roads in the vicinity along the proposed ROW. Once access to the proposed ROW is established, access to adjacent structure sites would be provided by using existing or construction access roads. In order to gain access to each structure location from existing access roads (i.e. north of the Reservation), temporary stub roads would be utilized at each structure location. These stub roads would be temporary in nature and only utilized during construction. They would not be maintained for use after construction. Where overland driving conditions are not passable, blading of a stub road would be required. Vegetation would be removed only where absolutely necessary to obtain access to each structure site. Vegetation species of BLM concern would be identified and transplanted within the right-of-way as directed by the BLM, similar procedures will be employed in consultation with the Tribe and the BIA on the Reservation where necessary.

Clearing would be done on a limited basis. For BLM identified species of concern, BLM removal procedures would be used and are described in Section 4.3. Temporary clearing would be involved at structure and substation perimeter locations. Permanent clearing would be limited to auger hole areas and the fenced substation area. Native plants required to be salvaged as directed by the BLM will be



Source: USFWS, NV BLM, US Census TIGER 2010, 368 Programatic, NPS, USFS, VEA, ESRI, ECI

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Existing Facility	Upper Las Vegas Wash CTA	Road
Proposed Facility	National Conservation Area	Unimproved Road
Transmission Line Under Construction	<b>Jurisdiction</b>	Temporary Construction Access
Existing Transmission	BIA	<b>Access Road Levels</b>
West-wide Energy Corridor	BLM	I Good - Very Good
	USFWS	II Fair - Good
	Private	III Poor - Fair

Figure 2-4  
**Desert View to Northwest 230 kV Transmission Line N-62861**  
**Access Road Levels**

transplanted within the right-of-way. Table 2-1 and Table 2-3 provide a summary of footprint disturbance information.

The terrain may dictate the need for some minor fill areas in order to obtain access to certain structures. These would be identified. Every effort would be made to minimize disturbance to native soils. Existing roads would be available for Proposed Project use subject to existing restrictions of the BLM, Las Vegas Paiute Indian Reservation, and BIA. Valley Electric's construction contractor (Contractor) would meet all conditions properly imposed upon the use of existing roads and those having seasonal or other access limitations.

Wire Handling Areas and Construction Laydown Areas – Wire handling areas would be located at every angle point along the alignment or a maximum distance of 20,000 feet apart. Conductor and shield wire would be hauled by truck to each area. Wire would be pulled in each direction out of a wire handling area provided terrain and number of angle structures do not limit stringing length. Dead-end structures that are normally located at angle points are often used as stringing points.

At each structure location, a temporary work area would be cleared and leveled as necessary. These construction lay down areas would be located in previously disturbed areas whenever possible. Structure pieces would be delivered to the laydown area where workers would assemble the pole and attach insulators and hardware. The pole would be erected using a crane from the laydown area. After construction, the laydown area would be reclaimed and restored. The Proposed Project would require up to 48 laydown areas (one for each structure).

Material Storage and Handling – Temporary material storage yards would be required at suitable locations along the transmission line and public access ways. These areas would serve as reporting locations for workers, parking spaces for vehicles, and storage spaces for equipment and materials. Two material storage yards are anticipated which would be a maximum of 5.0 acres in size. Each yard would be located on non-Tribal land and in an area requiring minimal clearing and grading, to the extent possible. Existing and previously approved termination stations and a proposed substation site would serve as material storage yards. Structural materials such as structure steel, hardware, foundation material, spools of conductor, and shield wire, would be hauled by truck into the yard. A crane or forklift would be required to unload and transport the materials. Construction materials would be delivered by truck from the yard to lay down areas. From these areas, materials would be brought to structure sites as needed. Crews would load the material required for the workday thus limiting the weight hauled on the access roads. This would limit the impact and rutting on access roads caused by the use of heavy vehicles.

Structure Holes – The holes for standard tangent structures would be augered with most being 19 to 25 feet in depth and four to five feet in diameter. Soil removed from the hole would be placed and tamped into the hole after the structure is plumbed and sloped away from the pole to promote positive drainage. All holes would be augered in the locations as staked and would be large enough to provide space for tamping around the entire circumference of the pole. Standing water resulting from seasonal runoff would be removed from the excavation as practical prior to structure installation. A pressure auger to drill to bedrock or other suitable base would be required. A rock drill, an air compressor, or explosives could be required if rock is encountered during excavation. For tangent structures, holes would be augered and poles would be directly

embedded into the ground. Tolerance on excavation would be between the desired depth and desired depth plus three inches.

Backfill would be compacted to a density not less than the natural in-place dry density of the adjacent earth. Backfill will be banked and tamped 12 inches above the natural ground surface. Surplus excavated material will be leveled neatly to blend with surrounding contours. Backfill would be free of large rocks, organic material or other low density, unsuitable soils. If satisfactory backfill material is not available from the excavation or within the immediate vicinity of the structure, the Contractor would import any additional material required for setting of structures, as approved by the Project Engineer and BLM.

Foundation Excavation – Most dead-end and angle structures would require drilled-pier-type reinforced concrete foundations with an average depth of 28-35 ft. After the foundation concrete is placed, excess soil would be spread evenly around the structure base to promote site drainage away from the structure. A mechanical tamp would be required to recompact the soil around the foundation. Managing of waste concrete or washing of concrete trucks would be conducted at approved sites. Disposal pits would be dug by backhoe as wash sites for concrete trucks.

A backhoe, front-end loader, or pressure auger would be required to excavate the foundations. Excavation to bedrock or other suitable base would be required. A rock drill, an air compressor, or explosives could be required if rock is encountered during excavation.

Structure Assembly and Erection – Valley Electric would use self-supporting Corten steel structures. No guy wires would be required. The diameter at the base of the structure would range from four to seven feet. Structure sites would include assembly and crane-landing areas. During construction the areas would be cleared of vegetation and graded where necessary. Structural components would be transported to the site by truck. For ground construction, a crane would be used to erect the structure. Equipment could include cranes, augers, bulldozers, bucket trucks, backhoes, air compressors, electric generators, pickup trucks, and other vehicles, machinery, and field equipment. Structure erection would be completed at each structure location. Structures would be blocked up off the ground. Construction materials and equipment would be placed in areas that will minimize disturbance to vegetation.

Angle and dead-end structures would be assembled, erected, and attached to foundations. A crane would be required to lift and set the structure after it is assembled. Cross-arms would be placed on the structures, and strings of insulators would be attached at the ends of the cross-arms to support the conductor.

For each structure location, a temporary construction land disturbance of about 0.25 acre (105 ft by 105 ft) would result. Long-term disturbance would be less than 0.02 acre (30 ft by 30 ft). Excavation and setting of structures would be performed in a continuous operation, preventing the possibility of caving of holes or injury to animals or persons in the vicinity of the construction. No excavations would be left uncovered when the contractor's personnel are not on site.

Surveying and routing work for the transmission line would help in identifying areas of poor soil structural stability. If engineering geotechnical conditions prevent installation of structures at locations as staked by the Project Engineer, the Contractor is required to notify the Project Engineer of conditions existing at the structure location. If possible, the problem would be

remedied by relocation of the structure up-line or down-line from the initial location. Similar protocols would be followed to avoid sensitive environmental resources.

Conductor and Shield Wire Installation – Conductor and shield wire would be delivered on reels by flatbed truck to the various conductor pulling sites along the ROW. Other equipment required to install the conductor would include reel stringing trailers, tensioning machines, pullers, a high-reach bulldozer, and several trucks including a bucket truck. One of two methods may be used for installing conductor and shield wire. The conventional method is to pull out a sock line or “pullrope” along the route of the line and manually lift the rope into stringing sheaves. The rope is brought to a puller at one end and a tensioner on the other end. The tensioner holds the wire reels and maintains enough tension to keep the wire off the ground and vegetation while the puller pulls the wire through the stringing sleeves. The puller would travel directly in line with the structures (i.e. not along the established and vegetation cleared access road) resulting in a drive and crush situation for vegetation along the line. The removal of vegetation along this area is not required and would result in much greater damage than necessary for the single pass required to pull the rope along the structure alignment. To the greatest extent possible damage to area vegetation would be avoided. In areas of critical resources, the rope can be hand-pulled and walked for short distances in accordance with permit stipulations.

The second method employs a helicopter to pull in the sock line. This method is generally used in extremely rugged terrain when ROW access is very difficult or in critical resource areas that extend for long distances. The puller and tensioner are used in the same manner as previously described. Although this is a feasible construction method, it is not anticipated to be utilized for this Proposed Project as the terrain is relatively flat and easily traversable.

Stringing roller (pulley) wheels would be attached to the end of the insulator string to allow the conductor to be threaded from structure to structure. Temporary guard structures would be installed to ensure that the conductors do not drop into the road or other locations that could result in a safety hazard. Typically guard structures are an H-frame configuration with two wood poles directly embedded into the ground and a third pole bolted to the embedded poles. These structures are designed to prevent shield wire or conductor from contacting an obstacle and would only be placed in areas where permitting agencies or safety precautions dictate. Equipment for erecting guard structures includes augers, line trucks, pole trailers and cranes. Guard structures may not be required for small roads. On such occasions, other safety measures such as barriers, flagmen or other traffic control would be used. It is not anticipated that guard structures will be required on this project.

Splicing would occur between conductor spools. After the conductors are pulled in, conductor tension would be adjusted to properly sag the conductors. The conductors would then be clipped to the insulators and the stringing roller wheels removed.

Typically, conductor pulling sites for stringing the conductor would be spaced at 15,000 feet to 20,000 ft intervals and at every angle point. However, distances between each site would vary depending on the geography and topography and environmental sensitivity of the specific area, the length of the conductor pull, and the accessibility by equipment. These sites would be located along the transmission line centerline. Angle structure pulling sites would be located outside the ROW. At each pulling site stringing equipment would be set up approximately 400 feet from the initial structure for leveraging the conductor pull safely.

Post Construction Cleanup and Reclamation – The Contractor would be required to have a continuous cleanup program throughout construction. Restoration will include the removal of deep ruts and the disposal of foreign objects such as: slash, chunks of concrete, pile cut-off construction materials, etc. Reclamation will include recontouring impacted areas, cleaning trash out of gullies and restoring terraces.

Waste materials and debris from construction areas, would be collected, hauled away, or disposed of at approved landfill sites. In addition to hand removal, equipment that will be used in clean up and reclamation could include a blader, front-end loader, tractor, and a dozer with a ripper. Procedures for vegetation clearing and restoration and ROW maintenance would be coordinated with the BLM, BIA and Las Vegas Paiute Tribe and implemented as standard construction and reclamation measures for the transmission line.

The Contractor would be required to keep a clear work area and would have a covered portable dumpster on site to contain any trash that can be blown away. After completion of the project, the Project Engineer would complete a final walk-through. The Project Engineer would note any waste material left on site and any ruts or terrain damage or vegetation disturbance that has not been repaired. The Contractor would be given this list and final payment will not be received until all items are completed.

The Contractor will be required at all times to take all reasonable precautions for the safety of employees on the Project and of the public, and will comply with all applicable provisions of federal, state and municipal safety laws and building and construction codes, as well as the safety rules and regulations of VEA. All machinery and equipment and other physical hazards will be guarded in accordance with the “*Manual of Accident Prevention in Construction*” of the Associated General Contractors of America unless such instructions are incompatible with federal, State of Nevada or local governmental laws or regulations.

Hazardous Materials – No hazardous materials, as defined in this document, will be used, produced, transported or stored on or within the ROW or any of the ROW facilities, or used in the construction, operation, maintenance or termination of the ROW or any of its facilities. “Hazardous material” means any substance, pollutant or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. 9601 et seq., and its regulations. The definition of hazardous substances under CERCLA includes any “hazardous waste” as defined in the Resource Conservation and Recovery Act of 1967 (RCRA), as amended, 42 U.S.C. 9601 et seq., and its regulations. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCLA Section 101(14), 42 U.S.C. 9601 (14), nor does the term include natural gas.

Petroleum products such as gasoline, diesel fuel, crankcase oil, lubricants and cleaning solvents will be present within the ROW during construction activities. These products would be used to fuel, lubricate and clean vehicles and equipment. When not in use, materials will be properly stored to prevent accidental releases. These products will be stored in fuel trucks or approved containers.

Totally enclosed containment would be provided for all trash. Spill kits would be on site and any leaking equipment would be serviced immediately to prevent ground contamination. All construction waste, including trash and litter, garbage or solid waste, petroleum products and other materials would be removed to a disposal facility authorized to accept such materials.

Fire Protection – All applicable fire laws and regulations will be observed during the construction period. All personnel would be advised of their responsibilities under the applicable fire laws and regulations. Smoking is only allowed inside closed areas.

Construction Monitoring – A resource compliance program will be developed to address mitigation requirements associated with the avoidance of sensitive plant and animal species, cultural sites or other sensitive features located within or adjacent to the Proposed Project.

#### **2.4.2 Operation and Maintenance**

The proposed transmission line system would be operated at 230 kV. The amount of power transferred along the conductors would vary depending on seasonal and time-of-day loads, and other system demands. Valley Electric's power system dispatchers would direct day-to-day and emergency transmission line operation in accordance with VEA's *Operating Bulletins*.

Once energized, the proposed facilities would be in virtually continuous operation. Reliability of service is an overriding consideration in the design and operation of utility electrical systems. Other than changes in electromagnetic fields (EMF) in the immediate vicinity of the line, operation of VEA electrical transmission systems is essentially inert and automatic.

Periodic inspection and maintenance of the transmission line facilities and substation are required to maintain reliable operation. Equipment damaged by vandals would be replaced immediately. The electrical equipment and steel poles are anticipated to have a lifetime of approximately 50 to 60 years or more depending upon maintenance operations and climatic conditions.

Emergency maintenance, such as repairing downed wires during storms and correcting unexpected outages, would be performed by VEA. Valley Electric will respond to emergency conditions along the proposed route within a few hours after an incident. The length of time needed to make the repairs would depend on the nature of the outage.

Valley Electric will maintain the proposed transmission system by monitoring, testing, and repairing equipment. The following are typical maintenance activities:

- Annual aerial inspections with additional emergency aerial inspections after storms, severe wind, lightning or other weather factors, or reported vandalism.
- Periodic and emergency ground inspections.
- Routine maintenance to inspect and repair damaged structures, conductors, and insulators.
- Emergency maintenance to immediately repair transmission lines damaged by storms, floods, vandalism, or accidents. Emergency maintenance would involve prompt movement of crews to repair damage.
- Access road maintenance to regrade and fill ruts or ground depressions to maintain access for inspections and maintenance.
- Vegetation management activities including clearing brush and noxious weeds, and undergrowth.

Permitted Uses – Some land use impacts could occur during routine maintenance activities and could increase during emergencies. Past emergency activities for existing portions of VEA's system have been relatively infrequent and restricted in most cases to a small area. Existing land uses such as grazing are generally permitted within the ROW. Incompatible land uses within the

ROW include construction and maintenance of buildings or other permanent structures and any use requiring changes in surface elevation that would affect electrical clearances of existing or planned facilities (i.e. flood control berms). Compatible uses of the ROW on public lands would have to be approved by the managing federal agency or, for Tribal lands, with the Las Vegas Paiute Tribe as appropriate in cooperation with VEA.

Right-of-way Maintenance – Maintenance of the proposed transmission system will consist of monitoring, testing, and repair of equipment, as appropriate, based on a set maintenance program and schedule. Valley Electric would visually inspect the ROW at least annually, and each structure will be inspected at least once every five years. Some portions of access roads would be maintained, if necessary, to allow access of workers and equipment for maintenance.

Valley Electric would maintain the ROW in accordance with federal stipulations and per the terms of the right-of-way agreement between the Tribe and VEA, which will be incorporated by referenced in the final right-of-way grant issued by the BIA. Maintenance would be performed as needed. When access is required for non-emergency maintenance and repairs, VEA would adhere to the same precautions taken during construction and notify the appropriate parties as stipulated.

Emergency maintenance would involve prompt movement of crews to repair or replace any damage. Crews would be instructed to protect plants, wildlife and other environmental resources to the extent feasible. Restoration procedures following completion of repair work would be similar to those prescribed for normal construction. Limiting noise, dust and the danger caused by maintenance vehicle traffic would be employed as appropriate.

Safety – Safety is a primary concern in the design of the 230 kV transmission line. An Alternating Current (AC) transmission line would be protected with power circuit breakers and related line relay protection equipment. If conductor failure occurs, power would be automatically removed from the line. Lightning protection would be provided by overhead ground wires along the line. Electrical equipment and fencing at the substation would be grounded. All fences, metal gates, pipelines, etc. that cross or are within the transmission line ROW would be grounded to prevent electrical shock. If applicable, grounding outside the ROW may also occur.

### **2.4.3 Abandonment and Reclamation**

High voltage transmission lines have a useful life of over 50 years. When a line loses its usefulness, a new line may be built on the existing ROW. At the end of the useful life of the proposed Stirling Mountain to Northwest Transmission Line Project, the transmission structures would either be replaced or removed. In the latter case, conductors, insulators, and hardware would be dismantled and removed from the ROW. If the transmission line system is abandoned at some point in the future versus continual refurbishing/maintenance as needed over time, the areas disturbed during removal of surface facilities (e.g., structures and possibly access roads) would be restored in accordance with applicable regulations in place at that time and in accordance with BLM, BIA and LVPT requirements. The subsequent land use would be determined by BLM, BIA and LVPT management plans, and/or local zoning as applicable.

Following abandonment and removal of the transmission line, any areas leveled for equipment required to dismantle the line would be regraded as near as is feasible to their pre-construction condition. Similarly, areas disturbed and stripped of vegetation during the dismantling process

would be restored. Cranes, large trucks, and pickup trucks would be required for efficient removal of the transmission line. If VEA does not wish to keep the ROW for future transmission line use, and after the facilities are removed from the ROW, VEA would relinquish its interest in right-of-way.

## **2.5 TRANSMISSION LINE SYSTEM ALTERNATIVES**

Valley Electric Association, located in the southwestern portion of Nevada, serves a geographically large service area extending from the western edge of Las Vegas to the California border, then northwest to a northern boundary west of Tonopah, NV. Valley Electric currently owns and operates a two source 138 kV looped transmission line, served from the Western Area Power Administration (Western) Amargosa Substation and NV Energy's Northwest Substation. VEA has also constructed and energized an 85-mile 230 kV transmission line from Western's Mead Substation into Pahrump in 1996.

In order to determine the most favorable strategy for continuing to meet the increasing demand for electric service, VEA commissioned ECI to complete the VEA-1996 Transmission Study to identify additional transmission facilities necessary to meet the growing needs of VEA. Planning and reliability criteria for this study were based upon recommendations set forth by the Western Electricity Coordinating Council (WECC). According to the study, VEA currently experiences under voltage conditions at Valley and Beatty Substations for a contingency outage of the Pahrump to Vista 138 kV Transmission Line. Without a second 230 kV delivery into Pahrump, the study indicates possible "black-out" conditions for the Pahrump Community. Throughout the study process, several options were considered and later dismissed due to environmental and/or economical constraints. The two most viable options, which were carried through the complete evaluation process, are as follows:

- Arden 230 kV Option – This option consists of upgrading the existing 138 kV transmission line between Arden, Sandy and Pahrump Substation to 230 kV operating voltage. The entire transmission line route would follow VEA's existing transmission ROW. In addition, construction of a new line segment between Vista Substation and Mercury, Nevada is required. This option also consists of several facility improvements, as well as a 138 kV transmission loop around the Pahrump Community.
- Northwest 230 kV Option – This option consists of constructing a new 230 kV transmission line from Stirling Mountain Substation near Mercury, Nevada to NVE Northwest Substation. The majority of this transmission route would follow the BLM Designated Utility Corridor. The Vista to Mercury to Stirling Mountain transmission line (under construction) would then be converted from a 138 kV to 230 kV operating voltage. This option has since become the Proposed Project.

In addition, due to the electrical system and primarily geographical constraints, other alternatives, which would require interconnection from the north, would not be economically feasible.

An outage did occur on VEA's Pahrump-Mead 230 kV transmission line on Jan. 13<sup>th</sup>, 2007 causing a blackout for nearly 40,000 VEA customers in Pahrump, NV. Some of these customers were without power for up to 30 hours. The community of Pahrump, the

Nevada Test Site and communities along US 95 remain in jeopardy of another blackout similar to this one without the construction of the Proposed Project.

## **2.6 ALTERNATIVE TYPES OF TRANSMISSION LINE DESIGN**

In response to VEA's electrical system requirements and needs, the Proposed Project would require a 230 kV transmission line. The first 1.2 miles of the Proposed Project would be structurally capable of being converted from a single circuit 230 kV transmission line to a double circuit 230 kV line in the future. The remaining 4.5 miles would provide the structural capacity to support a second 230 kV circuit as well as 2 future 138 kV circuits if necessary. In consideration of the right-of-way constraints in the area and potential future proposals, this capacity has been identified as being the most efficient design of the Proposed Project.

The proposed tubular steel structures will be made of weathering Corten steel construction. Single pole structure heights would range from 90 to 140 feet depending upon terrain, span length and structure configuration. Average spans would be 650 to 800 feet. Figure 2-5 and Figure 2-6 display typical structures in elevation view. Minimum conductor to ground clearance will be 26 feet. No alternative structure design, type or material is proposed for the Proposed Project.

It is anticipated that 954 KCM ACSR conductor would be used for the line. However, prior to a final conductor determination, VEA will re-evaluate system loads and optimize conductor sizing.

## **2.7 ROUTE ALTERNATIVES**

In a partial response to the purpose and need of this project, BLM issued ROW grant N-62861 for the Vista-Mercury-Stirling Mountain Environmental Assessment in 2001. A second ROW grant under N-62861 for the Stirling to Northwest Environmental Assessment was issued in 2008. These projects are currently under construction. This Proposed Project would serve as the final 5.7 mile segment required to complete this interconnection from Vista Substation to Northwest Substation. Based on the location of the previous BLM issued ROW, discussions with the BLM and negotiations with the BIA and LVPT only one routing alternative was identified and carried forward for evaluation in this EA. Other routing alternatives identified across the LVPR were dismissed from further consideration. For example, on June 30, 2010 the Assistant Secretary for Indian Affairs, Larry Echo Hawk, re-affirmed that the United States holds the 2.7 mile long "Highway Strip" within the Reservation in trust for the Tribe. ( See Appendix B) Assistant Secretary Echo Hawk's letter goes on to state that federal law recognizes that the Tribe may consent to a right-of-way within the Highway Strip. Nevertheless, further evaluation of a possible "Highway Strip" alignment revealed that placing a high voltage transmission line within this area would impede Tribal commercial development opportunities and community development objectives such as residential housing. Furthermore, the facilities needed for that alignment would also be considerably more costly to construct. A Highway Strip alignment requires several additional angle structures and involves a contingent cost relating to relocating any facilities in this corridor during a several decade planning horizon.

## **2.8 ALTERNATIVES CONSIDERED AND DISMISSED**

### **2.8.1 Routes**

Alternatives to the Proposed Project included several routes earlier considered and dismissed from detailed analysis. Preliminary routes that were earlier considered and dismissed were dropped due to one or more reasons including detailed negotiations with the LVPT. Primarily, alternative routes across the LVPT Snow Mountain Reservation resulted in undesirable effects to potential future plans within the reservation. Most notably, an alignment that would overlap the existing Mercury line was rejected because the Tribe has already identified relocating the Mercury line as a high land use and infrastructure priority. Also, a Highway Strip alignment was found to be inconsistent with Tribal land use and development plans as well as impractical. Because of this, these project alignments were dismissed from further consideration and the Proposed Project identified herein was carried forward for detailed analysis. The No Action alternative provides the only proposed alternative to the Proposed Project considered here.

### **2.8.2 Transmission Technologies**

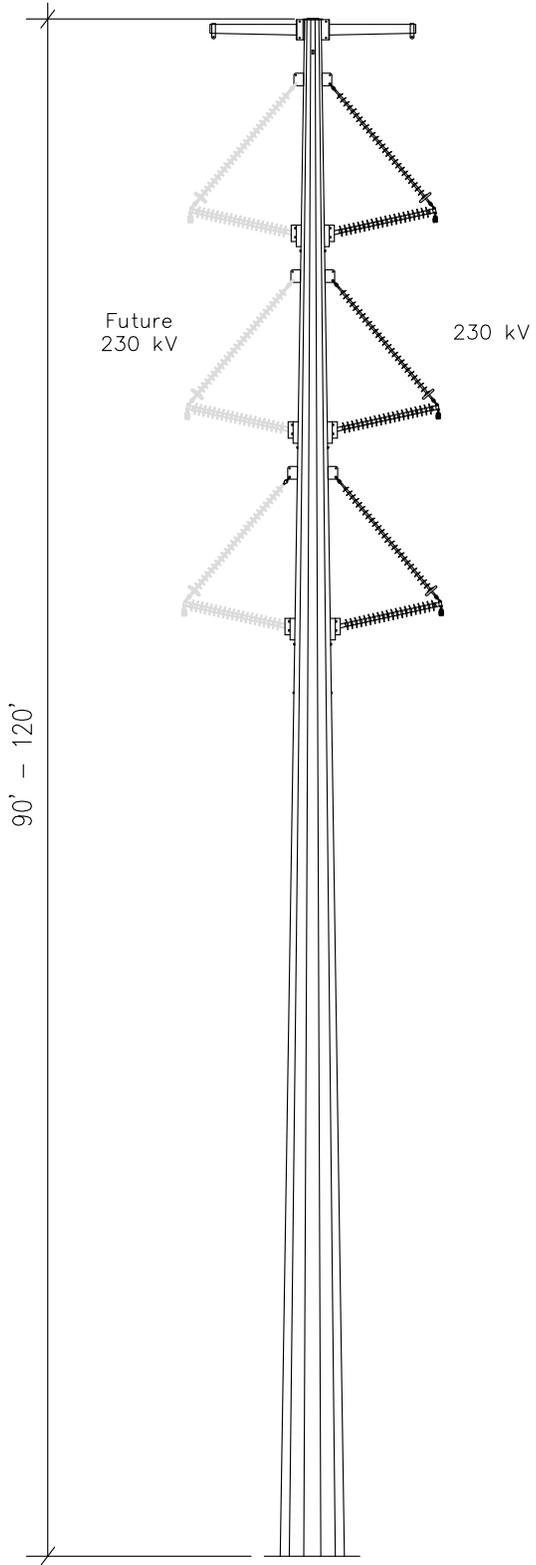
Underground High-Voltage Construction – Valley Electric has considered the option of using 230 kV underground cable for portions of the proposed transmission line. The environmental impact of an underground transmission line would be much more adverse than that of an overhead transmission line. Because of the required number and size of transition sites and trenching, an underground line would cause 30 times to 55 times the permanent ground disturbance of an equivalent overhead line per mile (BLM, 2004). The construction of an underground transmission line would require a contiguous rather than an intermittent, disturbance. Assuming the width of disturbance is 50 feet, the total permanent disturbance for underground transmission line installation would be 6.0 acres per mile plus an additional 5.0 acres of disturbance for cable termination sites and reactor sites. In addition, the following constraints exist for undergrounding the 230 kV transmission line.

- The cost of an underground transmission line would be approximately 10-12 times greater per mile than an overhead line.
- The reliability of an underground 230 kV transmission line is not proven to be superior.
- The time required to restore an underground line significantly exceeds the time required to restore an overhead line. Service parts are very expensive and not readily available.

For these reasons, underground installation of 230 kV underground cable was eliminated from further detailed consideration.

### **2.8.3 Energy Conservation and Load Management**

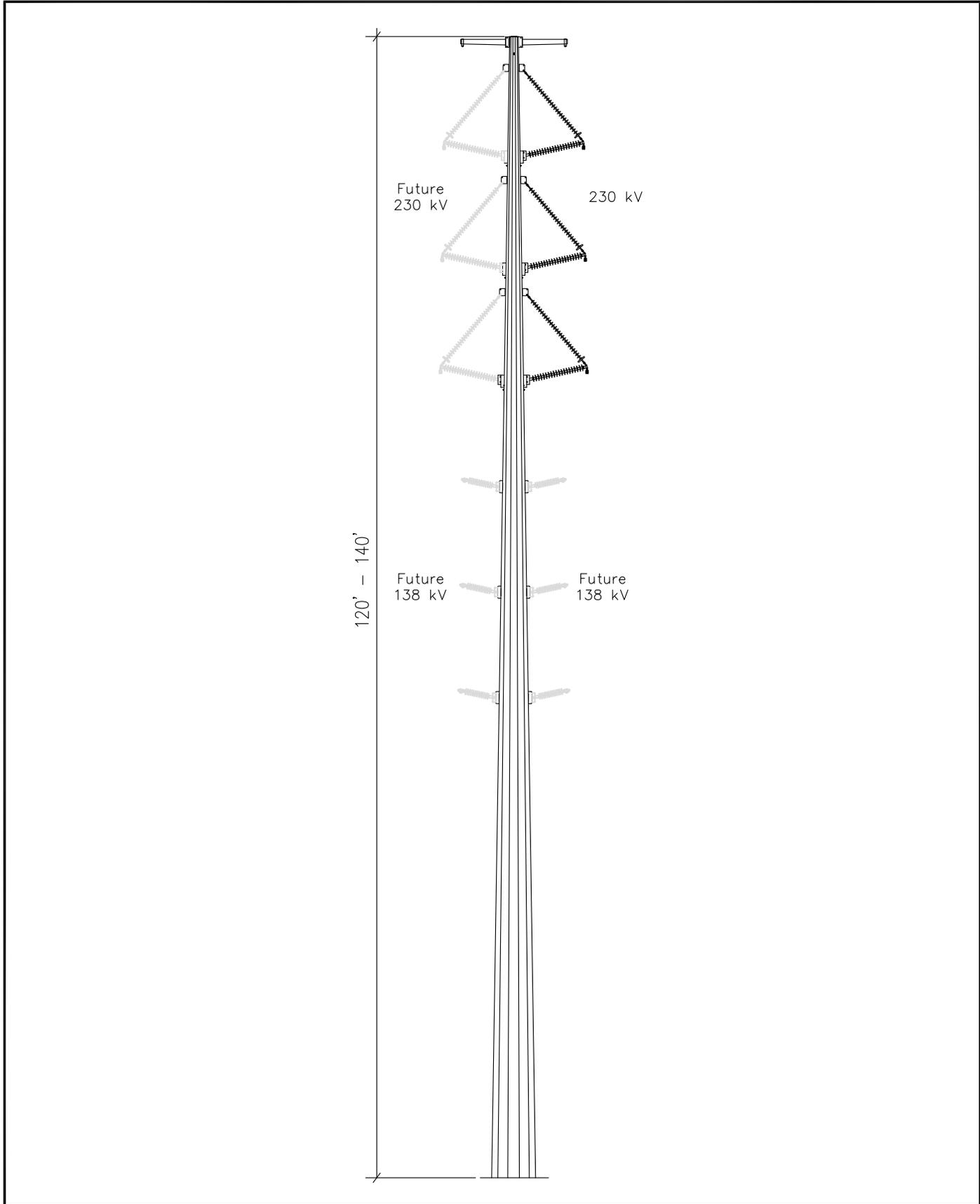
Valley Electric provides a number of energy conservation programs that offer financial incentives for implementing specific, energy-efficiency measures. Valley Electric also provides programs, such as online energy audits and energy conservation tips, to make customers more aware of their energy usage and ways to conserve, as well as a variety of free brochures on improving energy efficiency. While these programs play an important role in placing emphasis on energy and demand savings, these savings are substantially below what would be needed over the coming years to meet the forecasted load.



ENGINEERING RECORD		DATE
DRAWN		
DESIGNED		
CHECKED		
APPROVED		
DWG SCALE:	PLT SCALE:	

Figure 2-5  
 Desert View to Northwest 230 kV Transmission Line  
**Typical 230 kV Double Circuit Structure**

DWG. NAME: \_\_\_\_\_ REVISION NO.: \_\_\_\_\_



VALLEY ELECTRIC ASSOCIATION, INC.  
PAHRUMP, NEVADA

ENGINEERING RECORD		DATE
DRAWN		
DESIGNED		
CHECKED		
APPROVED		
DWG. SCALE:	PLT. SCALE:	

Figure 2-6  
Desert View to Northwest 230 kV Transmission Line  
**Typical 230/138 kV Quad Circuit Structure**

DWG. NAME: \_\_\_\_\_ REVISION NO.: \_\_\_\_\_

Load management programs are defined as any program that reduces peak electricity demand or has the primary effect of shifting electric demand from the hours of peak demand to non-peak times. Valley Electric has a voluntary commercial curtailment program and is currently developing a residential air conditioner curtailment program to help alleviate the strains that air conditioning can put on the power supply during peak demand times.

From a transmission system planning perspective, load reduction that results from load management programs could not achieve the reduction in load necessary to meet the reliability requirements and make room for the anticipated load growth in the Pahrump Valley area. In addition, the small reduction in load resulting from conservation and management would not provide adequate space to accommodate the proposed renewable generation within the Valley Electric service area. Therefore, energy conservation and load management programs as a sole source were eliminated from further consideration.

## **2.9 ENVIRONMENTAL PROTECTION MEASURES**

Environmental Protection Measures (EPMs) have been developed by VEA to reduce environmental consequences associated with construction activities. These EPM's serve as standard mitigation procedures for the Proposed Project, as well as alternatives. Environmental consequences for each resource area assume that the EPMs specified in Table 2-4 will be fully implemented. Valley Electric will implement these practices on both public and private lands. EPMs will be implemented consistent with regulatory and industry standards for any project related activity proposed. Where practical and appropriate, further mitigation measures will be considered to improve air quality.

The Proposed Project incorporates certain management practices to minimize impacts to the environment and improve safety conditions. Management practices and any mitigation measures determined necessary would be detailed in the Final Plan of Development and included in the agency authorization documents.

## **2.10 PROPOSED PROJECT SCHEDULE**

Valley Electric would anticipate receiving BLM/BIA and LVPT authorization and all required permits by late summer 2011. Material procurement would be scheduled to begin in late summer 2011 in anticipation of a fall construction date. Construction of the project would be scheduled to begin in November of 2011 and would require approximately six months. The in-service date for the Proposed Project is estimated to be spring of 2012.

**Table 2-4 Environmental Protection Measures**

<b>Resource</b>	<b>Environmental Protection Measure</b>
Air Quality	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any permits needed for construction activities would be obtained. Open burning of construction trash will not be permitted.
Air Quality	In compliance with the Clark County Department of Air Quality and Environmental Management (DAQEM) dust permit, all roads and structure pads will be watered (using water obtained from a source secured by the contractor) prior to and during all construction activities. All project personnel will be educated on the site dust mitigation plan.
Air Quality	Construction and operation vehicles would be properly maintained to reduce emissions.
Air Quality, human health and safety	<p>All Proposed Project construction activities shall comply with relevant provisions of the Clark County DAQEM. Best Management Practices will be implemented including under Sections 91 and 94 of Clark County Air Quality Regulations. These requirements will typically include:</p> <ul style="list-style-type: none"> <li>• All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water.</li> <li>• All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water</li> <li>• All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.</li> <li>• When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.</li> </ul>
Biological Resources	All appropriate Nevada Department of Wildlife (NDOW) and US Fish and Wildlife Service (USFWS) permits will be obtained prior to initiation of the project.

Resource	Environmental Protection Measure
Biological and Visual Resources	The aerial limits of construction activities normally would be predetermined with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity.
Cultural Resources	If any archaeological remains are unearthed during project construction, the BLM/BIA Archaeologist shall be notified immediately of any inadvertent discoveries and all activities associated with the project within 100 meters of the discovery shall cease until further authorization is received.
Cultural Resources	If the archaeological resources include human remains, the County Coroner, the Native American heritage Commission (State of Nevada), and the BLM/BIA Archaeologist shall be notified immediately of any inadvertent discoveries and all activities associated with the project within 100 meters of the discovery shall cease until further authorization is received.
General	Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural, and ecological resources. To assist in this effort, the construction contract would address: (a) federal, state and tribal laws regarding antiquities, fossils, plants and wildlife, including collection and removal; (b) the importance of these resources and the purpose and necessity of protecting them.
Human Health and Safety	All proposed electrical facilities will be designed in accordance with adopted VEA engineering practices, or the equivalent.
Human Health and Safety	Workers will be instructed not to drive or park vehicles where catalytic converters can ignite dry vegetation. Smoking will occur in accordance with fire regulations in effect at the time. This may occur inside a closed vehicle ONLY. Vehicles would carry water and shovels or fire extinguishers during times of high fire hazards.
Human Health and Safety, and Land Use	VEA will utilize construction methods reasonably calculated to avoid damage to other utilities within the utility corridor.
Human Health and Safety, and Land Use	VEA will notify affected utility providers immediately in the event of accidental damage to their lines.
Human Health and Safety, and Transportation	VEA will utilize all necessary precautions to minimize safety concerns when working within public road ROWs. Traffic safety cones, construction signage or other measures will be used to alert drivers to construction activities.
Land Use	VEA will consult with local planning agencies during the project review process in order to identify applicable land use policies and related concerns.
Land Use	VEA will comply with applicable land use controls.
Land Use	VEA will incorporate project design features as required to minimize potential land use conflicts.
Land Use	VEA will obtain, negotiate and abide by the terms and conditions of

Resource	Environmental Protection Measure
	any adopted permission agreements.
Land Use	Fences and gates would be repaired or replaced to their preconstruction condition prior to disturbance as required by the landowner or the land management agency if they are damaged or destroyed by construction activities.
Soils	Potential grading requirements will be identified during preliminary project review. Grading needs will be minimized wherever possible.
Transportation	All construction vehicle movement outside the ROW on dirt roads normally would be restricted to previously disturbed access. Should unforeseeable circumstances occur during construction that require more non-existing road access than initially requested, permission would be requested from the land agency.
Vegetation	In construction areas where recontouring is not required (i.e. drive-and-crush locations), vegetation would be left in place wherever possible and original contours would be maintained to avoid excessive root damage and allow for resprouting.
Vegetation	The contractor would use weed-free, native seed mixes if revegetation is required.
Water Resources	In compliance with Clark County and the federal Clean Water Act, all necessary permits relating to storm water would be obtained.

Source: ECI, 2011

The Affected Environment section describes the existing condition of environmental resources within the Proposed Project area. Not all resource issues are treated with the same level of detail in the EA. Resources susceptible to impacts from the construction or operation of a transmission line receive detailed examination, while resources (e.g., water quality) that can be easily avoided by structure placement are addressed in less detail.

The following resources are discussed within the affected environment section:

- Air Quality,
- Water Quality,
- Vegetation,
- Biological Resources (Wild Horses and Burros, Wildlife and T&E Species),
- Land Use,
- Cultural Resources,
- Visual Resources,
- Socioeconomics including Environmental Justice,
- Human Health and Safety

There are several critical elements of the human environment not present in the project area or not affected by the Proposed Project. These include areas of critical environmental concern, farm lands, areas identified as having Native American religious concerns, hazardous or solid wastes, wild and scenic rivers, floodplains or wetlands/riparian zones. Additionally there are other resources or values which would not be impacted by the Proposed Project and/or alternatives. These include noise, geology and minerals, paleontological resources, soils, surface and groundwater.

Existing published and unpublished environmental data, maps, reports and statements prepared for previous transmission line-related actions in the area were reviewed and evaluated to determine their applicability and adequacy for use in the environmental studies. The most relevant information was incorporated from the following reports:

- Las Vegas Paiute Tribe Economic Development Project – The Snow Mountain Resort Final EA, January 2002
- Las Vegas Paiute Tribe Economic Development Project – Las Vegas Paiute Golf Resort Draft EA, May 1993
- Stirling Mountain to Northwest 230 kV Transmission Line EA, 2008
- Three Lakes Valley Groundwater Development Project Draft EA, April, 2006
- Harry Allen–Northwest 500 kV Transmission Line Final EA, March, 2002
- Proposed General Management Plan and Final EIS for Red Rock Canyon National Conservation Area, December, 2000
- Vista to Mercury to Stirling Mountain 230 kV Transmission Line Final EA, November, 1999
- Proposed Las Vegas RMP and Final EIS, May, 1998
- Las Vegas Paiute Tribe Economic Development Plan Environmental Assessment, January, 2002

- Las Vegas Paiute Economic Development Plan, July, 2006

### 3.1 AIR QUALITY

The assessment of the existing air quality presented below is based on information obtained from the Nevada Division of Environmental Protection, Bureau of Air Quality. Sources for climatic data in the project area included the BLM EAs for the Henry Allen-Mead Transmission Line Project, Three Lakes Valley Groundwater Development Project and meteorological website data. Additional climatic data from Las Vegas, NV was used to supplement this information. Baseline ambient noise levels were estimated using the relationship between population density and noise levels.

#### 3.1.1 Regulations

The Environmental Protection Agency (EPA) has established ambient air quality standards for the project area. The EPA has delegated authority to enforce air quality standards in the project area to the State of Nevada Division of Environmental Protection (NDEP) Bureau of Air Pollution Control (BAPC) and the Clark County Department of Air Quality and Environmental Management (DAQEM), the LVPT concurs with the use of these standards on the LVPR. The Chemical Accident Prevention Program is administered state-wide by the BAPC. The entire project area lies within Clark County, Nevada. The DAQEM has classified Clark County as non-attainment with state and federal ambient air quality standards for CO (Serious), PM<sub>10</sub> (Serious) and marginal for 1-hr and 8-hr Ozone. Unclassified areas in Clark County are typically areas where there is minimal human habitation and little or no human activities that would impact air quality. Table 3-1 presents the National, State and Clark County Ambient Air Quality Standards (AAQS). Units of concentration are expressed in parts per million (ppm) or micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Clark County DAQEM has developed Air Pollution Control Regulations to regulate stationary sources of air pollution with the following regulations applying to the Stirling Mountain-Northwest Transmission Line Project.

- Section 12, New or Modified Stationary Sources – establishes general Department of Air Quality and Environmental Management air quality permit application requirements for new and modified stationary sources of air pollutants
- Section 17, Dust Control Permit for Construction Activities Including Surface Grading and Trenching –sets forth the requirements for obtaining a Dust Control Permit for construction activities
- Section 18, Permit and Technical Service Fees – sets annual operating fees for construction activities and a one-time fee for new or modified stationary sources
- Section 40, Prohibitions of Nuisance Conditions – prohibits any source from discharging air contaminants or other material that would cause a nuisance
- Section 41, Fugitive Dust – specifies the conditions under which fugitive dust from construction would require abatement
- Section 45, Idling of Diesel Powered Motor Vehicles – sets limitations on allowed idling times for diesel-powered motor vehicles including trucks but not including trenching, well drilling or hoisting equipment

Table 3-1 Ambient Air Quality Standards (AAQS) and Significant Impact Levels (SIL)

Pollutant	National AAQs Standard Value <sup>a,b,c</sup> SIL	Nevada AAQs Standard Value <sup>b</sup>	Clark County AAQs Standard Value <sup>b</sup>
Carbon Monoxide (CO) 8-hour Average 1-hour Average	9 ppm (10 mg/m <sup>3</sup> ) 500 µg/m <sup>3</sup> 3 5 ppm (40 mg/m <sup>3</sup> ) 2,000 µg/m <sup>3</sup>	9 ppm 35 ppm	9 ppm 35 ppm
Nitrogen Dioxide (NO <sub>2</sub> ) Annual Arithmetic Mean 1-hour Average <sup>k</sup>	0.053 ppm (100µg/m <sup>3</sup> ) 1 µg/m <sup>3</sup> 100 ppb (189µg/m <sup>3</sup> ) 7.5 µg/m <sup>3</sup>	0.053 ppm 100 ppb	0.053 ppm 100 ppb
Ozone (O <sub>3</sub> ) 1-hour Average 8-hour Average	0.12 ppm (235 µg/m <sup>3</sup> ) <sup>d</sup> NA 0.075 ppm (157 µg/m <sup>3</sup> ) <sup>e</sup> NA	0.12 ppm 0.075 ppm	0.12 ppm 0.075 ppm
Lead (Pb) Quarterly Average	1.5 µg/m <sup>3</sup> NA	1.5 µg/m <sup>3</sup>	From Fresno 0.01 µg/m <sup>3</sup>
Particulate < 10 micrometers (PM <sub>10</sub> ) Annual Arithmetic Mean 24-hour Average <sup>f</sup>	50 <sup>g</sup> µg/m <sup>3</sup> 1 µg/m <sup>3</sup> 150µg/m <sup>3</sup> 5 µg/m <sup>3</sup>	50 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>	50 <sup>i</sup> µg/m <sup>3</sup> 150 µg/m <sup>3</sup>
< 2.5 micrometers (PM <sub>2.5</sub> ) <sup>h</sup> Annual Arithmetic Mean <sup>i</sup> 24-hour Average <sup>j</sup>	15 µg/m <sup>3</sup> NA 35 µg/m <sup>3</sup> NA	15µg/m <sup>3</sup> 35 µg/m <sup>3</sup>	15µg/m <sup>3</sup> 35 µg/m <sup>3</sup>
Sulfur Dioxide (SO <sub>2</sub> ) Annual Arithmetic Mean 24-hour Average 3-hour Average 1-hour Average <sup>k</sup>	0.03 ppm (80 µg/m <sup>3</sup> ) 1 µg/m <sup>3</sup> 0.14 ppm (365 µg/m <sup>3</sup> ) 5 µg/m <sup>3</sup> 0.5 ppm (1,300 µg/m <sup>3</sup> ) 25 µg/m <sup>3</sup> 0.5 ppm (1,300 µg/m <sup>3</sup> ) 25 µg/m <sup>3</sup> 75 ppm (195 µg/m <sup>3</sup> ) 7.8 µg/m <sup>3</sup>	0.03 ppm 0.04 ppm 0.25 ppm 75 ppm	0.03 ppm 0.04 ppm 0.25 ppm 75 ppm

Sources: Clean Air Act USC, 2000, NDEP 2004, CCAQR 2009

<sup>a</sup> Concentration expressed in the following units: ppm refers to parts per million by volume and µg/m<sup>3</sup> is micrograms per cubic meter.

<sup>b</sup> Only the primary standards are established to protect the public health and are the most stringent federal standards

<sup>c</sup> National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once per year.

<sup>d</sup> The 8-hour standard is presented here for information purposes only. The Standard is established but implementation criteria are still to be determined at this time. The federal standard will be evaluated on the 4<sup>th</sup> highest (daily maximum) 8-hour average per year, averaged over 3 years.

- <sup>e</sup> *The federal 1-hour standard will be attained when the 4<sup>th</sup> highest (daily maximum) 1-hour average per year, averaged over 3 years, is equal to or less than the standard. Once attained this standard will no longer be in effect.*
- <sup>f</sup> *The 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.*
- <sup>g</sup> *The federal PM<sub>10</sub> annual standard is attained when the expected annual arithmetic mean concentration is less than or equal to 50 µg/m<sup>3</sup>*
- <sup>h</sup> *The PM<sub>2.5</sub> standard is pending and is presented here for information purposes only. Implementation is in the data-gathering phase.*
- <sup>i</sup> *The annual standard will be met when the 3-year average of the annual arithmetic mean PM<sub>2.5</sub> concentration is less than or equal to 15 µg/m<sup>3</sup>.*
- <sup>j</sup> *The 24-hour standard will be met when the 3-year average of the 98th percentile of 24-hour PM<sub>2.5</sub> concentration is less than or equal to 35 µg/m.*
- <sup>k</sup> *The 1-hour NO<sub>2</sub> and SO<sub>2</sub> standards are met when the maximum of each average over 5 years is less than the referenced standards.*

- Section 58, Emission Reduction Credits – establishes the procedures for the creation, banking (storage), and use of emission reduction credits
- Section 91, Fugitive Dust From Unpaved Roads, Unpaved Alleys, and Unpaved Easement Roads – specifies fugitive dust control measures for unpaved roads in Las Vegas Valley, within which the Project is located, and other basins, in addition to dust nuisance controls required under Section 40
- Section 92, Fugitive Dust From Unpaved Parking Lots, Material Handling and Storage Yards, and Vehicle and Equipment Storage Yards – specifies fugitive dust control measures for these facilities in hydrographic basin 212 in addition to dust nuisance controls under Section 40
- Section 94, Permitting and Dust Control for Construction Activities – requires a dust control permit and dust mitigation plan for specified types and sizes of construction activities

Contiguous construction impacting more than 0.25 acre will require issuance of a dust control permit and implementation of best management practices per Section 94 of the Clark County regulations. Portions of the project within the Hydrographic Basin 212 will require limiting fugitive dust from unpaved road easement and unpaved access roads consistent with Section 91 of the County's regulations.

### 3.1.2 Background Ambient Air Quality

Background ambient air quality reflects the condition of the existing, baseline air resources. Available recent existing air quality concentrations have been measured at various Clark County-operated monitoring stations from 2001 through 2003 and are presented in Table 3-2. Units of concentration are expressed in parts per million (ppm) or micrograms per cubic meter (µg/m<sup>3</sup>). These maximum concentrations demonstrate that the project is not attaining the AAQS for particulate matter, CO and ozone.

**Table 3-2 Background Ambient Air Quality**

<b>Pollutant</b>	<b>2009</b>
Ozone Highest	
1 hour, ppm	0.084
8 hour, ppm	0.076
Carbon Monoxide Highest	5.2
1 hour, ppm	4.1
8 hour, ppm	
Nitrogen Dioxide Highest	0.051
1 hour, ppm	0.0069
AAM, ppm	
Sulfur Dioxide Highest	
24 hour, ppm	----
AAM, ppm	0.002
Particulates (PM <sub>10</sub> )	
24 hour, µg/m <sup>3</sup>	67
Annual, µg/m <sup>3</sup>	23.8
Particulates (PM <sub>2.5</sub> ),	
98%	17.9
24 hour	9.13
AAM, µg/m <sup>3</sup>	

Source: Clark County Department of Air Quality and Environmental Management, Annual Network Plan (June 2010) and Data Certification Report (April 2010).

<sup>1</sup> Oxides of Nitrogen (NO<sub>x</sub>) data only; Nitrogen Dioxide (NO<sub>2</sub>) data not reported  
AAM - Annual Arithmetic Mean

PM<sub>2.5</sub> - Particulate matter less than 2.5 microns in diameter

PM<sub>10</sub> - Particulate matter less than 10 microns in diameter

ppm - parts per million

µg/m<sup>3</sup> - micrograms per cubic meter

### 3.2 WATER QUALITY

This section describes the affected environment for water resources, including groundwater, surface water, floodplains, and water quality. Several data sources were used to support the evaluation of groundwater, surface water, floodplains, and water quality. These data sources included the *Las Vegas Resource Management Plan and Final Environmental Impact Statement* (BLM 1998) and other NEPA documents that provide information about the Project area; published groundwater maps and reports; Environmental Protection Agency and United States Geologic Survey databases regarding water resources and water quality; topographic maps; and Federal Emergency Management Agency (FEMA) flood maps and flood insurance studies. In addition, a field visit was performed along the project site in the spring of 2006.

To facilitate discussion and analysis of water quality, land is divided into basins and sub-basins. A basin or hydrographic region is defined as a geographic area drained by a single major stream. Nevada has been divided into 232 Hydrographic Areas (sub-basins) within 14 major Hydrographic Regions or Basins. The entire project is contained within the Las Vegas Valley (Region 13, Colorado River Basin, Area 212)

Waters in the Las Vegas Valley are in the Colorado River Basin, flowing into the Colorado River and ultimately to the Pacific Ocean. (BLM 1998, Nevada DWR 2005, Nevada DWR 2006a). Water quality may be affected by natural causes or human-caused contamination. The sources of various chemical constituents can be identified as point or non-point sources. A point source has a discernible discharge point, such as a municipal wastewater plant discharge pipe or percolation pond. A non-point source is a diffuse source; constituents enter the stream or aquifer from a widespread area. Examples of non-point sources are natural mineral deposits and irrigated lands.

The quality of groundwater in unconsolidated deposits in the Basin and Range area varies from basin to basin. The groundwater quality of deeper groundwater in the Proposed Project area is generally good, with dissolved-solids concentrations ranging from less than 500 milligrams per liter (freshwater) to approximately 1,000 milligrams per liter. Shallow aquifers in the area are of generally poor quality. Groundwater has lower dissolved solids at the basin margins and on the slopes of alluvial fans. The groundwater beneath playas in the Project Area would be expected to be brackish; however, a deeper freshwater flow system may also be present.

The Proposed Project area does not contain any waterways or wetlands identified by the National Wetland Inventory. There are no navigable rivers in the Proposed Project area.

Water quality in many of the springs and seeps in the Proposed Project area do not meet Federal Drinking Water Standards for fecal coliform and several secondary (non-health related) water quality parameters (Planert and Williams 1995, BLM 1998, Nevada DWR 2006b).

### **3.3 VEGETATION**

#### **3.3.1 Introduction**

Vegetation resource information was gathered through a review of the scientific literature, discussions with BLM resource specialists, Nevada Division of Wildlife personnel, U.S. Fish and Wildlife Service (USFWS) personnel, and a review of existing information present in the following agency documents:

- Stirling Mountain to Northwest Transmission Line Project Environmental Assessment (2006)
- Nevada Natural Heritage Program Database Search
- Biological Assessment for a Transmission Line Across The Las Vegas Paiute Reservation
- Three Lakes Valley Groundwater Development Project DRAFT EA

Site surveys were also conducted along the Proposed Project in May through July 2006 and again in September of 2010.

#### **3.3.2 Plant Communities**

Mojave creosote bush scrub was the predominant vegetation community identified throughout the project area during the 2010 field surveys. No federal or state-listed threatened or endangered

plant species were identified as occurring within the project area and none were observed during the field investigations (Newfields, 2010). See Appendix C

This vegetation community is widespread in the Mojave Desert and occurs below 5,000 feet in elevation. Vegetation typical of the creosote bush scrub community and common within the survey area include: creosote bush, white bursage, broom snakeweed, desert trumpet, and desert globemallow. Table 3-3 below is a list of all plant species identified within the project area during the 2010 field surveys.

**Table 3-3 Predominant vegetation within the project area**

Scientific Name <sup>1</sup>	Common Name <sup>1</sup>	Family <sup>1</sup>
<i>Ambrosia dumosa</i>	White Bursage	Asteraceae
<i>Baileya multiradiata</i>	Desert-Marigold	Asteraceae
<i>Encelia virginensis</i>	Brittlebush	Asteraceae
<i>Hymenoclea salsola</i>	Cheesebush	Asteraceae
<i>Amsinckia tessellata</i>	Devil's Lettuce	Boraginaceae
<i>Guillenia lasiophylla</i>	California Mustard	Brassicaceae
<i>Coryphantha chlorantha</i>	Pincushion cactus	Cactaceae
<i>Cylindropuntia echinocarpa</i>	Silver Cholla	Cactaceae
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Cottontop Cactus	Cactaceae
<i>Echinocereus engelmannii</i>	Hedgehog Cactus	Cactaceae
<i>Mammillaria tetrancistra</i>	Fish Hook Cactus	Cactaceae
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail Cactus	Cactaceae
<i>Ephedra nevadensis</i>	Nevada Ephedra	Ephedraceae
<i>Psoralea fremontii</i> var. <i>fremontii</i>	Indigo Bush	Fabaceae
<i>Salazaria mexicana</i>	Bladder Sage	Lamiaceae
<i>Yucca schidigera</i>	Mojave Yucca	Liliaceae
<i>Yucca brevifolia</i>	Joshua Tree	Liliaceae
<i>Pleuraphis rigida</i>	Galleta Grass	Poaceae
<i>Eriogonum deflexum</i> var. <i>deflexum</i>	Skeleton Weed	Polygonaceae
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California Buckwheat	Polygonaceae
<i>Eriogonum inflatum</i> var. <i>inflatum</i>	Desert Trumpet	Polygonaceae
<i>Prunus fasciculata</i> var. <i>fasciculata</i>	Desert Almond	Rosaceae
<i>Larrea tridentata</i>	Creosote Bush	Zygophyllaceae

Source: NewFields, 2011

<sup>1</sup>Nomenclature follows:

Niles & Leary, 2007. Annotated checklist of the vascular plants of the Spring Mountains Clark and Nye Counties, Nevada. *Mentzelia*, The Journal of the Nevada Native Plant Society, Number 8.

Baldwin B. et al. 2002. The Jepson Desert Manual: vascular plants of southeastern California. University of California Press, Berkeley, Los Angeles, and London, 1400 pages.

### Cacti and Yucca

Cacti and Yucca on BLM lands are considered a commodity and are regulated under the Nevada BLM forestry program. All native cacti and yucca are to be protected as required under this program and the Nevada Revised Statutes (NRS) 527.060 and 527.120. This provision covers the removal and transportation of listed plant species on state lands, county lands, reserved or unreserved lands owned by the federal government, and privately owned lands without written permission, permit and/or tag issued by the Nevada Division of Forestry. Eight species of cacti were observed in the Proposed Project area during the 2010 field surveys as noted in Table 3-3.

### Special-Status Plant Species

There are a host of plant species endemic to the northern Mojave Desert. While the Upper Las Vegas Wash contains a substantial proportion of extant populations of three special-status species: Las Vegas bearpoppy, Merriam's bearpoppy, and Las Vegas buckwheat, none of these species were identified within the Project area during the field surveys conducted in 2010. (Newfields, 2010) See Appendix C.

## 3.4 BIOLOGICAL RESOURCES

### 3.4.1 Introduction

The project area supports wildlife characteristic of the northeastern Mojave Desert as evaluated in the Biological Assessment conducted in 2010 (See Appendix C). The following table provides an overview of the species listed as Threatened or Endangered by the US Fish and Wildlife Service. There is no wildlife critical habitat identified within the Proposed Project area and only one listed species, the Desert Tortoise, is known or identified to occur within the Proposed Project area.

**Table 3-4 USFWS Threatened and Endangered Species in Clark County, NV**

<b>Amphibian</b>		
C	Relict leopard frog	<i>Rana onca</i>
<b>Birds</b>		
E	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>
C	Yellow-billed cuckoo (Western U.S. Distinct Population)	<i>Coccyzus americanus</i>
E	Yuma clapper rail	<i>Rallus longirostris yumanensis</i>
<b>Invertebrate</b>		
C	Mt. Charleston blue butterfly	<i>Icaricia shasta</i>
<b>Fishes</b>		
E	Bonytail chub	<i>Gila elegans</i>
E	Colorado pikeminnow *	<i>Ptychocheilus Lucius</i>
E	Humpback chub *	<i>Gila cypha</i>

T	Lahontan cutthroat trout	<i>Oncorhynchus clarkii</i>
E	Moapa dace	<i>Moapa coriacea</i>
E	Pahrump poolfish	<i>Empetrichthys latos</i>
E	Razorback sucker	<i>Xyrauchen texanus</i>
E	Virgin River chub	<i>Gila seminude</i>
E	Woundfin	<i>Plagopterus argentissimus</i>
<b>Plant</b>		
C	Las Vegas Buckwheat	<i>Eriogonum corymbosum var .</i>
<b>Reptile</b>		
T	Desert tortoise (Mojave population)	<i>Gopherus agassizii</i>

Source: USFWS, 2011

T = Threatened Species; E = Endangered Species; C = Candidate Species \* Believed by the USFWS to be extirpated from Nevada

Wildlife species in the general area include small mammals, rodents, birds and reptiles.

### 3.4.2 Reptiles

Several species of reptiles were observed during the 2010 desert tortoise field surveys. These species include the western whip-tail lizard (*Aspidoscelis tigris*), desert tortoise, and sidewinder rattlesnake (*Crotalus cerastes*).

Additionally, the BLM sensitive species Mojave Desert sidewinder (*Crotalus cerastes cerastes*), desert glossy snake (*Arizona elegans eburnata*), chuckwalla (*Sauromalus ater*), banded gila monster (*Heloderma suspectum cinetummay*), may be present in the general area.

### 3.4.3 Birds

Bird species observed during the surveys include the turkey vulture (*Cathartes aura*), common raven (*Corvus corax*) and red-tailed hawk (*Buteo jamaicensis*). No threatened or endangered species were observed during field visits in 2010.

Additionally, the BLM sensitive species western burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), and Golden Eagle (*Aquila chrysaetos*) may be present in the general area.

### 3.4.4 Mammals

Mammal species observed directly, or indirectly from sign such as burrows, tracks, and droppings, include the black-tailed hare (*Lepus californicus*), coyote (*Canis latrans*) and evidence of kit fox (*Vulpes macrotis*). Abundant evidence suggested the presence of common Mojave Desert rodent inhabitants such as cactus mice (*Peromyscus spp.*) and Merriam kangaroo rats (*Dipodomys merriami*).

### 3.4.5 Wild Horses and Burros

The Proposed Project is located immediately east of the Wheeler Pass Herd Management Area (HMA). The 2011 estimated population is approximately 271 to 325 wild horses and 94 to 141 wild burros.

### 3.4.6 Endangered and Threatened Species

The desert tortoise is the only federally listed endangered or threatened species known to occur in the Proposed Project area. The protective status of the desert tortoise also provides federal protection to designated critical habitat of the desert tortoise. This assessment was made using field investigations and literature searches.

#### Desert Tortoise

There is significant geographic variation in the way desert tortoise use available resources. Desert tortoises within the project vicinity are generally found in Creosote Bush Scrub communities of flats, valley bottoms, alluvial fans and bajadas.

The factors causing the decline of the desert tortoise are primarily human related. These factors include collection of desert tortoises for pets, food, and commercial trade, collision with vehicles on roads and highways, mortality from gunshot and ORV travel cross-country or on trails. Predation by the common raven is intense on younger age classes of desert tortoise. Raven populations have shown a 15-fold increase in the Mojave Desert from 1968 to 1988 (Berry 1990). Increased food supplies from road kills, landfills, trash, garbage dumps, agricultural development, new perch and nest sites all contribute to the increased population of ravens. Berry (1990) speculated that raven predation has resulted in such high juvenile desert tortoise loss in some portions of the Mojave that recruitment of juveniles into the adult population has been halted.

Upper respiratory track disease (URTD) was discovered in wild populations in 1990 and is currently a major cause of mortality in the western Mojave Desert population. Habitat degradation, poor nutrition, and drought have increased the desert tortoises' susceptibility to this disease (USFWS 1994). It is thought that URTD is transmitted between desert tortoise populations when desert tortoises are captured as pets, then subsequently released.

Habitat fragmentation, degradation, and loss are also major factors in desert tortoise decline. Habitat degradation forces desert tortoise to forage over larger areas, exposing them to greater dangers. The conversion of native perennial grasses, annuals, and shrubs to inedible exotic species has reduced food sources for the desert tortoise and increased susceptibility to wildfires thus increasing tortoise mortality.

During a USFWS-established desert tortoise active period (between September 28 through October 5 2010) biologists experienced with regional and local resources conducted wildlife surveys within the project alignment in accordance with USFWS protocols. The survey area was located using topographical maps, aerial photographs, and global positioning system (GPS) coordinates. Physical landmarks such as roads, and existing power lines were also used to orient the survey.

The objective of the field surveys was to obtain a comprehensive sample of the tortoise population density within the project area. Biologists surveyed the proposed project area by using 10-meter (33-foot) wide parallel transects. All 158 acres were surveyed using this standard USFWS "100 percent coverage" method (USFWS 2010).

Observations of tortoise sign (live tortoises, carcasses, shell, bones, scute, scat, burrows, pallets, etc.) were recorded using data sheets, a Garmin Dakota 20, Garmin Oregon 450, and Garmin GPSMAP 76.

Data collected within the project area was analyzed using the spread sheet provided with the USFWS 2010 Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats. The method uses the total project area, total transect lengths, and winter rainfall to predict the likelihood of observing an adult tortoise above ground during the survey. The spreadsheet then produces the predicted number of tortoises within the action area at a 95% confidence interval. Figure 3-1 identifies tortoise sign found in the area. Table 3-5 shows the distribution of tortoise sign observed within the project area in a table presented by the USFWS for such purpose. Results of the survey are below.

- Area surveyed (acres) = ~158
- Tortoise sign (burrows, scat, carcass) = 121 (97 burrows, 9 burrows with scat, 1 burrow with egg shells, 10 pellets, 1 scat, 3 carcasses)
- Live tortoise = 8
- Total sign = 129

### 3.5 LAND USE

This section provides a general description of the major land uses occurring within the project area. The purpose of the land use analysis is to identify and describe existing land uses in the project area that may be affected by the Proposed Project. The land use inventory was compiled through review of federal, state and local land management/planning documents; aerial photography; numerous maps supplied by federal, state and local agencies; interviews and phone conversations with land use planners and recreation specialists with the Toiyabe National Forest (Forest Service), the BLM, and Clark County. Major sources included the BLM's *Las Vegas Resource Management Plan/FEIS* (BLM, 1998), and USGS 7.5-minute topographic quadrangle maps, aerial photography and field observation.

Land use categories displayed on a project area map (Figure 3-2).

#### 3.5.1 General Land Use Types

Existing land uses in the project area include recreation, transportation, utility, material extraction and light residential. The primary uses occurring on BLM land include recreation, materials extraction, utility and transportation. Recreation use within the project area is discussed in detail in Section 3.5.2. There are no commercial airports in the project area. The nearest civil airfield is North Las Vegas Airport in the City of North Las Vegas located more than 12 miles south of the Proposed Project. The US Air Force (USAF) operates the Creech Air Force Base at Indian Springs located approximately 25 miles northwest of the Proposed Project.

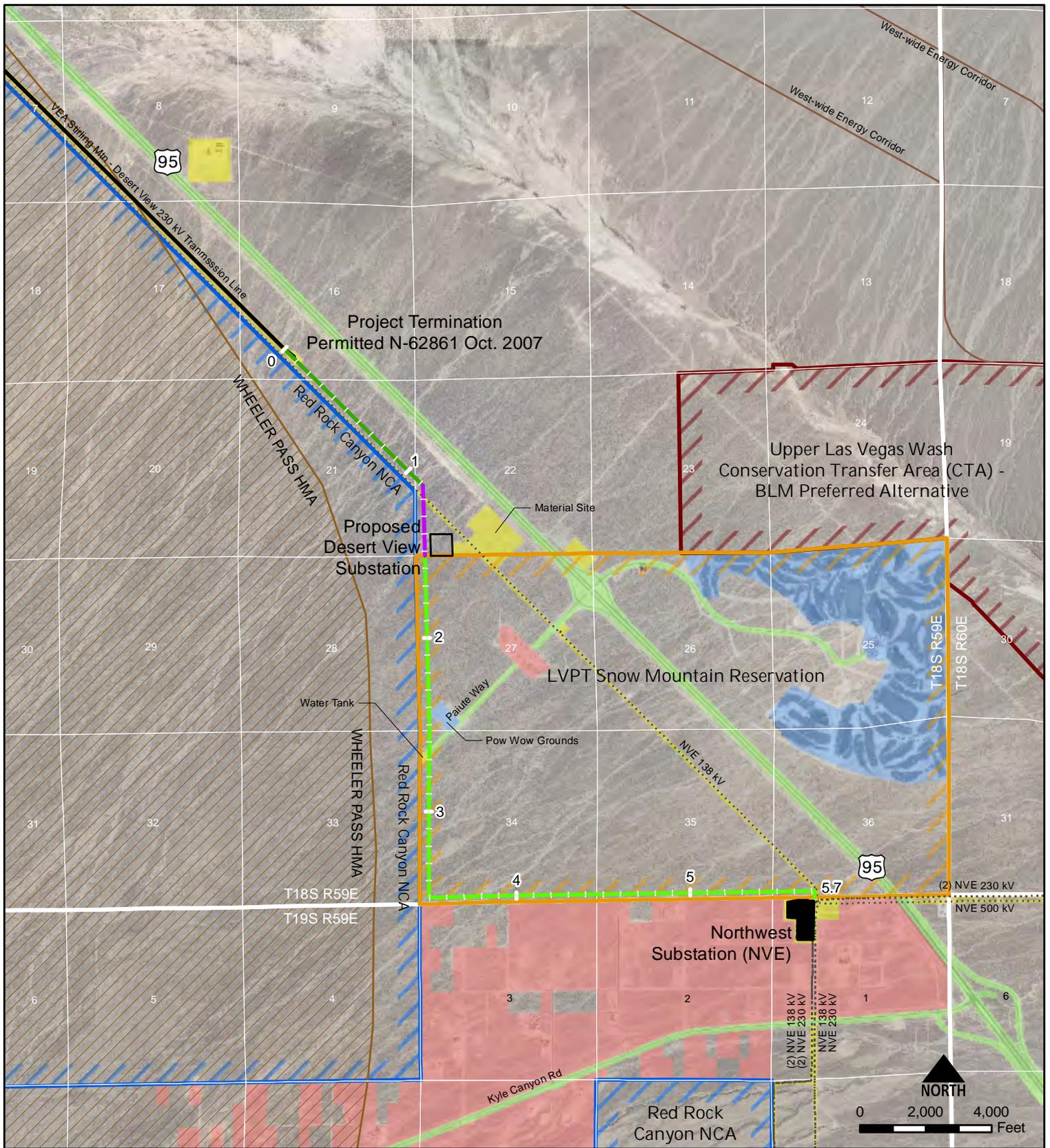
The federal Taylor Grazing Act of 1934 was enacted to provide for the orderly use, improvement and development of public rangelands. This Act allows the establishment of grazing allotments and the issuance of permits to graze livestock on federal lands. The Ephemeral Range Rule of 1968 designated all grazing allotments in Clark County as ephemeral rangelands; whenever forage exists or climatic conditions indicate the possibility of an ephemeral forage crop, livestock grazing may be authorized on a year-to-year basis, subject to any management requirements for the allotment.



Table 3-5 USFWS Spreadsheet Predicting Number of Adult Tortoises in Area

<b>USFWS Desert Tortoise Pre-Project Survey Guidance</b>		
<b>What is the estimated number of tortoises and associated 95% confidence interval for the action area?</b>		
	<b>N =</b>	<b>15.8</b>
	<b>Lower 95%CI =</b>	<b>5.84</b>
	<b>Upper 95%CI =</b>	<b>42.98</b>
<b>Total action area (acres)</b>		<b>158</b>
<b>Probability that a tortoise is above ground given winter rainfall (Pa)</b>		<b>0.800</b>
<b>Total length of transects walked (km) =</b>		<b>64</b>
<b>Number of transects walked =</b>		<b>28</b>
<b>Number of tortoises found during surveys (n) =</b>		<b>8</b>
<i>Transects of various lengths</i>		
<b>Transect</b>	<b>Length (km)</b>	<b>Tortoises within 5m of centerline</b>
1	0.2	0
2	3.4	2
3	3.7	3
4	1.8	2
5	0.2	0
6	3.4	0
7	3.7	0
8	1.8	0
9	0.2	0
10	3.4	0
11	3.7	0
12	1.8	0
13	0.2	0
14	3.4	0
15	3.7	0
16	1.8	0
17	0.2	0
18	3.4	0
19	3.7	0
20	1.8	0
21	0.2	0
22	3.4	0
23	3.7	0
24	1.8	0
25	0.2	0
26	3.4	1
27	3.7	0
28	1.8	0

Source: USFWS, 2011



Source: USFWS, NV BLM, US Census TIGER, 368 Programatic, NPS, USFS, VEA, ESRI, ECI

File: L:\VEA\18 Spring\Northwest 230 kV\Documents\GIS\MapDocs\...\_NW\_Land Use\_HMA2.mxd 6/30/2011 4:16:41 PM

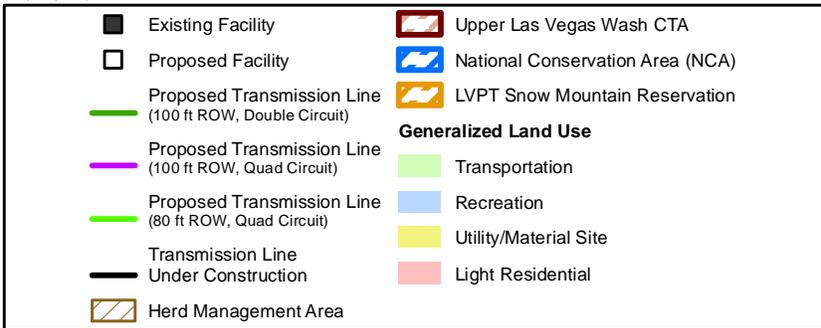


Figure 3-2  
**Desert View to Northwest  
 230 kV Transmission Line  
 N-62861  
 Land Use**

The Las Vegas Field Office has defined 53 grazing allotments. The only existing grazing allotment near the Proposed Project is the Kyle Canyon allotment (BLM, 1998b). This 17,514-acre allotment was established for cattle grazing. There has been no livestock grazing authorized since 1983. The allotment is categorized under the BLM standards for rangeland health and guidelines for grazing administration as “C” for custodial. These allotments, for a variety of reasons, have low management priority (BLM, 1998b). This allotment is located northwest of the project area.

Residences are scattered throughout private lands south of the project area. The majority of residences are concentrated in the northern portion of Las Vegas and the community of North Las Vegas. These residences are located south of the LVPR. There are approximately 12 residences located in the northwest corner of the LVPR. These residences are approximately 0.5 mile east of the Proposed Project alignment.

The Proposed Project crosses land under two jurisdictions. Land is held by the BLM and the BIA in cooperation with the LVPT. Approximately 1.5 miles of the Proposed Project will be located within BLM jurisdiction including the 10 acre Proposed Desert View Substation facility. The remaining 4.2 miles of the Proposed Project would be located within the Snow Mountain Reservation under the jurisdiction of the BIA in cooperation with the LVPT.

The City of Las Vegas is located immediately south of the Proposed Project.

### 3.5.2 Recreation

BLM administered lands provide for a variety of dispersed recreational activities. Recreational activities now occurring on public lands include: hunting, camping, rockhounding/collecting, picnicking, hiking, backpacking, horseback riding, nature study, viewing wildlife, viewing cultural/historical sights, sightseeing, photography, and off-road vehicle use, among others. These activities occur on dispersed sites throughout the project area. The LVPR provides space for these recreational activities as well for members of the LVPT.

Two Wilderness Study Areas are located southwest of the project area. The nearest Wilderness Study Area (WSA), Mount Stirling WSA (NV-050-401), is located 45 miles west of Las Vegas, Nevada, in Clark and Nye Counties and about 10-12 miles southwest of the project area. Encompassing the northern most portion of the Spring Mountain Range, the WSA contains 69,650 acres of Forest Service and BLM lands with no private inholdings.

The Mount Stirling WSA was studied under Section 603 of the Federal Land Policy and Management Act of 1976 (FLPMA), and was included in the *Clark County Wilderness Recommendations/Environmental Impact Statement* filed in April 1987. The National Forest and Public Lands of Nevada Enhancement Act (Public Law 100-790) adjusted the administrative boundaries for the Toiyabe National Forest, placing approximately 91 percent of the Mount Stirling WSA within the new Forest Service boundary. The WSA provides opportunities for hiking, camping, hunting, and horseback riding.

The La Madre Mountains WSA (NV-050-412) includes 56,243 acres and is located 30 miles southwest from the project area. The WSA contains prominent, nearly vertical, 400 to 1,000 foot cliffs on the southeast face. Western ridges and drainages radiate from Mt. Charleston to the north. Rugged hills of Aztec sandstone extend down to the bajada. Elevations of the WSA range from 3,600 to 8,000 feet.

BLM manages the Red Rock Canyon National Conservation Area (RRCNCA) which is located adjacent to and west of the Proposed Project. RRCNCA consists of approximately 198,000 acres. This area was created for the conservation of unique desert natural and recreational resources. RRCNCA has long been a popular location for public recreation and leisure due to unique geological and ecological characteristics occurring in a natural setting so close in proximity to a major population center.

The Desert National Wildlife Refuge (DNWR) encompasses 1.5 million acres of diverse Mojave Desert in southern Nevada. The USFWS manages the DNWR. The DNWR is located approximately 3-5 miles northeast of the Proposed Project. The headquarters for the refuge is located at Corn Creek Springs and has hiking and driving trails and exhibits for visitors. Bird watching is a popular recreational activity at Corn Creek Spring. Floyd Lamb State Park is a 2,054-acre park located southeast of the Proposed Project, and provides picnicking, hiking, biking, horseback riding, and fishing opportunities.

The Southern Nevada Regional Planning Coalition developed a plan for a public trails system of interconnected trails throughout the Las Vegas Valley (SNRPC, 2001). The plan addresses primary urban trail corridors, utility ROW, flood control facilities and natural features. The locations of the trails were selected based on the ability to create a connection to federal lands. A designated trail of this system passes in an east-west direction south of the Proposed Project.

The nearest national park to the project area is Death Valley National Park, located approximately 100 miles to the west. The national park includes facilities such as picnicking, camping and hiking trails.

There are no backcountry by-ways identified within the project area. BLM has established recreational opportunity spectrum (ROS) classifying 5.04 million acres as roaded natural setting, including the project area.

### **3.5.3 Planned Land Use**

Various facilities are planned within the Proposed Project area including Southern Nevada Water Authority's proposed Three Lakes Valley Water Development Project would, if subsequently permitted and constructed, be located adjacent to the Proposed Project, a storm water containment project and other potential power transmission line projects. The Las Vegas Paiute Reservation also plans to expand its resort development and residential area. Further discussion of these planned land uses are provided in Section 4.13, Cumulative Effects.

## **3.6 CULTURAL RESOURCES**

### **3.6.1 Introduction**

The project area is located in the eastern Mojave Desert just north of Las Vegas. The area is typical of the basin-and-range topography of the Great Basin with mountain ranges bounding the valleys on both sides.

The project area is in the Southwestern area of the Great Basin Culture Area (Warren and Crabtree 1986; Jennings 1986), one of six archaeological sub-areas of the Great Basin. The sub-areas are made up of various hydrographic units, each characterized by their own environmental conditions (e.g., snow melt, ground water, climate, elevation) which obviously influenced the prehistoric land use of these areas.

### **3.6.2 Existing Environment**

To comply with Section 106 of the National Historic Preservation Act (NHPA), the BLM Archaeologist conducted an existing data review of the Area of Potential Effect (APE) according to 36 CFR 800.4. The APE was previously evaluated within the last 10 years. Results are detailed in BLM Cultural Resource reports 5-2467 and 5-2560. No historic properties were identified within the APE.

The Las Vegas Paiute Snow Mountain Reservation is located in Sections 25, 26, 27, 34, 35 and 36 of Township 19 South, Range 59 East in Clark County, NV. A historical site records file search was conducted within 1.0 mile of the Reservation by Suzan Slaughter of the Harry Reid Center on February 13, 2006 as a part of the Las Vegas Paiute Development project. As a result of this search, nineteen prior cultural resource projects were identified to have been completed within 1.0 mile of the reservation boundary. The LVPR has been surveyed three times since 1984 with no cultural resources being identified. The entire Snow Mountain Paiute Reservation was surveyed in 1984 for the Land Withdrawal (Peak and Associates, 1984). In 1993, the reservation east of Highway 95 was entirely surveyed (Zukosky 1993), and the reservation west of Highway 95 was entirely surveyed in 2001 (Harper and Rose 2001).

A total of 32 cultural resource sites have been recorded within 1.0 mile of the reservation as a result of these previous surveys. Nine of the cultural resource sites have been evaluated as NRHP eligible and 23 are not eligible. One site, 26CK1649, an abandoned railroad bed for the Las Vegas and Tonopah Railroad, crosses through the upper northeast corner of the Reservation where the Paiute Golf Resort has been developed, but is not within the APE for the Proposed Project. None of the other 31 sites lie within the reservation boundary and are therefore outside of the Proposed Project APE.

## **3.7 VISUAL RESOURCES**

### **3.7.1 Introduction**

The Proposed Project is located on lands under the jurisdiction of the BLM and the BIA in cooperation with the Las Vegas Paiute Tribe. Visual resources are described using federal guidelines established by the BLM Manual, Section 8400 Visual Resource Management (VRM) system (BLM, 1984). Under the VRM system, the visual resource baseline investigation has three major components: scenic quality, visual sensitivity, and visual distance zones. Based on these three factors, landscape classifications have been established. VRM classes are objectives by which the visual resources of an area are managed. Each VRM class describes a different degree of modification allowed in the basic elements (line, form, color, and texture) of the landscape. Management classes are broken down into four levels (Classes I-IV), with Class I designated the most protective of the visual resources.

Visibility ratings among viewers, the landscape, and proposed transmission structures are based on field investigation. Field verification of VRM information was conducted during the summer of 2006.

### **3.7.2 Existing Environment**

The study area for visual resources is located in the east-central portion of the Great Basin section of the Basin and Range Physiographic Province. The Great Basin is characterized by a

rhythmic pattern of mountain ranges and basins. Isolated, irregularly shaped, block-faulted mountain ranges average 50 to 75 miles in length and are separated by desert plains and broad basins. The valley terrain is flat, rising gradually over expansive bajadas that extend from the base of the mountain ranges east and west of the valley. Vegetation is a blend of colors including browns, tans, and subtle shades of green. Elevations in the Proposed Project area range from approximately 2,920 feet near Northwest Substation to 3,000 feet north of the LVPT Snow Mountain Reservation.

The existing visual condition of the landscape is varied. Borrow pits and existing utility lines and substations along U.S. Highway 95 have caused some minor landform and structural modifications as well as vegetation disturbances. Introduced structures include the NVE 138 kV transmission line and some distribution and telephone lines. Other landscape modifications include U.S. Highway 95 and a network of dirt roads and a buried fiber optic line scars.

The entire project area is located in VRM Class III area (Figure 3-3). The management objective of a Class III area is to partially retain the existing character of the landscape by allowing a moderate level of change. Management direction of a Class III area (policy VS-1-b) is stated in the RMP (BLM, 1998a) as, "...authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer."

A total of 4 key observation points (KOPs) have been identified for the project area. They include observation points from the Desert National Wildlife Refuge, Moccasin Road, SR 154 (Kyle Canyon Road at Nicelson Road), and the Mount Stirling Wilderness Study Area.

### **3.8 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE**

#### **3.8.1 Introduction**

The socioeconomic analysis characterizes the human resources occupying the areas near the Proposed Project. Residences, places of work, institutions and their associated social and economic activities and facilities are subject to changes arising from construction and operation of the transmission line. Section 102 of NEPA requires federal agencies to "insure the integrated use of natural and social sciences...in planning and decision making." BLM has developed an instructional memo (IM 2002-167) that contains guidance for social and economic analysis in land use planning. This section provides a brief inventory of the status and trends of those resources as basis for assessing the socioeconomic impacts for the Proposed Project.

The Las Vegas Paiute Snow Mountain Reservation is crossed by the Proposed Project. The LVPR is an area crucial to the spiritual, cultural, historical anthropological and ecological heritage of the LVPT as well as their economic growth and development.

The Tudinu (or Desert People), ancestors of the Las Vegas Paiute Tribe, occupied the territory encompassing part of the Colorado River, most of Southeastern Nevada and parts of both Southern California and Utah. Outsiders who came to the Paiutes' territory often described the land as harsh, arid and barren; however the Paiutes developed a culture suited to the diverse land and its resources.

A booming railroad town brought an end to the Paiutes' free movement and traditional way of life, depriving them of their own land. On December 30, 1911, ranch owner Helen J. Stewart

deeded 10 acres in downtown Las Vegas to the Paiutes, establishing the Las Vegas Paiute Colony.

The Indian Reorganization Act of June 18, 1934, in conjunction with the Las Vegas Paiute Tribal Constitution, approved on July 22, 1970, recognized the Tribe as a Sovereign Nation. Later through an Act of Congress of 1983, an additional 3,800 acres of land returned to Paiute possession at the Snow Mountain Reservation. Part of this land has been developed by the Tribe as the Las Vegas Paiute Golf Resort.

The Las Vegas Paiute Tribe has a retail business at its downtown location. In addition, the Tribe also operates a retail business and gas station at the Snow Mountain Reservation. On March 1, 1994, the Tribe opened its first golf course. It has since opened two additional courses and has a beautiful clubhouse, pro shop, and restaurant facilities.

### **Population and Economics**

While the general area in Clark County is currently experiencing economic hardship, the state of Nevada has experienced considerable growth in the recent past. In 2000 for example, Nevada was one of the fastest growing states in the Nation. Between 1990 and 2000 the state's population increased by over 60% with an additional 30% increase between 2000 and 2006.

The area traversed by the Proposed Project is on the outer northwestern periphery of metropolitan Las Vegas. This area is largely open desert and population densities are low. The project area is located adjacent to North Las Vegas. This populated area grew by over 130% between 1990 and 2000 and by 72% in population between 2000 and 2006.

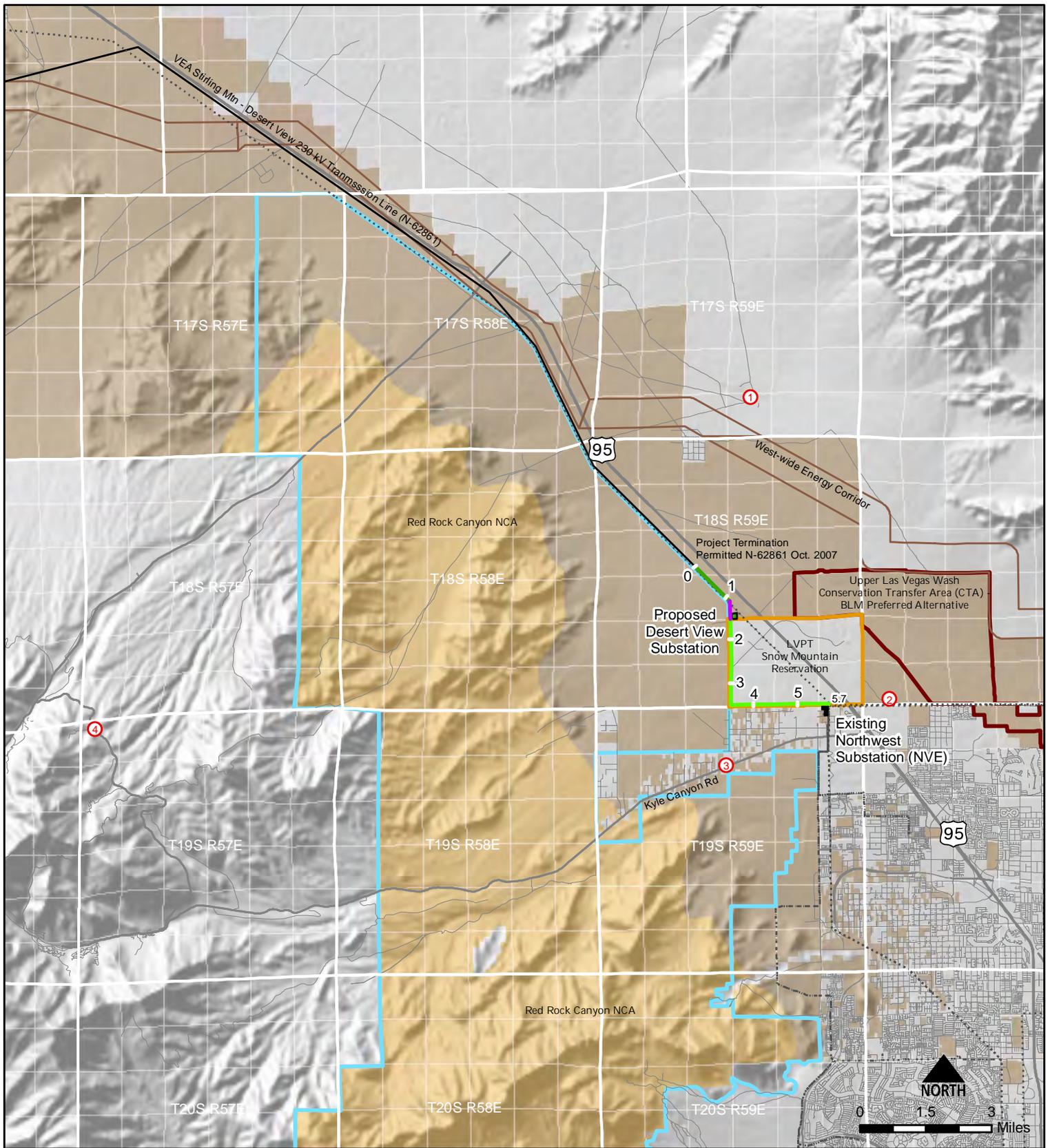
The Las Vegas Snow Mountain Reservation is traversed by the Proposed Project on the west and southern borders. The Las Vegas Paiute Tribe is a cooperating agency with the BIA and BLM on this Proposed Project. Published population data for the Las Vegas Paiute Snow Mountain Reservation is presently unavailable, however only approximately 12 residences exist within the LVPR.

The Tribal Council has identified areas of possible concern or detriment associated with the Proposed Project, such as diminution in the value of non-encumbered Tribal lands. Because Tribal consent is a prerequisite for granting the right-of-way, the Tribe employed the negotiation process to raise and address these matters. For example, the Tribe selected the on-Reservation alignment that minimizes impact on anticipated community and commercial development opportunities. Also, the Tribe confirmed its strong interest in relocating the Mercury line as was initially proposed by NVE in the IP-POD. Construction of the quad circuit structures on 4.5 miles of the Proposed Project will facilitate this important Tribal objective. Accordingly, the tribal consent requirement that has been part of federal law for more than 50 years enables the LVPT to fulfill environmental justice objectives.

## **3.9 HUMAN HEALTH AND SAFETY**

### **3.9.1 Introduction**

Issues regarding potential safety and health effects from electric and magnetic fields are always present with the construction of a high voltage power line. This section discusses electrical properties of transmission lines and the possible effects on public health and safety. It includes



Source: USFWS, NV BLM, US Census TIGER, 368 Programatic, NPS, USFS, VEA, ESRI, ECI

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Existing Facility	West-wide Energy Corridor
Proposed Facility	Upper Las Vegas Wash CTA
Proposed Transmission Line (100 ft ROW, Double Circuit)	National Conservation Area
Proposed Transmission Line (100 ft ROW, Quad Circuit)	LVPT Snow Mountain Reservation
Proposed Transmission Line (80 ft ROW, Quad Circuit)	Key Observation Point
Transmission Line Under Construction	<b>VRM Management Class</b>
	II
	III

Figure 3-3  
**Desert View to Northwest 230 kV Transmission Line N-62861**  
**Visual Resources**

discussions of potential shock hazards, defines electrical parameters affecting radio and television interference, presents tables on the electrical characteristics of the Proposed Project, and discusses what is known about biological and human health effects associated with electric and magnetic fields (EMF).

The presence of high voltage transmission lines tends to increase public concerns about EMF. However, EMFs are present wherever electricity flows around appliances, in offices, schools, homes and power lines. Electric fields are invisible lines of force created by voltage and are shielded by most materials. Magnetic fields are invisible lines of force created by current and are not shielded by most materials, such as lead, soil and concrete. These fields are low-energy, extremely low frequency fields and should not be confused with high-energy or ionizing radiation such as X-rays and gamma rays.

Potential electrical effects associated with transmission lines include ozone generation, radio and television interference, audible noise, electric and magnetic field interference, and safety concerns. The first three of these potential effects are caused by corona, which is the electrical breakdown of air into charged particles created by the electrical field at the surface of the conductors. Corona effects are generally associated with transmission lines operating at voltages of 345 kV or above or at higher altitudes.

### **3.9.2 Shock Hazard**

By far, the greatest hazard from transmission lines is direct contact with the conductors. Power lines, as with residential electrical wiring, can cause serious electric shocks if precautions are not taken to minimize shock hazard. All of the VEA's lines are designed and constructed in accordance with the National Electrical Safety Code (NESC) standards. NESC specifies the minimum allowable distance between the lines and the ground or other objects. These requirements determine the minimum distance from center line to the edge of the ROW, the height of the line, and the closest point to the line that buildings and vehicles can safely be allowed.

Still, extreme caution must be taken when operating tall equipment, such as cranes, drilling equipment or when moving pipe near a line. Vehicles and large equipment up to 15 feet in height, including antennas, can normally travel safely under transmission lines. Kites should not be flown near transmission lines and only nonmetallic string should be used.

Large fires near transmission lines represent a potential electrical hazard. Hot gases and smoke can create a conductive path to ground. Flashovers can cause electrical shocks to people near the line and also cause outages. Storage of flammables and construction of flammable structures on VEA's ROWs are prohibited. Refueling should not be done near transmission lines unless necessary. If refueling is necessary proper grounding is recommended. Transmission lines can interfere with circuits used to detonate explosives, and explosives can also damage power lines.

Tall objects, including transmission line structures, are the most likely points to be struck by lightning during a thunderstorm. The transmission line proposed for this project is designed with overhead ground wires and grounded structures to protect the system from lightning. If lightning strikes the overhead ground wire the strike is conducted to ground.

### 3.9.3 Electric and Magnetic Fields

The electrical effects from a transmission line can be characterized as either “electric field” or “magnetic field” effects. The electric power that we use in our homes, offices and factories uses AC or alternating current. This is in contrast to DC, or direct current, that is produced by batteries. An alternating current does not flow steadily in one direction. It alternates back and forth 60 times each second. This is called 60 hertz (Hz) power. Everything that carries or uses 60 Hz electric power produces 60 Hz electric and magnetic fields. This includes high voltage power transmission lines, intermediate and lower voltage distribution lines, wiring in homes and offices, and electrical appliances such as electric blankets, electric clocks, electric typewriters, computers, video equipment, sewing machines and hair dryers.

#### Electric Fields

Electric fields can produce the following phenomena:

- Corona, including audible noise (AN), visible light, radio and television interference (RI and TVI) and photochemical oxidants
- Induced currents
- Steady state induced currents
- Spark-discharge shocks
- Physical “perception” of the field

Corona can occur on the conductor, insulators, and hardware of an energized high voltage transmission line. Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of the conductors. In general, the corona effects are not likely to result in noise above existing background levels, or result in TV or radio interference.

Interference is usually associated with transmission lines with voltages of 345 kV or above. The amount of photochemical oxidants (ozone) generated by transmission lines are very small (difficult to even measure) and are well below the 120 parts per billion (ppb) air quality standard.

Induced currents occur when a conducting object, such as a vehicle or a person enters a magnetic field. Currents are induced in the object. The magnitude depends on the magnetic field strength and the size and shape of the object, and on whether the object is grounded. These induced currents can sometimes cause nuisance shocks.

Nuisance shocks (resulting from induced currents) from fences and buildings are eliminated by routine grounding practices. Since the electric and magnetic field may extend beyond the ROW, grounding requirements may extend beyond the ROW for large objects such as long fences. Electric fences require a special grounding technique because they can only be operated if they are insulated. Metal watering or feeding troughs often require grounding.

Sometimes, if an electric field is strong enough, it can be physically perceived by hair rising on ones arms or hands. The sensation is like that of a slight breeze blowing over the hand.

Currents and voltages that are introduced internally to the body represent a possible source of interference to cardiac pacemakers. Recognition of and concern for possible effects on pacemakers from transmission line electric and magnetic fields has led to considerable research on this topic in the last decade. The conclusion of this research is that overall risk to pacemaker wearers is minimal. The threshold electric field for interference for the most sensitive pacemakers is estimated

to be 3.4 kilovolts-per-meter (kV/m). Reversion or recalibration of pacemakers is the most substantial effect noted and is not considered a serious problem.

### **Magnetic Fields**

Public concerns about fields from power lines were first raised over 20 years ago. The initial focus of the concern was electric field effects. Subsequent research now suggests that magnetic fields are probably more important. Electric fields are easily shielded or “blocked out” by conducting objects. A typical house shields about 90 percent of electric fields from outside.

Magnetic fields cannot be shielded. Magnetic field lines can travel through most materials including iron, steel, lead and the earth. In fact, the earth exhibits a magnetic field resulting from charges moving deep within the molten core of the planet.

Magnetic fields are the forces that moving charges exert on other moving charges. Magnetic fields are often expressed as field lines that extend in a continuous loop around the current. There is no magnetic field if charges are not moving, i.e., if there is no current. Magnetic fields have varying strengths and direction depending on the amount of current flowing. Magnetic field strength is measured in “Gauss” units or milligauss (mG), a thousandth of a Gauss. The magnetic field strength exerted by the earth in southern Nevada is approximately 1-2 mG.

Magnetic field measurements for common household appliances are listed in Table 3-6. Magnetic fields and electric fields are strongest at the source and drop off quickly as the distance from the source of the current increases. In many cases people are exposed to higher magnetic fields from household appliances than from transmission lines because of how near they are to the source.

Magnetic and electric fields vary with the geometry of the transmission line structures, their height, conductor phasing and spacing and the current flowing at any given time. In some cases parallel transmission lines may “amplify” the field, and in other cases they may cancel out the fields.

### **Human Health**

Current research centers around demonstrating effects in the laboratory and in evaluating epidemiological data statistically to link occurrence of disease with occupational or residential exposure. More than 50 epidemiological studies have been completed on potential health hazards of electric and magnetic fields. About half of these studies are residential studies and the other half are occupational studies. At least another twenty studies are ongoing.

**Table 3-6 Magnetic Fields From Household Appliances**

<b>Appliance Type</b>	<b>Typical Range</b>	<b>Maximum Value</b>
Electric Range	1 – 80	175 - 625
Refrigerator	1 – 8	12 - 187
Microwave Oven	3 – 40	65 - 812
Can Opener	30 – 225	288 - 2750
Oven	1 – 8	14 - 67
Toaster	2 – 6	9
Coffee Maker	1 – 2	4 - 25
Freezer	1 – 3	4 - 6

Appliance Type	Typical Range	Maximum Value
Clothes Dryer	1 – 24	45 - 93
Dishwasher	1 – 15	28 - 712
Garbage Disposal	1 – 5	8 - 33
Ceiling Fan	1 – 11	25
Electric Blanket	3 – 50	65
Waterbed Heater	1 – 9	20 - 27
Blow Dryer	1 – 75	112 - 2125
Computer	1 – 25	49 - 1875
Typewriter	1 – 23	38
Make-up Mirror	1 – 29	44 - 125
Shaver	50 – 300	500 - 6875
Aquarium	1 – 40	50 - 2000
Sewing Machine	1 – 23	26 - 1125
Electric Drill	56 – 194	300 - 1500
Circular Saw	19-48	84 - 562

Source: Silva, M., et al. 1988. Power frequency magnetic fields in the home. IEEE Trans. on Power Delivery. Vol. 4:1:465-477, Paper No. 88WM101-8. (magnetic field measured in milligauss (mG) 1 mg = 0.001 G)

Epidemiological studies look for statistical correlations between the occurrence of disease and other factors. Studies involving cancers, primarily leukemia (especially childhood leukemia) and brain tumors, have been the focus of investigations. When a significant statistical correlation is identified, the health risk is described in terms of a “risk factor.” For example, a risk factor of 2 indicates that a disease occurs twice as often in a study population (or group of people) exposed to a certain factor as compared to a control population which is not exposed to the factor being considered. Table 3-7 provides examples of confirmed and potential cancer risk factors reported for a variety of factors including confirmed risks like smoking and potential risks like electric and magnetic fields.

In general, potential risk factors associated with some residential studies for exposure to electric and magnetic fields are in the vicinity of 2, while some occupational studies yield higher risk factors (e.g., 8). However, many studies report no statistically significant correlation. Also, the diseases involved are very rare and the total number of cases are orders of magnitude smaller than those involved in accepted correlations such as lung cancer and smoking. A Danish residential study reported that while electricity consumption in Denmark had increased by 30 times since 1945, cancer incidence rates had hardly changed (Guenel et al. 1993).

In conclusion, although a substantial amount of research on this subject has been done and is continuing, the body of research on health effects is still preliminary and inconclusive. Study results have not indicated a cause for immediate alarm. It is a widely held view that while the emerging evidence no longer allows the categorical assertion that there are no risks, there is no basis for asserting that there is a significant risk.

**Table 3-7 Examples of Confirmed and Potential Cancer Risks**

<b>Factor (Cancer Type)</b>	<b>Relative Risk</b>	<b>Reference</b>
Smoking (Lung Cancer)*	10 - 40	Wyner and Hoffman, 1982
Workers Exposed to Benzene (Leukemia)	1.5 - 20	Sandler and Collman, 1987
Workers Exposed to Carbon Tetrachloride (Leukemia)	12 - 18	Sandler and Collman, 1987
Environmental Tobacco Smoke (Lung Cancer)*	2 - 3	Amman et al., 1987
High-current Power Lines (Childhood Cancer)	1.3 - 2.6	Ahlbom, 1988
Radium Contamination of Drinking Water (Leukemia)	2	Lyman et al., 1985
Workers Exposed to Electric and Magnetic Fields (Acute Myelogenous Leukemia)	1.2 - 1.8	Savitz and Calle, 1987
Children Eating 12 or more Hotdogs per Month (Leukemia)	5.8	Peters et al., 1994

\*Generally considered as confirmed cause-and-effect associations - Various sources

The Environmental Consequences section analyzes and explains the changes that can be expected from implementing the Proposed Project or the No Action alternative. This section forms the scientific and analytic basis for the EA (Chapter 40 of the Code of federal Regulations (40 CFR) 1502.14). It consolidates the discussions on those elements described in the purpose and need, agency scoping, and alternative development and comparison sections of the EA (40 CFR 1502.16). To reduce excessive paperwork, it is analytic rather than encyclopedic (40 CFR 1502.2(a) and 1500.4(b)).

Environmental impacts can be positive (beneficial) or negative (adverse) as a result of the action (direct) or as a secondary (indirect) result, and can be permanent to long-lasting (long-term), or temporary or of short duration (short-term). Impacts can vary in degree or magnitude from no change, or only slightly detectable change, to a total change in the environmental condition or system, once the Proposed Project has been implemented. The assessment includes an identification of impacts (including the type of impacts, the location and magnitude), and a recommendation of mitigation measures to reduce impacts to acceptable levels. An assessment of cumulative impacts is included at the end of this section.

To determine the levels or magnitude of potential impacts to the environment, impact criteria have been developed for each resource, which include the following:

Resource Sensitivity. The probable response of a particular resource to Proposed Project related activities.

Resource Quantity. The amount of the resource potentially affected. The impacted resources are quantified in order to determine the significance of the impact.

Resource Quality. The present condition of the resource potentially affected.

Duration of Impact. The period of time over which the resource would be affected, measured as short-term (up to a few years following the construction of the Proposed Project) or long-term (occurring for the life of the Proposed Project and beyond). The anticipated duration of some impacts defines their significance.

Impact significance determination is central in the analysis of the impact assessment. Impact criteria were developed in coordination with the BLM and BIA in cooperation with the LVPT and other agency resource specialists, as well as criteria identified in recently developed documents that have been prepared for transmission lines or other linear projects. A portion of the Proposed Project will parallel existing linear disturbances; therefore, additive incremental impacts are likely to result.

The basic criteria are conceptually the same for each resource, but the characteristics of the criteria and impact definition are specific to the characteristics of individual resource. For most resources three qualitative levels of impacts have been identified based upon the following criteria:

High Impact. A high level of impact would result if the proposed transmission line would potentially cause a significant or substantial adverse change or stress to an environmental resource(s).

Moderate Impact. A moderate impact would result if the proposed transmission line would potentially cause some adverse change or stress to an environmental resource(s).

Low Impact. A low impact would result if the proposed transmission line would potentially cause an insignificant or small adverse change or stress to an environmental resource(s).

#### 4.1 AIR QUALITY

##### 4.1.1 Impact Criteria

Impacts to air quality would be considered significant if they cause substantial adverse impacts to the air quality in the region resulting in a non-attainment status determination.

##### 4.1.2 Impacts

The Proposed Project will not generate or cause greenhouse gases to be released into the atmosphere and thus should have no effect on climate or global warming. Also, the Proposed Project will facilitate the development of non-fossil fuel renewable energy projects (i.e. solar energy) by completing a strategic interconnect for delivery of electrical energy into the transmission grid from locations primarily located in northern Nye County, Nevada.

Construction of the proposed Transmission Line Project would cause impacts to air quality resources and the noise environment. Construction vehicle emissions and fugitive dust impacts would comply with air quality standards, and will be short-term in nature. Construction air impacts would be minor and short in duration. Operation of the Proposed Project would not add air pollutants to the study area. The proposed project will comply with all applicable federal, state and local air quality standards.

The air quality resource analysis area is the immediate vicinity of the Proposed Project within the Las Vegas Valley air shed along U.S. Highway 95 across the LVPT Snow Mountain Reservation. Construction of the Proposed Project would cause the emission of two types of air contaminants: combustion exhaust from the operation of construction equipment, and fugitive dust resulting from equipment and construction activities on exposed soils. Construction is exempt from regulation under Section 12 of the Clean Air Act, but is subject to Section 17 (Dust Control Permit for Construction Activities) of the Clark County Air Quality Regulations. The Proposed Project is not a stationary source as defined under the Clean Air Act. Section 12 of the Clean Air Act requires limiting fugitive dust from unpaved road easements and unpaved access roads (Section 91 of the Clark County Air Quality Regulations). Best management practices designed to minimize the creation of fugitive dust will be implemented accordance with Section 94 of the Clark County Air Quality Regulations.

Once construction of the facilities is complete, operation will not cause air contaminant emissions.

The Clean Air Act requires federal agencies to ensure that their projects conform to the provisions of the Act and State Implementation Plans. A federal agency cannot approve or support an action which causes or contributes to new violations of any ambient air quality standard, increases the frequency or severity of existing violations of any standard, or delays the timely attainment of any standard, or any required interim emission reductions or milestones. The construction and operation of the Proposed Project is not subject to a conformity determination because the action would not result in emissions and will comply with the County's clean air plans and standards.

##### Equipment Exhaust Emissions

Minimal emissions of gaseous pollutants such as nitrogen oxides, volatile organic compounds sulfur dioxide, and carbon monoxide will occur from the operation of construction and maintenance equipment. Emissions from the operation of the construction equipment are not expected to cause great air quality impact since they would not contribute substantially to any existing air quality violation, or interfere with the implementation of any air quality attainment plan. Construction phase equipment exhaust emissions would cease at the end of construction.

#### Fugitive Dust Emissions

Construction activities such as land clearing, ground excavation and backfilling, grading, and construction of structures generate fugitive dust emissions (a small dust particle known as PM<sub>10</sub> is regulated under clean air standards). Fugitive dust may impact air quality, both locally and regionally. Fugitive dust emissions vary substantially from day-to-day depending upon the exact operation and mix of construction equipment utilized, soil type and moisture, and weather conditions.

According to the EPA (AP-42 1995), general construction activity can generate uncontrolled fugitive dust particulates at an average of 1.2 tons per acre of ground disturbed per month of construction activity. Dust control activities would be implemented in accordance with Department of Air Quality and Environmental Management permit requirements for construction activities under Section 17 of its rules and regulations, including implementation of an approved dust control plan. A dust control plan includes provisions for the watering of active construction sites to prevent the emissions of fugitive dust and measures to prevent track-out of soil onto paved highways, among other measures as required by the County. EPA (1988) suggests a control factor of 75 to 90 percent from watering, controlled vehicular speeds and wind protection which will all be a part of the Dust Management Plan. Assuming 75 percent control results in a conservative controlled PM<sub>10</sub> emission rate of 9.3 tons per month based on the anticipated most intense construction equipment and personnel mix over the construction schedule.

Construction of the Proposed Project within Las Vegas Valley may indirectly impact particulate matter ambient air quality in the Las Vegas Valley which currently is in non-attainment status for PM<sub>10</sub>. The Las Vegas Valley has an approved State Implementation Plan to attain the air quality standards for PM<sub>10</sub> (Clark County Department of Air Quality and Environmental Management, 2001) that includes provision for the implementation of dust control plans for construction activities. The construction dust control requirements of this plan and the County's air quality rules and regulations would ensure compliance with the State Implementation Plan for attainment of the particulate matter ambient air quality standards in Las Vegas Valley.

Implementation of an approved dust control plan in accordance with the County's air quality regulations would reduce dust impacts during construction. Construction emissions impacts would cease at the completion of construction. The Proposed Project operations do not involve the use of emission-producing equipment. There will be minimal air quality impacts during operation of the Proposed Project.

#### **4.1.3 Mitigation**

As no adverse impacts to air quality have been identified, no additional mitigation is proposed.

***No Action Alternative***

No construction or operation impacts would occur under the No Action Alternative. The air quality characteristics of the air quality resource area would remain the same as the current condition.

**4.2 WATER QUALITY**

This section discusses the significance criteria and the potential environmental consequences to water quality, including groundwater, surface water and floodplains. The potential environmental consequences are summarized in Table 4.2-1 below and discussed in the following sections.

**Table 4-1 Summary of Environmental Consequences for Water Resources**

Potential Environmental Consequence	Potential Impacts
Impacts to Groundwater Resources	No direct groundwater impact, negligible impacts
Impacts to Surface Water	Crosses dozens of minor washes, impacts minimal
Impacts to Floodplains	No floodplains in ROW
Impacts to Water Quality	Minimal impacts

Source: ECI, 2011.

**4.2.1 Impact Criteria**

Impacts to water quality would be considered significant if they cause substantial adverse impacts to surface water or groundwater flows; substantial adverse impacts to surface water or groundwater quality; substantial discharge of sediments, petroleum contamination, or other contamination to surface waters or groundwater; substantial contamination of a public water supply; or substantial depletion of a groundwater aquifer. Impacts to floodplains would be considered significant if they caused a substantial increase (greater than one foot) to the 100-year flood elevation.

**4.2.2 Impacts**

As discussed in Section 3.2, water quality in the Proposed Project area is generally good. After implementation of Environmental Protection Measures (EPMs), impacts to water quality for both the Proposed Project and Indian Springs Alternative are expected to be negligible to minimal.

Mitigation will include the implementation of Environmental Protective Measures. Because the Proposed Project is a construction project that will disturb greater than one acre, a National Pollutant Discharge Elimination System (NPDES) permit will be required. The Proposed Project will be covered by the NPDES general stormwater permit for construction activities. The NPDES permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will define the Best Management Practices (BMPs) or EPMs required for the Proposed Project. The goal of the SWPPP is to protect and improve water quality by reducing pollutants carried in storm water runoff from a construction site. The main pollutant of concern on construction sites is sediment or total suspended solids (TSS). Construction activities usually involve disturbing the ground surface and removing the

vegetative or other cover that protects soil from erosion. During the construction process, the potential for soil erosion and elevated levels of sediment in runoff is high. Other pollutants of concern during the construction process include petroleum products and other chemicals, such as solvents, herbicides, and pesticides. In addition, certain building materials such as asphalt, sealants and concrete may pollute storm water.

There are no navigable rivers in the project area and no wetlands identified on the National Wetland Inventory. Consultation with the Army Corps of Engineers is not anticipated.

#### 4.2.3 Mitigation

Through the design and implementation of the SWPPP, certain EPMs will be implemented. EPMs are the methods which are employed to protect storm water quality and reduce pollutant discharges from a site. The SWPPP, with its defined EPMs (also called BMPs), must contain information and plans to achieve the following:

- Minimize the amount of disturbed soil.
- Control and minimize erosion and sedimentation during and after the construction phase of a Proposed Project.
- Reduce pollutants in storm water runoff (i.e., storm water quality management).

BMPs may either be nonstructural or structural. Nonstructural BMPs include management and operational procedures regarding work activities. Examples of nonstructural BMPs include minimizing land disturbances, preventive maintenance, and preserving natural vegetation. Structural BMPs are physical structures designed to protect storm water quality. Examples of structural BMPs include diversions, silt fences, re-seeding, and detention basins.

The BMPs for a site usually consist of five major elements:

- Source controls, such as surface controls that stabilize disturbed soils and help minimize erosion.
- Sediment controls, such as silt fence and sediment basins, capture sediment that has been eroded.
- Materials handling and spill prevention measures are designed to prevent the release of petroleum products and other chemicals and substances into storm water runoff.
- Waste management measures are designed to prevent the introduction of waste streams into storm water runoff.
- General pollution prevention BMPs are designed to reduce pollutants introduced to runoff from ongoing operations (i.e., vehicle maintenance) and ensure that necessary operations are performed in a manner that reduces pollutants (i.e., temporary stream crossing, dewatering operations, and clear water diversion).

EPMs for water quality include the following:

- Minimize the areas of disturbance.
- Use existing roads where possible.
- Cross dry washes and any other drainage features at right angles.
- Do not place support structures in dry washes.
- Re-contour disturbed areas to tie into existing contours.

- Reseed disturbed areas (other than roadways) after construction is completed.
- Requiring contractors provide portable toilets

### *No Action Alternative*

No construction or operation impacts would occur under the No Action Alternative. The water quality characteristics of this resource area would remain the same as the current condition.

## 4.3 VEGETATION

Impacts to vegetation were analyzed in September of 2010. Impacts were assessed according to resource sensitivity and expected levels of ground disturbance. Ground disturbance information (Table 2-1) enabled calculation of the total number of acres potentially disturbed for the Proposed Project.

### 4.3.1 Impact Criteria

Potential direct impacts to vegetation associated with construction activities could include: crushing and/or removal of native vegetation, grading and compaction of soil, and loss or displacement of individuals and/or habitat for sensitive species of plants. Ground disturbance may cause the introduction of noxious weeds or invasive species, which would be an indirect impact of the construction activities.

Impacts to vegetation would be considered significant if one or more of the following occur:

- Threatened or endangered species are adversely affected.
- A regional or local species is eliminated completely (extirpated).
- Ecological processes are damaged to the extent that the ecosystem is no longer sustainable or biodiversity is impaired.

### 4.3.2 Impacts

Direct impacts would occur to vegetation from construction, operation and maintenance of the transmission line. Impacts would include the direct loss of plants from surface disturbing activities during construction of the transmission line. These impacts could be long-term depending on revegetation success. Field surveys were conducted during May through July 2006, and again in September of 2010. No federally listed threatened or endangered plant species are known to occur or were encountered during the surveys. No BLM sensitive plant species were located in the surveyed corridor

Historical records of White Bearpoppy (*Arctomecon merriamii*) indicate that this plant has not been found within the Proposed Project area. During field surveys it was determined that no *Arctomecon merriamii* were present. This species, though a short lived perennial, has obvious above ground structures that are identifiable most years. Above-ground stems may not be present after prolonged drought. No endemic plants were located and no suitable habitat occurs in the Proposed Project corridor.

Historic records of Clokey Buckwheat (*Eriogonum heermannii* var. *clokeyi*) indicate that this plant has not been found within the Proposed Project area. This species was not observed during a survey of the project area and no habitat was present in the Proposed Project corridor.

In Nevada, cacti and yuccas (families Cactaceae and Agavaceae) are protected by Nevada Revised Statutes (NRS 527.060-.120). Cacti and yuccas occur in the Proposed Project corridor. Cacti and yuccas are a prominent part of the flora throughout the project area.

Valley Electric would construct structural components, new roads, and work areas where feasible to avoid cacti and yuccas. Cacti and yuccas occur throughout the Proposed Project in large populations. With strategic planning of the transmission line alignment and on-site monitoring during the construction phase of this project, potentially impacted cacti and yuccas would be avoided and if not they would be salvaged and transplanted.

Any surface disturbances associated with construction, operation and maintenance of the proposed transmission line could lead to a new or increased invasion of exotic or noxious weed species. In areas where ground disturbance is substantial or where re-contouring is needed, such as construction of new roads and structure foundations, aggressive non-native species could become established. These non-native species can invade adjacent habitats and out-compete native plants or increase fire conditions in the area.

Previous weed risk assessments conducted in 2010 of the adjacent area found the risk to be low. In addition, due to the small amount of disturbance at each structure site, the risk of exotic species invasion is expected to be low. An increase in exotic plant invasion could occur at select access road construction locations due to the increased level of human activity and vehicle traffic along the ROW. However, the final Plan of Development will include mitigation measures to minimize impacts from these activities.

### 4.3.3 Mitigation

Mitigation measures were developed to reduce or eliminate potential impacts to botanical resources from construction, operation and maintenance of the Proposed Project. As noted above, where the Proposed Project is adjacent to the existing NVE 138 kV transmission line it will be possible to use existing access roads. For most of the Proposed Project, new access roads will be required. For the 4.5 mile segment on the Reservation the new access roads will be constructed as per the terms and conditions negotiated by the Tribe and VEA, which are incorporated by referenced in the final right-of-way grant issued by the BIA.

Any sensitive or protected plants would be flagged for avoidance where feasible. Upon final design, a preconstruction inventory would be completed to mark and salvage healthy cacti in accordance with the BLM *Restoration Plan for Energy Projects in the Las Vegas Field Office*. A project specific restoration plan would be developed as part of the Plan of Development identifying methods to be followed during and after construction to minimize impacts to botanical resources. Restoration plans for transmission line projects typically include the following stipulations:

- Cacti and yuccas will be replanted out of harm's way within the right-of-way prior to construction and maintained (watered and monitored) for a period of one year after translocation. The transplanting efforts will be coordinated with a BLM botanist and activities will be conducted by a contractor with at least 3 years of experience in cactus and yucca transplanting as approved by the BLM in accordance with the stipulations of the right-of-way grant.
- Topsoil and rocks will be stabilized during construction in temporary disturbance areas

- Work areas will be recontoured as necessary
- All areas would be monitored by a biologist to ensure mitigation measures are followed
- A revegetation plan using the Restoration Guidelines for Energy Projects and approved by the BLM prior to construction

Contractors will be required to clean all construction equipment prior to working onsite in order to prevent spread of noxious weeds. New access roads use may be limited for maintenance activities only and may be closed to minimize public travel and further spread of noxious weeds.

#### *No Action Alternative*

No construction or operation impacts would occur under the No Action Alternative. The characteristics of this resource area would remain the same as the current condition.

### **4.4 BIOLOGICAL RESOURCES**

Potential impacts to wildlife associated with construction activities could include loss or displacement of individuals and/or habitat features.

#### **4.4.1 Impact Criteria**

Prior to on-site investigation, species of concern were identified through literature searches and agency comment (USFWS 2008). The desert tortoise is the only species in the project area listed as federally threatened or endangered, with a classification of federally threatened.

Impacts to species would be considered significant if one or more of the following occur:

- A significant area of habitat necessary for all or part of the life cycle of a species is lost
- Threatened or endangered species are adversely affected.
- A regional or local species is eliminated completely (extirpated).
- Ecological processes are damaged to the extent that the ecosystem is no longer sustainable or biodiversity is impaired.

#### **4.4.2 Impacts**

A total of 49.19 acres of temporary impact are anticipated with this project leaving 16.41 acres of permanent impact remaining after restoration efforts have taken place. Of this impact, 25.82 acres of temporary impact (5.79 acres remaining permanent) will occur on the LVPT Snow Mountain Reservation with the remaining 22.37 acres of temporary impact (10.62 acres remaining permanent) occurring on BLM lands.

##### **4.4.2.1 Reptiles**

As various reptiles may exist within the project area, the project may affect these species including the western whip-tail lizard, and sidewinder rattlesnake. Additionally, the BLM sensitive species Mojave Desert sidewinder, desert glossy snake, chuckwalla, banded gila monster, may be present in the general area. Direct effects to these species are anticipated to be minimal and temporary as a result of the Proposed Project. Efforts will be made to avoid direct impacts to these species during construction to the extent feasible.

#### **4.4.2.2 Birds**

As various bird species may exist within the project area, the project may affect these species including the turkey vulture, common raven and red-tailed hawk. Additionally, the BLM sensitive species western burrowing owl, loggerhead shrike, and Golden Eagle may be present in the general area. Direct effects to these species are anticipated to be minimal and temporary as a result of the Proposed Project. Efforts will be made to avoid direct impacts to these species during construction to the extent feasible.

#### **4.4.2.3 Mammals**

As various mammals may exist within the project area, the project may affect these species including the black-tailed hare, coyote, kit fox and common Mojave Desert rodent inhabitants such as cactus mice and Merriam kangaroo rats. Direct effects to these species are anticipated to be minimal and temporary as a result of the Proposed Project. Efforts will be made to avoid direct impacts to these species during construction to the extent feasible.

#### **4.4.2.4 Wild Horse and Burros**

The proposed action could also directly affect wild horses and burros within the project area. Generally, the wild horses and burros would avoid the project area as much as possible because of vehicle noise and the presence of humans. Wild horses and burros would not be restricted from forage or water due to the multiple locations of resources throughout the Wheeler Pass HMA. There will be a minimal loss of forage in the disturbed area. Individuals will not harass (feed, pet, chase, etc.) wild horses and burros if encountered on or near the construction areas, trails, or equipment parking areas.

#### **4.4.2.5 Endangered and Threatened Species**

The desert tortoise is the only federally listed endangered or threatened species known to occur in the Proposed Project Area. The protective status of the desert tortoise also provides federal protection to designated critical habitat of the desert tortoise. There is no designated critical habitat for the desert tortoise within the area of the Proposed Project.

#### **Desert Tortoise**

The Proposed Project will have a may affect determination for the threatened desert tortoise. This Proposed Project will have no effect on any other federally listed species or designated critical habitat. The project will disturb a total of 49.19 acres of previously undisturbed habitat. The applicant will be required to pay remuneration fees based on the current rate (\$786/acre through March 1, 2012).

Historical survey data indicates that the area surrounding the Proposed Project site is moderate density tortoise habitat. Additionally, desert tortoise survey data conducted for the preparation of the Las Vegas Disposal Boundary Environmental Impact Statement indicates there are tortoise burrows and live tortoise located adjacent to the project area. Since tortoises have been found in the vicinity and undisturbed habitat exists in the project site, there is potential for tortoises to wander into the project area. If not noticed and avoided during construction, desert tortoises could be either injured or killed (by crushing) or they may be harassed (being moved out of harm's way). Section 7 Consultation for this project is underway and will be contingent on compliance with the terms and conditions associated with the biological opinion.

The primary direct impact of the proposed action on wildlife would be killing or maiming of ground dwelling animals during construction and the loss of 49.19 acres of habitat and forage. Additional impacts associated with the mortality from vehicular traffic may also be realized upon the completion of construction and subsequent use of the project area.

Direct impacts to the desert tortoise will be the risk of death or injury to any tortoise inhabiting the ROW or surrounding area during the construction period and future use of the area. It is documented that tortoises do exist within the proposed project area and surrounding desert. It is highly likely that tortoises may wander onto the proposed project area during construction of the transmission line and future use of the area. Death or injury would result if a tortoise is run over by a piece of heavy equipment or service vehicle during construction. In order for this form of take to occur, the tortoise and vehicle must occupy the same place at the same time. This will be a concern during the periods of construction and future site use. There will also be a permanent loss of some desert tortoise habitat from transmission line construction in permanently disturbed areas such as pole sites and access roads.

Additive long-term indirect impacts are likely to occur due to increased access by the public to the transmission line and surrounding lands. Tortoise injuries or losses may result from accidental human encounters, collection of tortoises for pets, encounters with domestic pets, increased off-road travel (motorized and bicycle), and accidental encounters with maintenance workers and activities in the area. Noise as a result of construction may result in impacts to the tortoise population of the area. There is also a potential for an increase in the number of predatory and scavenger species due to the presence of humans and illegal trash dumping. It is well documented that species such as coyotes and ravens have adapted well to exploiting human encroachment on their traditional habitat. These animals can thrive off of a diet of garbage. As a result, the potential upward trend of predatory species may impact hatchlings or sub-adult Mojave desert tortoises within the vicinity of the transmission line.

#### 4.4.3 Mitigation

To prevent undue harm, habitat-altering projects or portions of projects will be scheduled outside bird breeding season in upland desert habitats and ephemeral washes where these species have been identified. The season generally occurs between March 15th - July 30th.

If a project that may alter any breeding habitat has to occur during the breeding season in areas where the species has been identified, then a qualified biologist must survey the area for nests prior to commencement of construction activities. This shall include all bird nests except the pigeon, European Starling and House Sparrow. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area must be avoided until the young birds fledge.

Because suitable habitat is present, it is possible Gila monsters could be encountered during construction of the Proposed Project. Should this reptile be encountered during construction activity, the contractor shall immediately refrain from work activities in the area and contact the Nevada Division of Wildlife (NDOW) at (702) 486-5127. Live Gila monsters found in harm's way on the construction site will be captured and then detained in a cool, shaded environment ( $\leq 85^{\circ}\text{F}$ ) by the project biologist or equivalent until a NDOW biologist can arrive for documentation purposes.

Minimization measures in the biological opinion will contain measures to reduce potential impacts to wildlife. In addition to the stipulations that will be issued in the Biological Opinion, the following measures will also be implemented:

- Holes and/or trenches shall be backfilled or covered with secured wood sheets at the end of each day prevent any animals from inadvertently falling in.
- Temporary drive and crush or overland travel access roads (including engineering surveys) are required to have an authorized biologist monitor routes that do not follow existing roads to prevent crushing of tortoises and burrows. Specifically, the authorized biologist will walk in front of vehicles while travelling over undisturbed habitat.
- No chemical soil stabilizers will be allowed.
- Individuals will not exceed 25 mph speeds throughout the HMA, especially from March to June, as this is the primary foaling season.
- Individuals should also remain at least 0.25 miles from the water sources in the HMA, to prevent unnecessary stress on the animals.
- The construction areas that will not be permanently disturbed need to be restored to the native vegetation that was found in the area. This is especially critical in an area where wild horses and burros rely on that forage for a portion of the year.
- Individuals will not harass (feed, pet, chase, etc.) wild horses and burros if encountered on or near the construction areas, trails, or equipment parking areas.
- To prevent undue harm, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In upland desert habitats and ephemeral washes containing upland species (the season generally occurs between March 15th - July 30th).
- If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area must be avoided until the young birds fledge. This applies to all habitats, not just upland desert and ephemeral wash habitats. It includes all species of birds except the pigeon, house sparrow and European starling.

Additional mitigation or minimization measures are identified in the Biological Opinion File No. 1-5-07-F-456 found in Appendix A of this document.

### ***No Action Alternative***

No construction or operation impacts would occur under the No Action Alternative. The characteristics of this resource area would remain the same as the current condition.

## **4.5 LAND USE**

### **4.5.1 Impact Criteria**

Direct effects to land use and recreational resources would occur if construction or operation of the Proposed Project resulted in the termination of use or modification of recreational resources within the study area. Indirect effects would occur if construction and operation activities altered recreation use patterns, recreation demand, or access to recreation areas near the Proposed Project.

The following considerations were used to identify impacts to land use, recreation and wilderness resources: (1) Proposed Project-related changes that alter or otherwise physically affect established land use, designated, or planned recreation or wilderness areas or activities; (2) Proposed Project-related changes that affect officially adopted land use policies or goals for

recreational or wilderness land management of recognized organizations or agencies; (3) Proposed Project-related changes that increase or decrease accessibility to areas established, designated, or planned for recreational or wilderness; and (4) Proposed Project-related changes that affect duration, quantity, and quality of impact to sensitive land use (e.g., residential), recreational or wilderness resources.

#### **4.5.2 Impacts**

The Proposed Project would not require a large increase of work force population hereby not impacting the adjacent recreational area use. Although no recreation use data for public lands directly affected by the Proposed Project is available, use is primarily seasonal hunting rockhounding, backcountry driving and ORV use, and sightseeing. The quality of hunting on public lands affected by the Proposed Project has been reduced by seasonal ORV use, proximity to U.S. Highway 95, and residential development which have displaced some wildlife. Overall, low additive adverse effects to recreation resources would occur. No direct or indirect effects would occur to or in wilderness areas. Because of the relatively small construction workforce minor short-term additive effects would occur to developed recreation sites at RRCNCA adjacent to the project area. BLM and LVPT lands affected by the Proposed Project would remain available for dispersed recreation activities during construction and operation, as well as at the time of closure and abandonment of the Proposed Project.

#### **4.5.3 Mitigation**

VEA would plan to hold an environmental training session for project construction personnel before construction would begin.

Fire restrictions are generally enacted between May 15 and October 1. Compliance with fire restrictions is mandatory while fire restrictions are in place. Specific noncompliant activities may be waived on a case by case basis by the BLM District Manager after review and approval by the Fire Management Officer and Field Manager.

Any necessary excavation that produces mineral materials within the ROW must be used within the ROW or stockpiled on site for sale by the BLM.

#### ***No Action Alternative***

No construction or operation impacts would occur under the No Action Alternative. The characteristics of this resource area would remain the same as the current condition.

### **4.6 CULTURAL RESOURCES**

#### **4.6.1 Impact Criteria**

In assessing Proposed Project impacts, the APE is evaluated in terms of high/medium and low site density, and thus high/medium or low archaeological sensitivity, areas. In addition to locations of known archeological sites, topography, landform, and vegetation are also considered. Areas designated as high/medium site sensitivity would include localities in or near springs, and near rocky, limestone or dolomite outcrops. Caves and rock shelters provide unique opportunities for in situ, preserved archaeological materials. Steep slopes (>30 percent), often considered low site density/sensitivity areas, are more appropriately classified as high sensitivity areas, since rock art (pictographs and petroglyphs) and rock shelter sites are found in outcrops on

steep slopes. Low site density areas are largely confined to alluvial fans and large fan piedmonts.

#### **4.6.2 Impacts**

To comply with Section 106 of the National Historic Preservation Act (NHPA), the BLM Archaeologist conducted an existing data review of the Area of Potential Effect (APE) according to 36 CFR 800.4. The APE was previously evaluated within the last 10 years. Results are detailed in BLM Cultural Resource reports 5-2467 and 5-2560. No historic properties were identified within the APE; no further evaluation is required for the Proposed Project. As proposed, the undertaking will have no effect to historic properties within BLM jurisdiction.

The Las Vegas Paiute Snow Mountain Reservation is located in Sections 25, 26, 27, 34, 35 and 36 of Township 19 South, Range 59 East in Clark County, NV. The Reservation has been surveyed three times since 1984 with no cultural resources being identified within the reservation. No historic properties were identified within the APE; no further evaluation is required within the Snow Mountain Reservation for the Proposed Project. As proposed, the undertaking will have no effect to historic properties within the Las Vegas Paiute Snow Mountain Reservation.

No fossil-bearing strata will be impacted by the Proposed Project.

#### **4.6.3 Mitigation**

As no impacts to cultural resources within the APE have been identified, no further mitigation measures are proposed.

#### ***No Action Alternative***

No construction or operation impacts would occur under the No Action Alternative. The characteristics of this resource area would remain the same as the current condition.

### **4.7 VISUAL RESOURCES**

#### **4.7.1 Impact Criteria**

The assessment of visual impacts was based upon methodology described in the BLM Visual Contrast Rating Handbook (BLM Manual Handbook 8431-1) in its visual contrast rating system. The Proposed Project site is located entirely within VRM Class III lands, where Proposed Project facilities and activities may be visible but not dominant the landscape.

A total of 4 Key Observation Points (KOPs) have been identified for the visual resource impact assessment of the Proposed Project. These KOPs are identified as points from which someone may view the Proposed Project. These points usually occur along commonly traveled routes or at other likely observation points. Factors that are considered in selecting KOPs include; angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and light conditions. (BLM H-8410-1)

The KOPs selected for the Proposed Project include observation points from the Desert National Wildlife Refuge, Moccasin Road, SR 154 (Kyle Canyon Road at Nickelson Road), and the Mount Stirling Wilderness Study Area. The KOP locations are displayed on Figure 3-3. Visual contrast information was compiled noting potential modification to landscape features and

elements. The type of actual physical contrast was examined by evaluating landforms, landscape diversity, vegetative patterns (type, height and density), and structure compatibility. Variables considered in establishing overall visibility levels included view orientation, lighting conditions seasonal effects, view distance, duration of view, visibility, viewer numbers, and use association. A summary of visual impacts to viewers at KOP's is displayed on Table 4-2.

A visual contrast rating assessment was completed for each (KOP) noting the VRM category, the existing visual condition (EVC), and visual absorption capability (VAC) characteristics. An evaluation of visual change of features (e.g., landforms, vegetation and structures) to landscape elements (e.g., form, line, texture and color) was recorded. The evaluation was compared to the threshold defined by the VRM category to determine the potential impact levels. Two other criteria also were used to rate the level of visual change -- scale and spatial dominance. The scale of the Proposed Project modifications were compared to the scale of the entire landscape setting and corridor placement in the viewshed.

#### 4.7.2 Impacts

The general types of visual impacts from the Proposed Project facilities (e.g., transmission line structures and conductor, ROW and access roads) can include those caused by changes to the basic landscape elements of line, form, color and texture. Below is a brief discussion of these elements.

- **Line** - A transmission line ROW can cause a linear band sometimes enhanced by shadows which divides an area; abrupt differences in color and texture create a line along the edge of the ROW which can attract visual attention and can become a focal point in the landscape. The silhouette caused by an outline of a transmission structure creates a strong vertical line; where this vertical line interrupts the generally horizontal skyline it may draw visual attention. Conductors (transmission line wires) introduce an added linear element of horizontal line into the landscape.
- **Form** – The introduction of transmission line structures can cause contrasts due to changes in form. The degree of change is evaluated by how dissimilar the introduced form is to existing forms surrounding it. The large size and relative scale, as well as the vertical, and angular shape, make transmission line structures prominent in the natural appearing or rural landscape which typically can attract visual attention.
- **Color** – Changes in color attract attention. Structures typically are not the same color as the surrounding landscape features. Exposed soil caused by access roads or the clearing of vegetation around the structure base during construction, may result in a noticeable degree of color contrast between the exposed soil and the surrounding vegetation. Glare caused by the sun shining on conductors and structures may create periodic contrast.
- **Texture** – When vegetation in the ROW appears different from the vegetation surrounding it, there are usually differences in texture (changes in the grain and density of surface features) that may attract attention.

These potential contrasts are influenced by a number of factors including time of day, distance, atmospheric conditions, lighting direction, duration of view and viewing angle. The degree of these visual impacts is based on the criteria discussed earlier, and includes the quality of the existing scenery, visibility from sensitive viewpoints, and the inherent capability of the landscape to successfully absorb alteration.

Access roads used for construction and maintenance of a transmission line may result in varying levels of visual impacts. The color contrasts between the exposed soil of the roadbed and associated sidecuts and/or fills are sometimes the most visible Proposed Project disturbance on the landscape. Their linear nature and surface color may contrast with the natural lines and colors of the characteristic landscape.

For the Proposed Project additive visual impacts would result which are within the threshold of the VRM Class III area. From the KOPs examined, the Proposed Project would draw minimal visual attention and subsequently result in low impact to visual resources in the area. However, in certain viewing locations, particularly in the middleground view distance zone, new access roads along the route would cause a lighter color contrast to surrounding vegetation and surface soils, and a line contrast particularly from road cuts on sloping foothills. These line and color contrasts would be visually more evident during afternoon lighting conditions from U.S. Highway 95.

### **4.7.3 Mitigation**

In order to minimize visual impacts of the construction and operation of the 230 kV transmission line, several mitigation measures have been summarized. Generic types of mitigation techniques include: (1) strategic location, (2) minimization of disturbance, and (3) facility design in terms of repetition of the basic landscape elements (form, line, color, texture).

Mitigation measures described below, based on the above techniques, will further reduce visual contrast of the proposed transmission line.

- Structures should be strategically placed to make maximum use of existing topography and available vegetation for screening.
- Materials used to construct transmission structures should harmonize with the natural surroundings. Self-protecting, bare steel will be required at angles, eliminating guy wires.
- Choice of conductor material should be carefully considered to avoid sheen or a strong silhouette and to provide blending of the conductors into any given setting through which the line must pass.
- The colors selected for substation facilities should be based on the following considerations (Robinette, 1973): (1) the colors should be uniform and non-contrasting to blend with the immediate natural environment (warmest color tones are appropriate for natural settings); (2) colors should be selected on the basis of their ability to blend with both the sky and the environment in which they are being used; (3) colors that reflect adjacent colors by including them are most successful in adapting to their environment; and (4) colors approved in the Munsell Soil Color Coding System and displayed on the Standard Environmental Color Chart will be considered.

Table 4-2 Key Observation Points

Key Observation Point (KOP)	Jurisdiction	View Direction (Viewpoint to Project)	Viewpoint VRM Class	Viewer Position <sup>1</sup>	View Distance (miles)	Visibility of Project	Visual Resource Impact <sup>2</sup>
1. Desert National Wildlife Visitor Center	BLM	NW to SW	III	Inferior	3.8-5.0	Low	Low
2. Moccasin Road	Private	NW to W	III	Normal	1.3-3	Low	Low
3. SR 154 – Kyle Canyon Road @ Nickelson Road	State/Private	N to NE	III	Normal	16.3	Low	Low
4. Mount Charleston Scenic Byway	BLM/USFS	NE to E	II	Superior	5-15	Seldom Seen to Not Visible	None

Source: ECI, 2011

<sup>1</sup>Viewer Position

Superior – Looking down toward project

Normal – Looking across the landscape toward the project

Inferior – Looking up

<sup>2</sup>Impact – Because each viewshed contains existing visual modifications, visual impacts are considered additive. Visual impacts are already present in the existing visual condition for all instances.

***No Action Alternative***

No construction or operation impacts would occur under the No Action Alternative. The characteristics of this resource area would remain the same as the current condition.

**4.8 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE**

Socioeconomic impacts depend on the construction workforce size and whether workers (and family members) choose to in-migrate to the project area. If new workers are expected in the area, impacts can depend on the adequacy of existing facilities (such as housing supply) or public services. The criteria of adverse impact are therefore measured in terms of worker “influx” and increased demand on community services.

During “peak” construction, it is expected that there will be about less than 20 workers on-site at any one time. The construction schedule is expected to be from 3 to 6 months and the “average” number of workers on site is anticipated to be approximately 10 to 12 individuals over that duration.

**4.8.1 Impact Criteria**

Impacts to the socioeconomic condition of the region would be considered significant if they result in a substantial population increase resulting in a strain on the existing infrastructure including public services, schools or residential areas. Substantial changes in population, employment, housing, retail sales, property tax or property value in the region would be considered significant.

All federal actions must address and identify as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States. The criteria for a finding of possible environmental justice issues is the occurrence of more than 50 percent of the population being minority or low-income in the Proposed Project area of influence in comparison to other proposed alternatives.

**4.8.2 Impacts**

For socioeconomics, some beneficial elements are anticipated to result. Residents of Pahrump, neighboring communities and the Pahrump Valley will receive increased reliability in their electrical power. Businesses and community services, as well as heating, ventilation and air conditioning systems reliability would be upgraded. In addition, the Proposed Project will provide opportunities for future development considerations for the tribe within the Snow Mountain Reservation. The construction workforce would be small with little or no permanent immigration to the area anticipated, that negative effects are not expected to occur to public services including area infrastructure, schools, law enforcement or fire protection. Construction of the transmission line is not expected to noticeably affect tourism in the area.

National studies for residential properties sponsored by the Edison Electric Institute (EEI, 1992) concluded that negative impacts would likely result to socioeconomics from the construction of overhead power lines. Their studies showed these findings:

- Overhead transmission lines have the potential to reduce the sale price of residential and agricultural property.

- The effect, especially for single family homes, is generally small (from zero to 10 percent), but has been estimated to be greater than 15 percent in some specialized cases in rural areas.
- Impacts may be greater for smaller properties than for larger properties.
- Impacts may be greater immediately following construction of a new line (or a major increase in size in an older ROW), diminishing over time.

The Proposed Project is located in a relatively remote and undeveloped area and therefore potential effects associated with the installation of a transmission line are expected to be minimal to the socioeconomic region.

The work force required to construct the Proposed Project would be small and temporary in duration. The area retail business, gas station and restaurant at the golf resort would see a small influx of business during the anticipated six months of construction. In the long-term, it is anticipated that the installation of the Proposed Project would not result in a permanent effect on the area businesses.

#### Environmental Justice (Executive Order 12898 of February 11, 1997)

Since the population in the project area is minimal, disproportionate impacts to minorities as a result of the Proposed Project are unlikely. Low-income populations exist in areas adjacent to the project area. Although deliberate and knowingly siting of numerous transmission lines, railways, pipelines, or roadways through low-income areas could be considered an example of “environmental injustice” as defined by Executive Order 12898, the potential for cumulative impacts on low-income population for the Proposed Project is low. There are no occurrences of disproportionately high percentages of minority or low-income populations identified within the alignment of the Proposed Project in this undeveloped area.

#### **4.8.3 Mitigation**

No mitigation measures are proposed.

#### ***No Action Alternative***

The No Action alternative would result in an increased number of power outage and related costs. These costs would be applied to the local economy and a correlating diminishing effect to the quality of life may occur for residents of Pahrump, the Pahrump Valley, and nearby communities.

### **4.9 HUMAN HEALTH AND SAFETY**

#### **4.9.1 Impact Criteria**

Impacts as a result of the Proposed Project would be considered significant to human health and safety if they significantly change the environmental condition of the region resulting in an increased safety and health risk for the area population.

#### **4.9.2 Impacts**

For the Proposed Project, noise may be noticeable directly under a line during foul weather such as rain. Transmission line noise would remain low, however, and would probably be masked

during inclement weather by background storm noise, such as falling raindrops. Audible noise is not expected to be noticeable.

The proposed transmission line would be designed and constructed to meet or exceed all applicable requirements of the National Electrical Safety Code (NESC). The operation of the transmission line would not present a safety or electrical hazard to the general public. Persons working near the transmission line, however, should exercise caution not to contact the conductors particularly with long, metallic objects. Such contact would produce a lethal electric shock.

Alternatives that avoid population centers and maximize distances from homes are consistent with prudent avoidance guidelines as the striking of a reasonable balance between the potential health effects of exposure to magnetic fields and the cost and impacts of mitigation of such exposure, by taking steps to reduce the exposure at reasonable or modest cost. For the Proposed Project, the magnetic fields expected at ROW edge are very small and would likely be less than magnetic fields produced within the home itself.

Much attention has focused on reports of health effects associated with electric and magnetic fields. The evidence based on several hundred scientific studies, however, has not established a cause and effect relationship. Magnetic and electric field strengths drop rapidly as distance increases from the ROW. The table below (Table 4-3) displays information on magnetic fields and electric fields. In the catastrophic (but extremely rare) event of a segment of transmission line falling down and causing human injury, there would be physical danger of heavy objects falling and concern of electrical shock.

**Table 4-3 Estimated Corona Effects and Electric and Magnetic Fields (EMF)**

<b>Corona Effects</b>	<b>230 kV Single Pole Single Circuit</b>
Kilovolt (kV) voltage	230
ROW width (ft)	100
Minimum conductor height aboveground (ft)	26
Average wet-weather audible noise at edge of ROW decibels A-weighted (dBA)	42.5
Average fair-weather audible noise at edge of ROW decibels A-weighted (dBA)	17.5
Average wet-weather radio interference (R at edge of ROW, decibels above 1 microvolt per meter (dB $\mu$ V/m)	58.8
Average fair-weather radio interference (R at edge of ROW, decibels above 1 microvolt per meter (dB $\mu$ V/m)	41.8
Ozone concentration at ground level, parts per billion (ppb)	0.01
<b>Electric and Magnetic Fields (EMFs)</b>	
Magnetic fields magnitude within ROW (m Gauss)	162
Magnetic fields at edge of ROW (m Gauss)	57
Electric fields (kV/m) magnitude within ROW	3.35
Electric fields (kV/m) magnitude at edge of ROW	0.71

Source: Electrical Consultants, Inc., 2011.

### Biological Effects

The question of whether long-term, direct exposure to electric and magnetic fields (EMF) from transmission lines causes biological or health effects in humans is a controversial topic. A decade ago, a substantial number of scientists may have doubted whether electric and magnetic fields could interact with biological mechanisms. Today the existence of "biological" effects is accepted by a majority of scientists. However, it is yet to be discovered whether these biologic effects represent a health risk.

The majority of human exposure to magnetic fields is generally from electronic appliances and wiring inside the home or office. As discussed above, power lines are also a source of electric and magnetic fields. Some epidemiological studies conducted in community settings have reported weak associations between childhood cancer and estimates of exposure to magnetic fields. More recent studies have concluded that magnetic fields do not themselves have the energy to directly cause cellular DNA damage that leads to leukemia or other cancers, nor does exposure to magnetic fields interfere with natural cell repair mechanisms (Lloyd, 2003).

### *No Action Alternative*

No construction or operation impacts would occur under the No Action Alternative. The characteristics of the existing human health and safety resource area would remain the same as the current condition.

## **4.10 UNAVOIDABLE ADVERSE IMPACTS**

Certain adverse impacts cannot be avoided even with application of mitigation measures. Unavoidable adverse impacts would include displacement of wildlife species; reduction of desert tortoise habitat; and disturbance.

## **4.11 SHORT-TERM USE/LONG-TERM PRODUCTIVITY**

Management of BLM lands is primarily for the long-term productivity of sensitive plant and animal species, cultural resources, and certain dispersed recreation opportunities. The granting of a ROW would result in the short-term indirect uses of the biological resources; however, the long-term productivity of these resources would be lost to the transmission line development activities in areas where permanent infrastructure is placed (i.e. the poles and access roads). The BLM is a multiuse agency that incorporates conservation with other activities.

## **4.12 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES**

A commitment of resources is irreversible when its direct or indirect impacts limit the future option for a resource. An irretrievable commitment refers to the use or consumption of resources neither renewable nor recoverable for later use by future generations.

The granting of a ROW would cause direct impacts to the environment and irreversible commitment of resources along the project route. Based on most construction practices, granting a ROW would result in disturbance of the native desert.

There would be irreversible and irretrievable loss of existing resources within the ROW, including the permanent loss of vegetation and wildlife habitat. The biological resources that would be permanently lost include individual plants, habitat and potentially animal species during construction. The cacti, yuccas, and desert tortoise that inhabit the ROW would be

destroyed or displaced as construction occurs. Habitat for these species would also be lost. Because of the limited success in transplanting these sensitive plant species, some of this impact would be irreversible.

#### **4.13 CUMULATIVE EFFECTS**

##### **4.13.1 Introduction**

Cumulative impacts result “from the incremental impact of an action when added to other past, present and reasonably foreseeable future actions.” The impacts of past and present actions combine to form existing conditions-considered in the Affected Environment discussions of Section 3.

Cumulative impacts can result from individually minor, but collectively significant, onsite or offsite actions occurring over a period of time (40 CFR 1508.7). Those actions within the spatial and temporal boundaries of the Proposed Project are considered in this EA. The spatial and temporal boundaries vary depending on the type of action proposed. Unless otherwise noted, this analysis considers impacts that could occur over the potential 50-60 year life of the Proposed Project. The areas of cumulative effects analyses are based generally on the northwestern Clark County, watershed basins, aquifer boundaries, ecological regions and highway locations.

##### **4.13.2 Reasonably Foreseeable Actions**

###### ***4.13.2.1 Other Proposed Transmission Line Projects***

An additional NVE 230 kV transmission from Northwest Substation to Mercury Substation would provide transmission to support future load growth and/or generation expansion at the Nevada Test Site or VEA. Any use of the Reservation land would require the Tribe's consent. The Tribe has already identified relocating the Mercury line along the south and western boundary of the Reservation as a priority. North of the Reservation, such a line might follow the existing Northwest-Mercury 138 kV transmission line.

NVE is planning the “Thunderbird Project” which crosses the proposed Three Lakes pipeline approximately 1 mile north of the Las Vegas Paiute Indian Reservation. The Thunderbird Project includes a new switchyard located north of the Nellis Air Force Base Small Arms Range near Apex, and a 138 kV power line to the Northwest Substation located south of the Las Vegas Paiute Indian Reservation.

Additional transmission lines are under conceptual consideration for the overall Las Vegas Valley. These facilities are not yet of a caliber to adequately describe in this document for the purposes of cumulative analysis.

###### ***4.13.2.2 Other Proposed Projects***

###### ***Three Lakes Valley Ground Water Development Project***

The SNWA is proposing to develop its existing groundwater rights from Three Lakes Valley North and South and Tikaboo Valley South, in northwestern Clark County. The Three Lakes Valley Groundwater Development Project (Three Lakes Project) includes the development and delivery of approximately 8,000 acre-feet per year (afy) to the Las Vegas Valley.

The proposed facilities include nine groundwater production wells located along U.S. Highway 95, approximately 25 miles of up to 30-inch diameter buried pipeline primarily along U.S. Highway 95, approximately 12 miles of 12 kV overhead power line adjacent to the pipeline, a maintenance yard, a disinfection-fluoridation facility, a rate of flow control station (ROFC), and four groundwater monitoring wells. The pipeline would terminate at the Las Vegas Valley Water District's Log Cabin Reservoir.

The resource areas potentially cumulatively affected with the Three Lakes Project include air quality, cultural and paleontological resources, fish and wildlife resources, geology and soils, hazardous materials, noise, recreation, transportation and utilities, visual resources, water resources and hydrology, and wild horse and burro management. Although this project is currently on hold, it has the potential to re-initiate at some point in the future.

### ***Las Vegas Paiute Development Project***

The Las Vegas Tribe of Paiute Indians operates a golf resort with three 18-hole golf courses at its Las Vegas Paiute Indian Reservation. The Tribe is also considering development of a master-planned community on approximately 2,000 acres of reservation land and has teamed with a private development company. The development may include residential housing, commercial space, a casino, community facilities, and the necessary infrastructure. It would serve between 12,000 and 25,000 people. It would be developed in at least two phases, the schedules for which have not yet been identified. The Bureau of Indian Affairs initiated preparation of an EIS for this development Proposed Project in May 2006.

### ***Clark County Storm Water Conveyance***

The Tribe anticipates the need for a drainage channel along the western boundary of the Snow Mountain Reservation. The proposed drainage facility would be designed for a 100-year storm event, requiring an estimated capacity of conveying flows of 5,000 cubic feet per second (CFS) to 12,000 CFS to the north. In order to develop the Council-approved alignment for the Proposed Project transmission project, Tribal officials and consultants met with staff of the Clark County Regional Flood Control District (CCRFCD). These discussions also serve as the starting point for possible joint and/or coordinated Tribal-CCRFCD-City of Las Vegas development of flood control facilities to address water flow management on the Reservation and adjacent off-reservation lands under City of Las Vegas and federal control including the RRCNCA. The preliminary design work reflecting these discussions is based on the assumption that the on-Reservation drainage channel will be designed to meet CCRFCD requirements. Consequently, the drainage facility will have the following features:

- The channel will be an incised concrete structure with a top width of 80 to 90 ft that is located within the westerly 250' of the Reservation along the boundary shared with RRCNCA.
- A right-of-way for the project will be 100 feet wide and traverse the entire western boundary of the Reservation, with access roads placed on each side of the structure and within the proposed right-of-way. Shared use of the access road is anticipated.

The channel is not on the current Las Vegas Valley CCRFCD Master Plan. In order for it to be included, it will be necessary for the Tribe to work with the City of Las Vegas and also secure CCRFCD concurrence. The procedure for including this project would involve drafting a Master

Plan Amendment including hydrologic and hydraulic modeling and preliminary cost estimates. The amendment is anticipated to be submitted to the CCRFCD Board through the City of Las Vegas

### ***U.S. Air Force Projects***

The USAF has identified two projects that would occur in the vicinity of the Proposed Project. These projects are:

- The “63 Combat Training Range” east of U.S. Highway 95 and north of Corn Creek will be expanded to enable the training of 5,000 security personnel per year within the next 1-2 years.
- Point Bravo Range Complex utilization will increase to support the expanded training range.

The resource areas potentially cumulatively affected with the Proposed Project include air quality, cultural and paleontological resources, fish and wildlife resources, geology and soils, hazardous materials, noise, socioeconomics, transportation and utilities, visual resources, and water resources and hydrology.

### **4.13.3 Cumulative Impacts**

Cumulative impacts result “from the incremental impact of an action when added to other past, present and reasonably foreseeable future actions.” The impacts of past and present actions combine to form existing conditions-considered in the Affected Environment sections of Section 3. NEPA and its implementing regulations require that BLM consider the cumulative environmental impacts that will result from the incremental impact of the Proposed Project when added to other past, present, and reasonably foreseeable future actions [40 CFR § 1508.7 and 1508.25(c)]. A cumulative impact analysis is limited to those past, present, and reasonably foreseeable future actions that involve effects on a resource value that will overlap with the Proposed Project’s effects on that same resource value. For purposes of the cumulative impacts analysis for the Proposed Project, proposals for future actions were evaluated to determine if they were reasonably foreseeable based upon the concreteness of the proposal and the likelihood that the proposal could be accomplished.

For purposes of this cumulative impacts analysis, a proposal for a future action was generally considered reasonably foreseeable and included in the analysis if: (1) necessary development approvals for the proposal have been obtained; (2) necessary development approvals for the proposal have been requested and are currently pending for a decision by the responsible regulatory agency; and/or (3) a NEPA review has been initiated on the proposal by a federal agency. Future actions that did not fit in one of these categories were evaluated for inclusion based on whether or not: concrete steps have been taken to evaluate, fund, or publicize the proposal; the proposal was practically and economically feasible; and the proposal was sufficiently defined and supported by adequate information to meaningfully analyze the potential cumulative impacts of the proposal. Future actions that were remote or speculative were not included in the cumulative impacts analysis. A future action was considered remote or speculative if the action was dependent on the future occurrence of contingencies before the proposal could be undertaken, such as the absence of an identified/secure funding source for the proposal and/or the need to initiate processes to obtain necessary federal, state, or local permits

for the proposal. A future action was also considered too speculative if the details of proposal were not sufficiently defined in formal development plans or studies to support analysis.

Those actions within the spatial and temporal boundaries of the Proposed Project are considered in this EA. The spatial and temporal boundaries vary depending on the type of action proposed.

### **Air Quality**

Construction of the Proposed Project, in conjunction with other past, present, and reasonably foreseeable future Proposed Projects would generate direct incremental contributions to cumulative regional PM<sub>10</sub> emissions as a result of land disturbance such as grading and trenching, with small contributions from equipment exhaust. Upon completion of the construction activities, direct Proposed Project-related PM<sub>10</sub> emissions would be reduced. It is anticipated that only a portion of any Proposed Project component or parcel of land being developed, or on which construction activity is occurring, would be actively disturbed at any one time. Construction-related PM<sub>10</sub> emissions would be expected to be short-term in nature and would be mitigated by the implementation of the required Clark County Department of Air Quality and Environmental Management emission control measures.

Modeling performed by the BLM indicated that, even considering implementation of planned BLM land disposal sales, development of disposed land, and the planned development of other public and private parcels, the area would remain in attainment for PM<sub>10</sub> at least through 2018 (BLM, 2004b).

### **Water Quality**

Impacts to water quality from the Proposed Project and other foreseeable future actions will be minimal. Each Proposed Project will be required to implement a SWPPP with project-specific EPMs under a NPDES storm water permit. Industrial, commercial, or residential projects will be required to provide a drainage report that will include measures designed to manage on-site and off-site flows with minimal detrimental effects to the overall drainage system. Other than short-term use of groundwater for dust suppression, the Proposed Project does not consume water resources. The Proposed Project is not expected to contribute measurably to cumulative impacts to water resources.

### **Biological Resources**

Other non-federal projects occurring within Clark County would fall under the purview of the Clark County Multiple Species Habitat Conservation Plan and associated incidental take permit for impacts to desert tortoise and other covered wildlife and plant species.

Opening up areas to casual vehicular access by the public may result in indirect impacts. Increased hunting, wildlife harassment, vehicle collisions and spread of noxious weeds can result in areas that had previously been inaccessible. Other indirect effects may result from providing additional perching and/or nesting structures for birds that may prey on juvenile tortoises.

Mojave desert bush scrub habitat, cacti, yuccas, and other sensitive plants beyond the corridor of the Desert View Substation to Northwest Substation Transmission Line Project may experience cumulative adverse effects by the anticipated increase in population the Las Vegas Paiute Indian Reservation. This increase would result in an overall increase in use of lands that may lead to compacted soils and increased soil erosion; crushed, removed, or destroyed vegetation; altered hydrology; and increased non-point source pollution. All of these activities may result in

cumulative harm to the desert tortoise through habitat loss or degradation and additional mortality from access road construction and off-highway vehicle use. Increased surface disturbance would result in cumulative loss of habitat for wildlife that inhabits the areas proposed for future projects. The significance of the loss would depend on the availability of adjacent suitable replacement habitat and the mobility of the wildlife to escape harm.

Development of rights-of-way and the associated roads to construct and maintain them could potentially increase the use of an area. With increased human use there is the potential for more essential habitat loss, increased interactions with the wild horses and burros, and the potential to alter their normal foraging and watering behaviors. However, these impacts should be limited under the BLM's management and there would be little cumulative effects to the wild horses and burros as a result of the activities associated with the Proposed Project.

Other animals were not observed during field surveys but could exist within the area. These include small mammals, rodents, birds and reptiles. These species include the western burrowing owl, loggerhead shrike, Mojave Desert sidewinder, desert glossy snake, chuckwalla, banded gila monster and Golden Eagle. Cumulative impacts to these species and their habitat could occur as a result of the Proposed Project. Cumulative impacts may include habitat area reduction due to disturbances associated with the projects and harassment or death associated with construction activities. Overall however, these impacts would be limited with the implementation of impact minimization and mitigation measures. It is anticipated that there would be little cumulative effect overall as a result of the activities associated with the Proposed Project.

### **Land Use**

Approximately 16.4 acres of land would be permanently removed from multiple use by the presence of the impacts associated with the Proposed Project. Of this land permanently removed, approximately 10.62 acres are located on BLM managed land representing approximately 0.00002% of the total 48 million acres of BLM managed land in the state of Nevada. Approximately 5.79 acres of impact will occur on Tribal lands within the LVPR. This represents approximately 0.15% of the over 3800 acres within the LVPR.

The Pahrump Valley is experiencing one of the higher growth rates in the country causing a fast rate of urbanization of the rural landscape. If power remains readily available in keeping with VEA's mandate and there are no other limiting factors, areas may experience a continued increase in cumulative development. This new development would impact the quantity of lands available for other uses such as open space and wildlife habitat. The additional roads that would result from the Proposed Project and other development would impact land use by increasing the access opportunities to areas previously inaccessible or less accessible to motorized vehicles. Increased access can lead to increased recreational activities such as hunting/shooting, wildlife viewing and off-road vehicle use. This increased use would impact the ability of land managers to maintain land for preservation or natural habitat. As the number of developments continues to increase, the ability to successfully preserve the archaeological, cultural and natural resources of the area may decrease.

In the case where several projects that are under construction and the same time and in the same area would cumulatively result in temporary traffic impacts. However, with the currently anticipated schedule of the proposed cumulative projects, this is not expected.

The Proposed Project, and several of the cumulative projects, are or have the potential to involve utility infrastructure development. These projects would cumulatively benefit the area by improving availability of utility services.

### **Cultural Resources**

Construction and installation of the transmission line in concert with other past, present and future Proposed Project in the area will contribute to cumulative damage to any area cultural resources. Surface disturbance from ground-disturbing construction activities and new and improved access roads would allow for disturbance of prehistoric and historic properties that are fragile and non-renewable resources if they exist in the area. Opening up areas to vehicular access by the public can cause indirect cumulative impacts to cultural resources through illegal “pot hunting” and inadvertent damage to these sites. This Proposed Project and other future Proposed Projects in the area would be required to consult with appropriate agencies and tribal representatives and provide appropriate mitigation for the discovery and collection of important cultural resources.

### **Visual Resources**

Project-specific visual impacts from some of the energy facilities would likely be reduced through mitigation in the type of structures and color selection of the proposed facilities. These manmade elements would cumulatively impact the visual resources of the area by introducing contrast to the existing natural landscapes. Normally, the first constructed objects in a natural setting cause the most noticeable change because of the contrast of form, line, color and texture with the surroundings. Each successive change becomes less noticeable than the first. However, the sum of all the changes (e.g., form, line, color and texture) is more evident to the casual observer. Therefore, the first transmission line in a natural area normally causes the greatest incremental change, but the cumulative visual impact of a corridor increases with the addition of each new line. Hence, a multi-transmission line corridor would be more visible at greater distances than a single transmission line because of the cumulative contrast with the natural landscape.

The significance of the cumulative impact would depend on the level of visual contrast between the existing surroundings and the Proposed Project and whether the scenic quality of the surroundings would be diminished. The Proposed Project in conjunction with the other projects discussed above involving the addition of constructed objects into natural settings, could cause cumulative impacts to residential viewers, highway viewers and to some recreation viewpoints in several areas. The route would have cumulative effects on scenic quality where it parallels existing transmission lines or is adjacent to housing developments, commercial and industrial facilities and other utility facilities.

### **Socioeconomics/Environmental Justice**

The Proposed Project, in addition to the other cumulative projects, would contribute to the orderly development in the region, as authorized under federal laws (Southern Nevada Public Land Management Act and Clark County Conservation of Public Land and Natural Resources Act) and by land use and related plans approved by local governments. Each of the cumulative projects in the immediate vicinity will require federal action and associated environmental compliance documentation. Potential socioeconomic impacts have been or will be considered in the environmental analyses and approvals for each of the cumulative projects. Significant

cumulative socioeconomic impacts are not expected due to the relatively rural and undeveloped nature of the area.

Depending on the progress regarding the development of the other proposed project described above, additional long-term employment opportunities and income to Clark County and the LVPR could result in beneficial effects.

The Proposed Project would have no effect on environmental justice and therefore, would not contribute to cumulative impacts within the Las Vegas Valley.

#### **Human Health and Safety**

The construction of additional transmission lines would have a cumulative electric and magnetic fields effect within a ROW. This impact would be reduced by design modifications, such as arrangement of conductors. Therefore, there would be little or no difference in EMF levels at the edge of the corridor caused by adding one or more transmission lines to an existing corridor.

The amount of hazardous materials needed to construct the Proposed Project is negligible and would be managed by implementing chemical handling and storage plans. Spill prevention plans would be required and would include construction of chemical handling and containment facilities. In addition, staff would be trained in hazardous materials safety, handling, clean up and removal. With implementation of these measures, the Proposed Project would not contribute to cumulative impacts with the project area from hazardous materials.

## 5.1 INTRODUCTION

In response to the National Environmental Policy Act of 1969 (NEPA) and Council of Environmental Quality (CEQ) regulations (1978) for implementing NEPA, a coordination program was developed for the Proposed Project to ensure members of the appropriate agencies were contacted, consulted and given adequate opportunity to be involved in the process. This section of the EA describes the lead agency's (BLM) consultation and coordination efforts.

## 5.2 AGENCY CONSULTATION AND COORDINATION

The following agencies and organizations, as appropriate, were involved in the preparation of this Environmental Assessment through consultation with the BLM as lead agency.

### **Federal**

U.S. Department of the Interior, Bureau of Land Management (BLM)

Bureau of Indian Affairs (BIA)

U.S. Department of the Interior, Fish and Wildlife Service (FWS)

Federal Aviation Administration (FAA)

Toiyabe National Forest

### **State**

State Historic Preservation Office (SHPO)

Nevada Division of Wildlife (NDOW)

Nevada Division of Historic Preservation and Archaeology

### **Tribal, Local and County**

Clark County Public Works

Las Vegas Paiute Tribe

## 5.3 FORMAL CONSULTATION WITH FEDERAL AGENCIES

In order to comply with the Endangered Species Act (1973) as amended and the implementing regulations for Section 7 consultation, species lists were requested from the USFWS at the beginning of the EA process.

Section 7 Consultation is being conducted for the desert tortoise. These federally-listed biological resources were addressed in a Biological Assessment (BA) and submitted to the USFWS and deemed complete on December 13, 2010. BLM is expecting to receive a notice of initiation of consultation from USFWS by April 27, 2011

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires that any undertaking on federal land or land requiring a federal permit take into account potential effects to cultural resources that are on or eligible for the National Register of Historic Places (NRHP). A review by BLM archeologists has determined that the Proposed Project area has been

adequately surveyed and that there are no historic properties within the APE. No further consultation is anticipated to be needed in conformance with Section 106.

The BIA and the LVPT are acting as cooperating agencies. Formal tribal consultation is ongoing with the preparation of this environmental assessment.

**6.1 INTRODUCTION**

The Bureau of Land Management Las Vegas Field Office is the lead federal agency for this proposed project with the BIA in cooperation with the LVPT acting as cooperating agency. In support of the BLM, a number of individuals from Valley Electric Association and their consultants have contributed to this document. The responsibility of each individual is presented by affiliation.

**6.2 BUREAU OF LAND MANAGEMENT**

<b>Name/Title</b>	<b>Responsibility</b>
Phil Rhinehart/Realty Specialist	Project Lead
Amelia Savage/Biological Resources	Threatened and Endangered Species
Susanne Rowe/Archaeologist	Cultural Resources

**6.3 BUREAU OF INDIAN AFFAIRS**

<b>Name/Title</b>	<b>Responsibility</b>
Amy Heuslein, Branch Chief	Project Lead
Garry Cantley,	Cultural Resources
Paul Schlafly,	Review
Kellie Youngbear,	Review

**6.4 LAS VEGAS PAIUTE TRIBE**

<b>Name/Title</b>	<b>Responsibility</b>
Tonia Carter Means, Tribal Chair	Review/Consultation
Steve McHugh, Legal Counsel	Legal Review
Jeff Neal	Review

**6.5 VALLEY ELECTRIC ASSOCIATION**

<b>Name/Title</b>	<b>Responsibility</b>
Tom Husted/President	Document Review
Curt Ledford/Counsel	Legal Review

**6.6 CONSULTANT TEAM MEMBERS****Electrical Consultants, Inc.**

<b>Name/Title</b>	<b>Responsibility</b>
Dale Broveak/Engineering Project Manager	Engineering
Crystal Kuntz/Environmental Project Manager	Document Management
Justin Brown/GIS Analyst	GIS
Dave Leary/Engineering and Planning	Electrical Planning Studies

**EME Solutions, Inc.**

<b>Name/Title</b>	<b>Responsibility</b>
John Jankousky/Consultant	Geology, Paleontology, Soils and Water Resources

**Myers Environmental Services, Inc.**

<b>Name/Title</b>	<b>Responsibility</b>
Mickey Myers/Meteorologist	Air Quality and Noise

**Newfields**

<b>Name/Title</b>	<b>Responsibility</b>
Ken MacDonald/Biologist	Biological Resources

**Robert Scott Environmental Services, Inc.**

<b>Name/Title</b>	<b>Responsibility</b>
Robert Scott/Sr. Environmental Coordinator	Quality Assurance Review

**Western Cultural Resource Management, Inc.**

<b>Name/Title</b>	<b>Responsibility</b>
Ed Stoner/Archaeologist	Cultural Resources
Tom Lennon/Archaeologist	Cultural Resources

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Appendix A  
Biological Opinion File No. 1-5-07-F-456



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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June 27, 2007

File No. 1-5-07-F-456

### Memorandum

To: Assistant Field Manager, Division of Recreation and Renewable Resources,  
Bureau of Land Management, Las Vegas, Nevada

From: Field Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

Subject: Biological Opinion for the Stirling Mountain to Northwest Transmission Line  
Project, Clark and Nye Counties, Nevada

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the subject project and its effects on the desert tortoise (*Gopherus agassizii*) (Mojave population), a species listed as threatened under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). The action area for the activities is located primarily on lands managed by the Bureau of Land Management (BLM) in Clark and Nye counties. A small portion of the action area occurs on Department of Defense (DOD) and State of Nevada lands in Clark County. BLM is the lead Federal agency for consultation under section 7 of the Act. The proposed action will not result in impacts to critical habitat that has been designated for the desert tortoise; therefore, further analysis and determinations are not warranted.

This biological opinion is issued in accordance with section 7 of the Act, based on information provided in a letter from BLM to the Service dated December 18, 2006, with an attached biological assessment (Knight & Leavitt Associates, Inc. 2006); discussions between BLM and Service biologists; electronic mail between BLM and the Service; a site visit conducted by the Service on February 7, 2007; and our files. A complete administrative record of this consultation is on file in the Service's Southern Nevada Field Office located in Las Vegas, Nevada.

### Consultation History

On December 18, 2006, BLM requested formal consultation on the possible effects of the proposed project on the desert tortoise. BLM determined that the proposed project is likely to

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adversely affect the desert tortoise. We received BLM's request on December 19, 2006, at which time we determined that the information provided was sufficient to initiate formal consultation effective on December 19, 2006.

On February 7, 2007, the Service conducted a site visit to confirm habitat characteristics in segments A and C of the proposed transmission line.

On February 22, 2007, the Service and BLM discussed the Nevada Power Company (NPC) portion of the proposed transmission line and BLM's role as the lead agency in the consultation. BLM informed the Service that they may request the NPC portion of the transmission line be removed from the consultation, and that we consult on this portion separately as an appended action to the programmatic biological opinion 1-5-96-F-23.R3. The Service requested that BLM discuss with the Air Force the Air Force's potential role as a cooperating agency in this consultation because a portion of the transmission line would be constructed on DOD land.

On February 28, 2007, BLM requested that the Service address proposed activities conducted by NPC and its possible effects to the desert tortoise as an appended action to the programmatic biological opinion 1-5-96-F-23.R3. The NPC portion of the proposed project would include approximately 4 miles of the proposed right-of-way, located south of the Metering Station at approximately the 17.5 mile post. Because the NPC portion of the proposed project occurs within the action area addressed in the programmatic biological opinion 1-5-96-F-23.R3, the Service has agreed to BLM's request and will await a formal request from the action agency to append the NPC portion of the project to the programmatic biological opinion. BLM also requested to review the draft biological opinion for the subject project. The Service sent an electronic copy of the draft biological opinion by e-mail to BLM on March 22, 2007.

On June 13, 2007, BLM submitted to the Service a copy of a letter from the Air Force acknowledging their role as a cooperating agency to the subject project consultation. BLM also informed the Service that they would not submit any comments to the draft biological opinion and requested that we finalize the biological opinion for the subject project.

## **BIOLOGICAL OPINION**

### **I. Description of the Proposed Action**

BLM, DOD, and the State of Nevada propose to grant Valley Electric Association (Valley Electric) permission to use their lands for the construction and operation of a 37-mile 230-kilovolt overhead transmission line along US95, north of Las Vegas, Nevada (Figure 1). With the exception of 9.6 miles in segment D of the proposed transmission line, the line would follow an existing 200-foot right-of way (ROW) from the Stirling Mountain Substation in Nye County to south of the Metering Station at approximately the 17.5 mile post in Clark County.

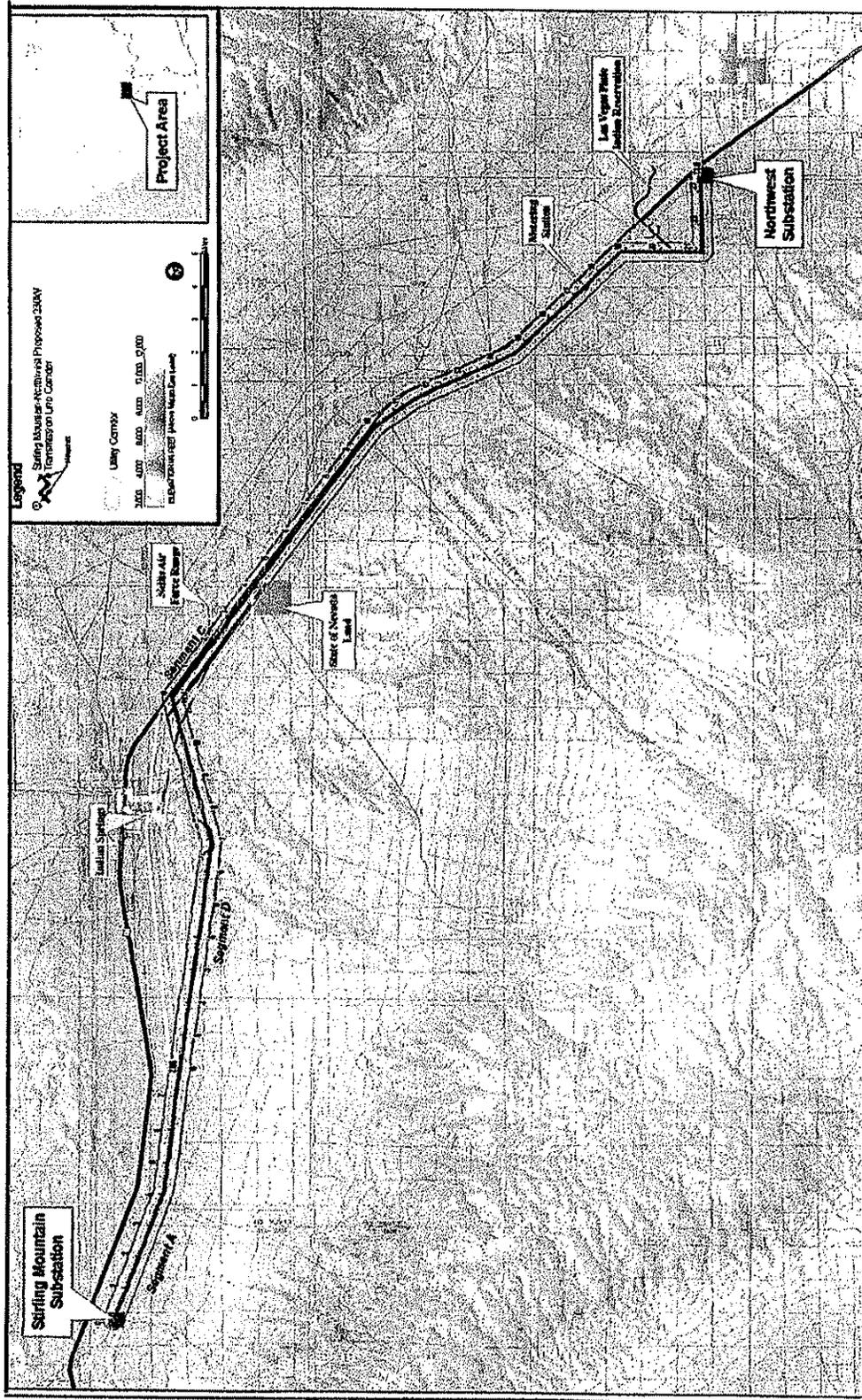


Figure 1. Stirling Mountain to Northwest Transmission Line Project Area

Approximately 1 mile of the 37-mile transmission line would occur on non-BLM lands; Department of Defense (0.6 mile) and State of Nevada (0.3 mile) lands. The project also would include construction of new access roads and temporary work areas. The project would take 10 to 11 months to complete. A brief description of the project components are below. More detailed information is available in the draft environmental assessment for this project (BLM 2006).

### Transmission Line

For transmission line construction, Valley Electric would use 260 self-supporting steel poles with the diameter at the base of the pole ranging from 4 to 7 feet. The steel poles would be spaced approximately 800 feet (ft) apart and result in disturbance of 0.02 acre per pole erected. Excavation and setting of poles would be performed in a continuous operation, preventing the possibility of caving of holes or injury to animals or persons in the vicinity of the construction. No excavations would be left uncovered when the contractor's personnel are not present on site.

A total of 13 pulling sites for stringing equipment would be needed for the proposed project. The pulling sites would be located along the transmission line centerline and spaced at 15,000 ft to 20,000 ft intervals. Distances between each pulling site would vary depending on the geography and topography and environmental sensitivity of the specific area, the length of the conductor pull, and the accessibility by equipment. Some pulling sites may be located outside the ROW. Each pulling site would require a 0.46-acre temporary pulling area.

### Access Roads

BLM-approved access roads and trails would be used by construction crews when possible. Where no roads or trails exist, access to structure sites would occur along the ROW. Some clearing of vegetation may be necessary to establish access paths for construction vehicles on the ROW. If the terrain along the ROW is steeper or broken by drainage ways, then new temporary access ways or stub roads would be constructed to selected structure sites from existing roads in the vicinity of the ROW. Approximately 35 acres would be impacted as a result of new temporary access ways or stub roads. Access roads would cross intermittent streams and washes at right angles wherever possible.

### Temporary Work Areas

At each pole location, a temporary work area (approximately 50 ft by 150 ft) would be cleared and leveled as necessary. These construction laydown areas would be located in previously disturbed areas whenever possible. Structure pieces would be delivered to the laydown area where workers would assemble the pole and attach insulators and hardware. The pole would be erected using a crane from the laydown area. After construction, the laydown area would be reclaimed and restored based on a restoration plan that would address the level of restoration required for each site. The proposed project would require 260 laydown areas (one for each

transmission line structure) and as a result, impact approximately 44 acres. In addition, one temporary material storage yard (maximum of 5 acres) would be required at the termination site at the Stirling Mountain Substation. This area would serve as reporting locations for workers, parking spaces for vehicles, and storage spaces for equipment and materials.

Overall, the proposed project would disturb a maximum of 148.06 acres of desert tortoise habitat which includes 24.41 acres of permanent disturbance and 123.64 acres of temporary disturbance on Federal land. The proposed project also would disturb 1.02 acre of State of Nevada land which includes 0.04 and 0.98 acres of permanent and temporary disturbance, respectively.

### Proposed Minimization Measures

BLM and DOD propose the following measures to minimize potential effects to the desert tortoise as a result of the proposed project (BLM 2006).

1. All new access roads not required for maintenance would be permanently closed using methods approved by the landowner/manager (*e.g.*, stockpiling and replacing topsoil, or rock replacement).
2. A desert tortoise education program would be presented to all personnel onsite during construction activities. This program would contain information concerning the biology and distribution of the desert tortoise, its legal status and occurrence in the proposed project area, the definition of "take" and associated penalties, measures designed to minimize the effects of construction activities, the means by which employees can facilitate this process, and reporting requirements to be implemented when tortoises are encountered in the project area. Personnel would be instructed to check under vehicles before moving them, as tortoises often seek shelter under parked vehicles.
3. Vehicles would not exceed speeds of 25 miles per hour in the project area. Authorized biologists would monitor speed limit compliance during construction.
4. The boundaries of all areas to be disturbed would be flagged before beginning any activities, and all disturbances would be confined to the flagged areas. All project personnel would be instructed that their activities must be confined within the flagged areas. Disturbance beyond the construction zone would be prohibited.
5. Any desert tortoise found in imminent danger would be moved out of harm's way and onto adjacent undisturbed land by an authorized biologist. All desert tortoises and desert tortoise eggs would be relocated 300 to 1,000 feet offsite into adjacent undisturbed habitat. A pair of new, disposable latex gloves would be used for each tortoise that is handled. After use, the gloves would be disposed of properly.

Tortoises found above ground would be placed under a marked bush in the shade; in an unoccupied burrow of similar size/orientation; or a burrow constructed by the authorized biologist in accordance with Section B-5-f (Desert Tortoise Council 1994, revised 1999). Any tortoise found within one hour before nightfall would be placed individually in a clean cardboard box and kept overnight in a cool, predator-free location. To minimize stress to the tortoise, the box would be covered and kept upright. Each box would be used only once and then discarded. The tortoise would be released the next day in the same area from which it was collected and placed under a marked bush in the shade.

6. The project area would be surveyed for desert tortoises and their burrows by an authorized biologist immediately prior (within 24 hours) to the onset of construction in any given area. The surveys would provide 100-percent coverage of the project area. All potential tortoise burrows would be identified and flagged for avoidance or excavation. All desert tortoise surveys, handling of desert tortoises, and burrow excavation would be performed only by an authorized biologist.

Special precautions would be taken to ensure that desert tortoises are not harmed as a result of their capture and movement during extreme temperatures (*i.e.*, air temperatures below 55° F or above 95° F). Under such adverse conditions, tortoises captured would be monitored continually by an authorized biologist until the tortoise exhibits normal behavior. If a desert tortoise shows signs of heat stress, procedures would be implemented as identified in Service-approved protocols (Desert Tortoise Council 1994, revised 1999).

7. Hazardous materials would not be drained onto the ground. All fuel, transmission or brake fluid leaks, or other hazardous waste leaks, spills, or releases would be reported immediately to the designated environmental supervisor. The environmental supervisor would be responsible for spill material removal and disposal to an approved offsite landfill, and if necessary, would notify the appropriate Federal agency. Servicing of construction equipment would take place at a designated area on privately-owned lands.
8. A litter-control program would be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit fox (*Vulpes macrotis*), coyotes (*Canis latrans*), and common ravens (*Corvus corax*). Trash and food items would be disposed of properly in predator-proof containers with re-sealing lids. Trash containers would be emptied and construction waste removed daily from the project area and disposed of in an approved landfill.

9. Observations of raven predation on desert tortoises in the project area would be reported to the Service.
10. All construction, operation and maintenance activities would be conducted in a manner that minimizes disturbance to vegetation and drainage channels.
11. Cross-country travel and travel outside construction zones would be prohibited.
12. In temporary construction areas (*e.g.*, pull and tension sites, and structure sites) where ground disturbance is substantial or where re-contouring is required, surface restoration would occur as required by the land management agency. The method of restoration normally would consist of removing and stockpiling topsoil and large rocks from disturbed areas to return temporarily disturbed areas to original contours.
13. During the tortoise active season (March 1 through October 31), all trenches and other excavations with side slopes steeper than a 1-ft rise to 3-ft length would be immediately backfilled prior to being left unattended, or: (1) fenced with tortoise-proof fencing, (2) covered with tortoise-proof fencing, (3) covered with plywood or a similarly impassable material, or (4) constructed with escape ramps at each end of the trench and every 1,000 feet in between (at a minimum). All coverings and fences would have zero ground clearance. If alternative (4) is selected, the trench or other excavation would be inspected periodically and following periods of substantial rainfall to ensure structural integrity, and that escape ramps are functional. An open trench or other excavation would be inspected for entrapped animals immediately prior to backfilling. If at any time a tortoise is discovered within a trench, all activity associated with that trench would cease until a qualified biologist has removed the tortoise in accordance with Service-approved guidelines (DTC 1994, revised 1999).
14. The proposed project would disturb a maximum of 148.06 acres of desert tortoise habitat on Federal lands. Prior to surface disturbing activities associated with the proposed project, the proponent would pay remuneration fees to be deposited into the Desert Tortoise Public Lands Conservation Fund (account number 730-9999-2315) (section 7 account) for compensation of desert tortoise habitat loss.
15. The proposed project would disturb a maximum of 1.02 acres of desert tortoise habitat on State of Nevada lands. The project proponent has agreed to pay appropriate mitigation fees to comply with the Clark County Multiple Species Habitat Conservation Plan (MSHCP). The applicants would be required to provide proof of adherence to the provisions of the MSHCP to BLM for Clark County lands included in the proposed project. Proof of adherence refers to

payment receipts for mitigation fees assessed under the MSHCP prior to any surface-disturbing activity within the proposed action area. By complying with the section 10(a)(1)(B) incidental take permit and MSHCP, effects of the proposed action would be minimized and mitigated through implementation of measures administered through MSHCP activities and programs.

The 1.02 acres of desert tortoise habitat on Clark County lands were previously included in the scope, coverage area, analysis, and acreage calculations for the MSHCP and Service-issued section 10(a)(1)(B) incidental take permit for the MSHCP. Under the MSHCP, the number of non-Federal lands available for future development was estimated at about 418,200 acres. While developing the MSHCP, the permittees were not able to predict precisely which of these non-Federal lands would or would not involve a Federal action. Therefore, the permittees obtained coverage under the section 10(a)(1)(B) incidental take permit for the MSHCP for all non-Federal lands that existed at that time (including the 1.02 acres of land in the action area) and all non-Federal lands which would result from sales or transfers from the Federal government within Clark County. However, the limit of take of covered species habitat, including the desert tortoise, is not to exceed 145,000 acres over a period of 30 years.

## **II. Status of the Species - Rangewide**

### *Desert Tortoise (Mojave Population)*

#### Listing History

On August 4, 1989, the Service published an emergency rule listing the Mojave population of the desert tortoise as endangered (54 FR 42270). On April 2, 1990, the Service determined the Mojave population of the desert tortoise to be threatened (55 FR 12178) on the basis of: significant population declines; loss of habitat from construction projects such as roads, housing and energy developments, and conversion of native habitat to agriculture; habitat degradation by grazing and OHV activities; illegal collection of desert tortoises by humans for pets or consumption; upper respiratory tract disease (URTD); predation on juvenile desert tortoises by common ravens and kit foxes; fire; and collisions with vehicles on paved and unpaved roads. Critical habitat in Arizona, California, Nevada, and Utah was designated on February 8, 1994, with an effective date of March 10, 1994.

#### Overview of General Biology

The desert tortoise is a large, herbivorous reptile located in portions of California, Arizona, Nevada, and Utah. It also occurs in Sonora and Sinaloa, Mexico. The Mojave population of the desert tortoise includes those animals living north and west of the Colorado River in the Mojave

Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran Desert in California.

Desert tortoises reach 8 to 15 inches in carapace length and 4 to 6 inches in shell height. Hatchlings emerge from the eggs at about 2 inches in length. Adults have a domed carapace and relatively flat, unhinged plastron. Their shells are high-domed, and greenish-tan to dark brown in color with tan scute centers. Desert tortoises weigh 8 to 15 pounds when fully grown. The forelimbs have heavy, claw-like scales and are flattened for digging. Hind limbs are more stumpy and elephantine.

Optimal habitat for the desert tortoise has been characterized as creosote bush scrub in which precipitation ranges from 2 to 8 inches, where a diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner 1982, Turner and Brown 1982). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. Desert tortoises occur from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of approximately 1,000 to 3,000 feet (Luckenbach 1982).

Desert tortoises are most commonly located within the desert scrub vegetation type, primarily in creosote bush scrub. In addition, they occur in succulent scrub, cheesebush scrub, blackbrush scrub, hopsage scrub, shadscale scrub, microphyll woodland, Mojave saltbush-allscale scrub, and scrub-steppe vegetation types of the desert and semidesert grassland complex (Service 1994). Within these vegetation types, desert tortoises potentially can survive and reproduce where their basic habitat requirements are met. These requirements include: a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow. Throughout most of the Mojave Region, tortoises occur most commonly on gently sloping terrain with sandy-gravel soils and with scattered shrubs, and where there is abundant inter-shrub space for growth of herbaceous plants. Throughout their range, however, tortoises can be located in steeper, rockier areas.

Desert tortoises are most active during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rainstorms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. In Nevada and Arizona, tortoises are considered to be most active from approximately March 1 through October 31.

The size of desert tortoise home ranges varies with respect to location and year. Females have long-term home ranges that are approximately half that of the average male, which range from 25 to 200 acres (Berry 1986). Over its lifetime, each desert tortoise may require more than 1.5 square miles of habitat and make forays of more than 7 miles at a time (Berry 1986). In drought years, the ability of tortoises to drink while surface water is available following rains may be crucial for tortoise survival. During droughts, tortoises forage over larger areas,

increasing the likelihood of encounters with sources of injury or mortality including humans and other predators.

Further information on the range, biology, and ecology of the desert tortoise is available in Berry and Burge (1984), Burge (1978), Burge and Bradley (1976), Bury *et al.* (1994), Germano *et al.* (1994), Hovik and Hardenbrook (1989), Karl (1981, 1983a, 1983b), Luckenbach (1982), Service (1994), and Weinstein *et al.* (1987).

### Survival and Recovery Needs

On June 28, 1994, the Service approved the *Desert Tortoise Recovery Plan* (Service 1994) (Recovery Plan). The Recovery Plan divides the range of the desert tortoise into 6 recovery units and recommends establishment of 14 desert wildlife management areas (DWMAs) throughout the recovery units. Within each DWMA, the Recovery Plan recommends implementation of reserve-level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions.

As part of the actions needed to accomplish recovery, the Recovery Plan recommends that land management within all DWMAs should restrict human activities that negatively impact desert tortoises (Service 1994). The DWMAs are being designated by BLM through development or modification of their land-use plans in Arizona, Nevada, Utah, and parts of California.

Although recovery of the tortoise will focus on DWMAs, section II.A.6. of the Recovery Plan and section 2(b) of the Act provide for protection and conservation of ecosystems on which federally-listed threatened and endangered species depend, which includes both recovery and non-recovery areas. The Mojave Desert ecosystem, of which the desert tortoise and its habitat are an integral part, consists of a dynamic complex of plant, animal, fungal, and microorganism communities and their associated nonliving environment interacting as an ecological unit (Noss and Cooperrider 1994). Actions that adversely affect components of the Mojave Desert ecosystem may directly or indirectly affect the desert tortoise. The Recovery Plan further states that desert tortoises and habitat outside recovery areas may be important to the recovery of the tortoise. Healthy, isolated tortoise populations outside recovery areas may have a better chance of surviving catastrophic effects such as disease, than large, contiguous populations (Service 1994). A description of each Recovery Unit follows and is depicted in Figure 2.



A kernel analysis was conducted in 2003-2004 for the desert tortoise (Tracy *et al.* 2004) as part of the reassessment of the 1994 Recovery Plan. Kernel analyses identify the distributions of live tortoises and carcasses, and qualitatively search for areas where distributions of live tortoises and carcasses do not overlap. These non-overlapping areas may indicate areas that have experienced recent die offs or expansions of populations. The kernel analysis revealed several areas in which the kernel estimations for live tortoises and carcasses did not overlap. These regions lacking overlap of live tortoises and carcasses (*i.e.*, carcasses are located but no live tortoises) represent areas where there were likely recent die-offs or declines in tortoise populations. The pattern of non-overlapping kernels of greatest concern is that in which there were large areas where the kernels encompassed carcasses but not live animals. The kernel analysis indicated large areas in the Piute-Eldorado Valley where there were carcasses but no live tortoises. For this entire area in 2001, there were 103 miles of transects walked, and a total of 6 live and 15 dead tortoises were located, resulting in a live encounter rate of 0.06 tortoises per mile of transect for this area. This encounter rate was among the lowest that year for any of the areas sampled in the range of the desert tortoise (Mojave population) (Tracy *et al.* 2004).

Kernel analysis for the Coyote Springs DWMA showed areas where the distributions of carcasses and living tortoises do not overlap; however, densities of adult tortoises for the region do not show a statistical trend over time. Thus, while there may be a local die-off occurring in the northern portion of this DWMA, this does not appear to influence the overall trend in the region as interpreted by study plot data. Because permanent study plots for this region were discontinued after 1996, if there have been recent declines in numbers they are not reflected in the kernel analysis. Nevertheless, large regions of non-overlapping carcass and live tortoise kernels in the regions were not identified adjacent to the Coyote Springs DWMA. The probability of finding either a live tortoise or a carcass was relatively very low for Beaver Dam Slope and Gold-Butte Pakoon and moderately low for Mormon Mesa/Coyote Springs.

The **Eastern Mojave Recovery Unit** is situated primarily in California, but also extends into Nevada in the Amargosa, Pahrump, and Piute valleys. In the Eastern Mojave Recovery Unit, desert tortoises are often active in late summer and early autumn in addition to spring because this region receives both winter and summer rains and supports two distinct annual floras on which they can feed. Desert tortoises in the Eastern Mojave Recovery Unit occupy a variety of vegetation types and feed on summer and winter annuals, cacti, perennial grasses, and herbaceous perennials. They den singly in caliche caves, bajadas, and washes. This Recovery Unit is isolated from the Western Mojave Recovery Unit by the Baker Sink, a low-elevation, extremely hot and arid strip that extends from Death Valley to Bristol Dry Lake. The Baker Sink area is generally not considered suitable for desert tortoises. Desert tortoise densities in the Eastern Mojave Recovery Unit can vary dramatically, ranging from 5 to as much as 350 adults per square mile (Service 1994).

Ivanpah and Piute-Eldorado valleys contained study plots that were analyzed in the Eastern Mojave Recovery Unit analysis. While there was no overall statistical trend in adult density over time, the 2000 survey at Goffs and the 2002 survey at Shadow Valley indicate low densities of

adult tortoises relative to earlier years. Unfortunately, there are no data in the latter years for all five study plots within this Recovery Unit; and therefore, while there is no statistical trend in adult densities, we cannot conclude that tortoises have not experienced recent declines in this area. The probability of finding a carcass on a distance sampling transect was considerably higher for Ivanpah, Chemehuevi, Fenner, and Piute-Eldorado, which make up the Eastern Mojave Recovery Unit.

The **Northern Colorado Recovery Unit** is located completely in California. Here desert tortoises are located in the valleys, on bajadas and desert pavements, and to a lesser extent in the broad, well-developed washes. They feed on both summer and winter annuals and den singly in burrows under shrubs, in intershrub spaces, and rarely in washes. The climate is somewhat warmer than in other recovery units, with only 2 to 12 freezing days per year. Tortoises that occupy this unit have the California mitochondrial DNA (mtDNA) haplotype and phenotype. Allozyme frequencies differ significantly between this Recovery Unit and the Western Mojave, indicating some degree of reproductive isolation between the two.

Desert tortoises in the **Eastern Colorado Recovery Unit**, also located completely in California, occupy well-developed washes, desert pavements, piedmonts, and rocky slopes characterized by relatively species-rich succulent scrub, creosote bush scrub, and blue palo verde-ironwood-smoke tree communities. Winter burrows are generally shorter in length, and activity periods are longer than elsewhere due to mild winters and substantial summer precipitation. Tortoises within this unit feed on summer and winter annuals and some cacti; they den singly. They also have the California mtDNA haplotype and shell type.

The **Upper Virgin River Recovery Unit** encompasses all desert tortoise habitat in Washington County, Utah, except the Beaver Dam Slope, Utah population. The desert tortoise population in the area of St. George, Utah, is at the extreme northeastern edge of the species' range and experiences long, cold winters (about 100 freezing days) and mild summers, during which the tortoises are continually active. In this area the animals live in a complex topography consisting of canyons, mesas, sand dunes, and sandstone outcrops where the vegetation is a transitional mixture of sagebrush scrub, creosote bush scrub, blackbush scrub, and a psammophytic (plants that grow in sandy soils) community. Desert tortoises use sandstone and lava caves instead of burrows, travel to sand dunes for egg-laying, and use still other habitats for foraging. Two or more desert tortoises often use the same burrow. Shell morphology and mtDNA have not been studied in this Recovery Unit, but allozyme variation is similar to that found in the Northeastern Mojave Recovery Unit.

The **Western Mojave Recovery Unit** occurs completely in California and is exceptionally heterogeneous and large. It is composed of the Western Mojave, Southern Mojave, and Central Mojave regions, each of which has distinct climatic and vegetational characteristics. The most pronounced difference between the Western Mojave and other recovery units is in timing of rainfall and the resulting vegetation. Most rainfall occurs in fall and winter and produces winter annuals, which are the primary food source of tortoises. Above-ground activity occurs primarily

in the spring, associated with winter annual production. Thus, tortoises are adapted to a regime of winter rains and rare summer storms. In this area desert tortoises occur primarily in valleys, on alluvial fans, bajadas, and rolling hills in saltbush, creosote bush, and scrub steppe communities. Tortoises dig deep burrows (usually located under shrubs on bajadas) for winter hibernation and summer aestivation. Desert tortoises within this unit generally den singly. They have a California mtDNA haplotype and a California shell type.

#### Desert Tortoise Recovery Plan Assessment and Recommendations

The U.S. General Accounting Office (GAO) Report, *Endangered Species: Research Strategy and Long-Term Monitoring Needed for the Mojave Desert Tortoise Recovery Program* (GAO 2002), directed the Service to periodically reassess the Recovery Plan to determine whether scientific information developed since its publication could alter implementation actions or allay some of the uncertainties about its recommendations. In response to the GAO report, the Service initiated a review of the existing Recovery Plan in 2003.

In March 2003, the Service impaneled the Desert Tortoise Recovery Plan Assessment Committee to assess the Recovery Plan. The Committee was selected to represent several important characteristics with particular emphasis on commitment to solid science. The charge to the Committee was to review the entire Recovery Plan in relation to contemporary knowledge to determine which parts of the recovery plan will need updating. The recommendations of the Committee were presented to the Service and Desert Tortoise Management Oversight Group approximately a year later, on March 24, 2004. The recommendations will be used as a guide by a recovery team of scientists and stakeholders to modify the 1994 Recovery Plan. A revised recovery plan is anticipated in 2007.

#### Desert Tortoise Distribution

The prescriptions for recovery in the Recovery Plan were for individual populations and assumed that preserving large blocks of habitat and managing threats in that habitat would be principally all that would be necessary to recover the species. However, that original paradigm, and the prescriptions made within that paradigm, may be wrong. Existing data have revealed population crashes that have occurred asynchronously across the range. There are reports that some populations, which have crashed previously, have subsequently increased in population density. Additionally, all known dense populations of desert tortoises have crashed. This suggests that density-dependent mortality occurs in desert tortoise populations, and that population dynamics may be asynchronous.

These characteristics indicate that tortoises may exist in a classic metapopulation structure (Hanski 1999, Levins and Culver 1971, Levin *et al.* 1984), and this should portend profoundly different prescriptions for recovery. In particular, if desert tortoises have historically existed in metapopulations, then connections among habitat patches are a necessary part of conservation prescriptions. Additionally, habitat suitable for tortoises, but without tortoises, should be

regarded as equally necessary for recovery. Long-term persistence cannot be determined from tortoise density or tortoise numbers alone, but assessment must include the complexities of metapopulation dynamics and the habitat characteristics that promote metapopulation dynamics including habitat connectivity through inefficient corridors (*i.e.*, partial connectivity), asynchrony of subpopulation dynamics, and several separate habitat patches.

Some of the characteristics of proper metapopulation function may already have been obviated by proliferation of highways and habitat fragmentation due to urbanization. Thus, management may require artificially facilitating metapopulation processes such as movement among patches.

The genetic distinctness of tortoise populations and their pathogens should be assessed to guide all manipulative management actions (*e.g.*, head-starting, translocation, habitat restoration, and corridor management).

The Desert Tortoise Recovery Plan Assessment Committee proposed a revision to the previous delineation of recovery units based on new scientific information. The recommended delineations reflect the prevailing concepts of subpopulation "discreteness," and "significance," and incorporate morphological, behavioral, genetic, and environmental information. The Committee's recommendation reduces the number of recovery units from six to five by leaving the original Upper Virgin River and Western Mojave units intact and recombining the four central units into three reconfigured units: (1) Lower Virgin River Desert; (2) Northeastern Mojave Desert (including Amargosa Valley, Ivanpah Valley, and Shadow Valley); and (3) Eastern Mojave and Colorado Desert. These recommended recovery units are based largely on the best biochemical/genetic data presented in Rainboth *et al.* (1989), Lamb *et al.* (1989), Lamb and Lydehard (1994), and Britten *et al.* (1997). Because these delineations are general and not definitive at this time, more data and analyses are needed that may result in additional modification of Recovery Unit delineations.

The 1994 Recovery Plan conceived desert tortoises to be distributed in large populations that required large areas and large densities to recover. However, existing data are consistent with the possibility that tortoises have evolved to exist in *metapopulations*. Metapopulation theory conceives that tortoises are distributed in metapopulation patches connected with corridors that allow inefficient and asynchronous movements of individuals among the patches. This paradigm conceives that some habitat patches within the range of the desert tortoise will have low population numbers or no tortoises at all, and others will have higher population numbers. Movement among the patches is necessary for persistence of the "system." If desert tortoises evolved to exist in metapopulations, then long-term persistence requires addressing habitat fragmentation caused by highways and "satellite" urbanization. Satellite urbanization occurs when blocks of habitat become developed which are substantially disjunct from existing developments (leap-frog development) resulting in a greater edge effect and creating an area of habitat between the developments which becomes degraded over time. Ensuring the integrity and function of natural corridors among habitat patches might require active management of tortoise densities in habitat patches and associated corridors.

Land managers and field scientists identified 116 species of alien plants in the Mojave and Colorado deserts (Brooks and Esque 2002). The proliferation of non-native plant species has also contributed to an increase in fire frequency in tortoise habitat by providing sufficient fuel to carry fires, especially in the intershrub spaces that are mostly devoid of native vegetation (Service 1994; Brooks 1998; Brown and Minnich 1986). Changes in plant communities caused by alien plants and recurrent fire may negatively affect the desert tortoise by altering habitat structure and species composition of their food plants (Brooks and Esque 2002).

Disease was identified in the 1994 Recovery Plan as an important threat to the desert tortoise. Disease is a natural phenomenon in wild populations of animals and can contribute to population declines by increasing mortality and reducing reproduction. However, URTD appears to be a complex, multi-factorial disease interacting with other stressors to affect desert tortoises (Brown *et al.* 1994; Tracy *et al.* 2004). The disease occurs mostly in relatively dense desert tortoise populations, as mycoplasmal infections are dependent upon higher densities of the host (Tracy *et al.* 2004).

#### Desert Tortoise Reproduction

Desert tortoises possess a combination of life history and reproductive characteristics that affect the ability of populations to survive external threats. Tortoises grow slowly, require 15 to 20 years to reach sexual maturity, and have low reproductive rates during a long period of reproductive potential (Turner *et al.* 1984, Bury 1987, Tracy *et al.* 2004). At Yucca Mountain, Nye County Nevada (Northeastern Mojave Recovery Unit), Mueller *et al.* (1998) estimated that the mean age of first reproduction was 19 to 20 years; and reported that clutch size (1 to 10 eggs) and annual fecundity (0 to 16 eggs) were related to female size but annual clutch frequency (0 to 2) was not. Further, Mueller *et al.* (1998) suggested that body condition during July to October may determine the number of eggs a tortoise can produce the following spring.

McLuckie and Fridell (2002) determined that the Beaver Dam Slope desert tortoise population, within the Northeastern Mojave Recovery Unit, had a lower clutch frequency ( $1.33 \pm 0.14$ ) per reproductive female and fewer reproductive females (14 out of 21) when compared with other Mojave desert tortoise populations. In the 1990s, dramatic tortoise population declines occurred at Beaver Dam Slope due primarily to disease and habitat degradation and alteration (Service 1994). The number of eggs that a female desert tortoise can produce in a season is dependent on a variety of factors including environment, habitat, availability of forage and drinking water, and physiological condition (Henen 1997, McLuckie and Fridell 2002).

### Desert Tortoise Numbers

Data collected on 1 square-mile permanent study plots indicate that tortoise populations have declined both in numbers of tortoises located during surveys and in densities of live tortoises at most sites since the plots were first established 20-30 years ago (Berry *et al.* 2002). Declines of 50 to 96 percent have occurred regardless of initial tortoise densities.

Increases in the occurrence of shell-skeletal remains have been found to correspond with declines in numbers and densities of live tortoises with the exception of certain plots where poaching has been documented (Berry 2003). Results of desert tortoise surveys at three survey plots (Beaver Dam Slope, Littlefield, and Virgin Slope) in Arizona indicate that all three sites have experienced significant die-offs.

Six live tortoises were located in a 2001 survey of the Beaver Dam Slope Exclusion Plot (Walker and Woodman 2002). Three had definitive signs of URTD, and two of those also had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 31 live tortoises in 1996, 20 live tortoises in 1989, and 19 live tortoises in 1980. The 2001 survey report indicated that it is likely that there is no longer a reproductively viable population of tortoises on this study plot.

Thirty-seven live tortoises were located in a 2002 survey of the Littlefield Plot (Young *et al.* 2002). None had definitive signs of URTD. Twenty-three tortoises had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 80 live tortoises in 1998 and 46 live tortoises in 1993. The survey report indicated that the site might be in the middle of a die-off due to the high number of carcasses observed since the site was last surveyed in 1998.

Nine live tortoises were located during the marking phase of a 2003 survey of the Virgin Slope Plot (Goodlett and Woodman 2003). The surveyors determined that the confidence intervals of the population estimate would be excessively wide and not lead to an accurate population estimate, so the recapture phase was not conducted. One tortoise had definitive signs of URTD. Seven tortoises had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 41 live tortoises in 1997 and 15 live tortoises in 1992. The survey report indicated that the site may be at the end of a die-off that began around 1996-1997.

The Western Mojave has experienced marked population declines as indicated in the Recovery Plan and this decline continues today. Spatial analyses of the West Mojave show areas with increased probabilities of encountering dead rather than live animals, areas where kernel estimates for carcasses exist in the absence of live animals, and extensive regions where there are clusters of carcasses where there are no clusters of live animals. Collectively, these analyses point generally toward the same areas within the West Mojave, namely the northern portion of the Fremont-Kramer DWMA and the northwestern part of the Superior-Cronese DWMA. Together, these independent analyses, based on different combinations of data, all suggest the same

conclusion for the Western Mojave. Data are not currently available with sufficient detail for most of the range of the desert tortoise with the exception of the Western Mojave (Tracy *et al.* 2004).

Declines in tortoise abundance appear to correspond with increased incidence of disease in tortoise populations. The Goffs permanent study plot in Ivanpah Valley, California, suffered 92 to 96 percent decreases in tortoise density between 1994 and 2000 (Berry 2003). The high prevalence of disease in Goffs tortoises likely contributed to this decline (Christopher *et al.* 2003). Upper respiratory tract disease has not yet been detected at permanent study plots in the Sonoran Desert of California, but is prevalent at study plots across the rest of the species' range (Berry 2003) and has been shown to be a contributing factor in population declines in the western Mojave Desert (Brown *et al.* 1999, Christopher *et al.* 2003).

High mortality rates at permanent study plots in the northeastern and eastern Mojave and Sonoran Deserts appear to be associated with incidence of shell diseases in tortoises (Jacobson *et al.* 1994). Low levels of shell diseases were detected in many populations when the plots were first established, but increased during the 1980s and 1990s (Jacobson *et al.* 1994, Christopher *et al.* 2003). A herpes virus has been discovered in desert tortoises, but little is known about its effects on tortoise populations at this time (Berry *et al.* 2002, Origgi *et al.* 2002).

The kernel analysis of the Eastern Colorado Recovery Unit shows that the distributions of the living tortoises and carcasses overlap for most of the region. The Chuckwalla Bench study plot occurs outside the study area, which creates a problem in evaluating what may be occurring in that area of the Recovery Unit. However, the few transects walked in that portion of the DWMA yielded no observations of live or dead tortoises. This illustrates a concern for drawing conclusions at a regional scale based on data from areas represented by too few study plots. The percentage of transects with live animals was relatively high for most DWMA's within the Eastern Colorado Recovery Unit. In addition, the ratio of carcasses to live animals was low within this Recovery Unit relative to others.

Long-term monitoring of desert tortoise populations is a high priority recovery task as identified in the Recovery Plan. From 1995 to 1998, pilot field studies and workshops were conducted to develop a monitoring program for the desert tortoise. In 1998, the Desert Tortoise Management Oversight Group identified line distance sampling as the appropriate method to determine rangewide desert tortoise population densities and trends. Monitoring of populations using this method is underway across the range of the desert tortoise. Successful rangewide monitoring will enable managers to evaluate the overall effectiveness of recovery actions and population responses to these actions, thus guiding recovery of the desert tortoise (Mojave population).

#### *Rangewide Population Monitoring Results: 2001-2005*

Rangewide tortoise population monitoring began in 2001 and is conducted annually (Table 1). Rangewide sampling of desert tortoises consisted of 4,986 transects totaling 15,957 miles which is the most comprehensive attempt undertaken to date to establish the density of this species

(Service 2006). The rangewide monitoring program is designed to detect long-term population trends. However, density estimates from any brief window of time (e.g., 2001-2005) would be expected to detect only catastrophic declines or remarkable population increases. Therefore, following the first five years of the long-term monitoring project, the goal is not to document trends within this time period, but to gather information on baseline densities, and year-to-year and recovery unit-to-recovery unit variability. This information will also reflect transect-to-transect variability in observations as well as regional variability in detection functions.

Rangewide sampling was initiated during a severe drought that intensified in 2002 and 2003, particularly in the western Mojave Desert in California. At the time the Recovery Plan was written, there was less consideration of the potentially important role of drought in the desert ecosystem, particularly regarding desert tortoises. In the meantime, studies have documented vulnerability of juvenile (Wilson *et al.* 2001) and adult tortoises (Peterson 1994, Peterson 1996, Henen 1997, Longshore *et al.* 2003) to drought.

**Table 1. Summary of Desert Tortoise Densities by Recovery Unit**

	Year	# of Transects	Length (mi)	# of Adult Tortoises Located	Density (mi <sup>2</sup> )	95 percent Confidence Interval Low	95 percent Confidence Interval High
Recovery Units (5)	2001	1,631	1,653	279	9.40	8.02	11.0
	2002	1,010	2,490	289	8.95	7.35	10.9
	2003	990	2,407	354	8.19	6.77	9.90
	2004	610	4,086	445	8.05	6.97	9.29
	2005	745	5,321	489	8.76	7.66	10.0
Upper Virgin River <sup>1</sup>	2001	159	195	168	48.6	37.0	63.7
	2002	—	—	—	—	—	—
	2003	157	192	96	27.2	21.1	35.0
	2004	—	—	—	—	—	—
	2005	155	189	136	35.1	26.4	46.7

<sup>1</sup>Data from McLuckie *et al.* (2006)

Considerable decreases in density were reported in 2003 in the Eastern Colorado and Western Mojave recovery units, with no correspondingly large rebound in subsequent estimates. Desert tortoise densities reported in these recovery units were approximately 8 to 9 tortoises per square mile.

Changing ecological conditions as a result of natural events or human-caused activities may stress individual tortoises and result in a more severe clinical expression of URTD (Brown *et al.*

2002). For example, the proliferation of non-native plants within the range of the tortoise has had far-reaching impacts on tortoise populations. Tortoises have been documented to prefer native vegetation over non-natives (Tracy *et al.* 2004). Non-native annual plants in desert tortoise critical habitat in the western Mojave Desert were identified to compose over 60 percent of the annual biomass (Brooks 1998). The reduction in quantity and quality of forage may stress tortoises and make them more susceptible to drought- and disease-related mortality (Brown *et al.* 1994). Malnutrition has been associated with several disease outbreaks in both humans and turtles (Borysenko and Lewis 1979). What is currently known with certainty about disease in the desert tortoise relates entirely to individual tortoises and not populations; virtually nothing is known about the demographic consequences of disease (Tracy *et al.* 2004).

### *Wildfires*

Numerous wildfires occurred in desert tortoise habitat across the range of the desert tortoise in 2005 due to abundant fuel from the proliferation of non-native plant species after a very wet winter. These wildfires heavily impacted two of the six desert tortoise recovery units, burning less than 19 percent of desert tortoise habitat in the Upper Virgin River and 10 percent in the Northeastern Mojave Recovery Unit (Table 2). In the Upper Virgin River Recovery Unit, 19 percent of the Upper Virgin River critical habitat unit (CHU) burned. In the Northeastern Mojave Recovery Unit, three CHUs were impacted: about 23 percent of the Beaver Dam Slope CHU burned, 13 percent of the Gold Butte-Pakoon CHU, and 4 percent of the Mormon Mesa CHU. Although it is known that tortoises were burned and killed by the wildfires, tortoise mortality estimates are not available.

**Table 2. Approximate Acres of Desert Tortoise Habitat Burned in Each Recovery Unit during 2005.**

Recovery Unit	Habitat Burned (acres)	Percent Habitat Burned	CH* Burned (acres)	Percent CH Burned
Upper Virgin River**	10,446	< 19	10,446	19
Northeastern Mojave***	500,000	10	124,782	11
Eastern Mojave	6,000	< 1	1,219	<1
Western Mojave	0	0	0	0
Northern Colorado	0	0	0	0
Eastern Colorado	0	0	0	0
<b>Total</b>	<b>516,446</b>	-	<b>136,447</b>	-

\* CH – critical habitat

\*\* Estimates only for Upper Virgin River; GIS analysis needed

\*\*\* Potential habitat was mapped and calculated as Mojave Desert less than 4,200 feet in elevation minus playas, open water, and developed and agricultural lands.

In 2006, less than 50,000 acres of desert tortoise habitat burned which includes less than 20,000 acres of desert tortoise critical habitat. To date, the status and trends of desert tortoise populations are difficult to determine based only upon an assessment of tortoise density due largely to the tortoise's overall low abundance and its subterranean sheltering behavior, as well as the cryptic nature of this species.

### **III. Environmental Baseline**

#### **a. Status of the Species in the Action Area**

A survey for desert tortoises within the proposed project area was conducted on June 23, 2006 through August 4, 2006 following Service survey guidelines (Service 1992). The area surveyed consisted of 100-percent coverage of the ROW. In addition, zone-of-influence surveys were conducted at 33, 100, 200, and 400 meters from the ROW boundary. A total of 346 miles of transect data was collected for the project ROW and surrounding zone of influence. Desert tortoise signs observed include live tortoises, burrows/pallets, scat, and shell remains. Based on the surveys, it is estimated that the ROW and zone-of-influence area contains 10-45 desert tortoises per square mile. It is estimated that the project area (148.06 acres) supports 3-11 desert tortoises and the zone-of-influence area supports 185-833 tortoises.

Habitat quality varied along the project ROW from a mix of creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) in segment A to denser creosote bush and less bursage in segment D with increasing Mojave yucca (*Yucca schidigera*) and Joshua tree (*Yucca brevifolia*) cover in segment C (Figure 1). The northern extent of the project has sparsely vegetated creosote bush and white bursage, with developing desert pavement. The area with the lowest number of observed tortoise sign was the area along U.S. Highway 95 near the High Desert State Prison and around the town of Indian Springs. The highest number of tortoise sign was found in segment A and west of the Metering Station in segment C. Habitat in this area was characteristic of higher elevation habitat in the eastern Mojave Desert with dense to moderately dense stands of Mojave yucca and Joshua trees. Habitat in the project area was generally good, but contained some evidence of prior disturbances associated with utility construction, off-road vehicle use, mining and dumping.

#### **b. Factors Affecting the Species in the Action Area**

The quality of habitat of areas surrounding and adjacent to the proposed project is considered good quality although some tortoise habitat, near the ROW, has been impacted by existing utility construction permitted under other Federal actions. Past consultations on the desert tortoise have involved mostly projects related to access improvements along U.S. Highway 95. A gravel pit is located adjacent to the State of Nevada land in segment C of the proposed project.

Since the Mojave population of the desert tortoise was first listed under the Act in 1989, three regional-level habitat conservation plans (HCPs) have been implemented for development of desert tortoise habitat in Clark County, Nevada. Approximately 89 percent of Clark County consisted of public lands administered by the Federal government, thereby providing little opportunity for mitigation for the loss of desert tortoise habitat under an HCP on non-Federal lands. Alternatively, funds are collected under HCPs and spent to implement conservation and recovery actions on Federal lands as mitigation for impacts that occur on non-Federal lands. BLM-managed lands are included in these areas where mitigation funds are used to promote recovery of the desert tortoise.

1. On May 23, 1991, the Service issued a biological opinion on the issuance of incidental take permit PRT-756260 (File No. 1-5-91-FW-40) under section 10(a)(1)(B) of the Act. The Service concluded that incidental take of 3,710 desert tortoises on up to 22,352 acres of habitat within the Las Vegas Valley and Boulder City in Clark County, Nevada, was not likely to jeopardize the continued existence of the desert tortoise. The permit application was accompanied by the *Short-Term Habitat Conservation Plan for the Desert Tortoise in the Las Vegas Valley, Clark County, Nevada* (Regional Environmental Consultants [RECON] 1991) (Short-term HCP) and an implementation agreement that identified specific measures to minimize and mitigate the effects of the action on desert tortoises.

On July 29, 1994, the Service issued a non-jeopardy biological opinion on the issuance of an amendment to incidental take permit PRT-756260 (File No. 1-5-94-FW-237) to extend the expiration date of the existing permit by one year (to July 31, 1995) and include an additional disturbance of 8,000 acres of desert tortoise habitat within the existing permit area. The amendment did not authorize an increase in the number of desert tortoises allowed to be taken under the existing permit. Additional measures to minimize and mitigate the effects of the amendment were also identified. Approximately 1,300 desert tortoises were taken under the authority of PRT-756260, as amended. In addition, during the Short-term HCP, as amended, approximately 541,000 acres of desert tortoise habitat have been conserved in Clark County on lands administered by BLM and the National Park Service (NPS).

2. On July 11, 1995, the Service issued an incidental take permit (PRT-801045) to Clark County, Nevada, including cities within the county and Nevada Department of Transportation (NDOT), under the authority of section 10(a)(1)(B) of the Act. The permit became effective August 1, 1995, and allowed the "incidental take" of desert tortoises for a period of 30 years on 111,000 acres of non-Federal land in Clark County, and approximately 2,900 acres associated with NDOT activities in Clark, Lincoln, Esmeralda, Mineral, and Nye counties, Nevada. The Clark County Desert Conservation Plan (DCP) served as the permittees' HCP and detailed their proposed measures to minimize, monitor, and mitigate the effects of

the proposed take on the desert tortoise (RECON 1995). The permittees and NDOT imposed and paid a fee of \$550 per acre of habitat disturbance to fund these measures. The permittees expended approximately \$1.65 million per year to minimize and mitigate the potential loss of desert tortoise habitat. The majority of these funds were used to implement minimization and mitigation measures, such as increased law enforcement; construction of highway barriers; road designation, signing, closure, and rehabilitation; and tortoise inventory and monitoring within the lands managed for tortoise recovery (e.g., DWMAs). The benefit to the species, as provided by the DCP, substantially minimized and mitigated those effects that occurred through development within the permit area and aided in recovery of the desert tortoise.

3. On November 22, 2000, the Service issued an incidental take permit (TE-034927) to Clark County, Nevada, including cities within the county and NDOT which supersedes the DCP permit. In the biological/conference opinion (File No. 1-5-00-FW-575), the Service determined that issuance of the incidental take permit to Clark County would not jeopardize the listed desert tortoise or southwestern willow flycatcher (*Empidonax traillii extimus*), or any of the 76 species that are not listed or not proposed for listing under the Act that are covered under the incidental take permit. Under the special terms and conditions of the permit, take of avian species, with the exception of Peregrine falcon (*Falco peregrinus anatum*) and phainopepla (*Phainopepla nitens*), would not be authorized until acquisition of private lands in desert riparian habitats in southern Nevada has occurred. The incidental take permit allows incidental take of covered species for a period of 30 years on 145,000 acres of non-Federal land in Clark County, and within NDOT rights-of-way, south of the 38th parallel in Nevada. The Clark County MSHCP and Environmental Impact Statement (RECON 2000), serves as the permittees' HCP and details their proposed measures to minimize, mitigate, and monitor the effects of covered activities on the 78 species.

As partial mitigation under the DCP, carried forward in the MSHCP, the County purchased the Boulder City Conservation Easement (BCCE) from the City of Boulder City in 1994. The BCCE is for 50 years and will be retained in a natural condition with the purpose for recovery of the desert tortoise and conservation of other species in the area. Certain uses shall be prohibited within the BCCE, including motor vehicle activity off designated roads, livestock grazing, and any activity that is inconsistent with the purposes of the BCCE. Much of the BCCE is also designated desert tortoise critical habitat. Within the boundary of the BCCE, Boulder City reserved the Solar Energy Zone for energy development projects in addition to adjacent energy generation facilities described previously.

#### **IV. Effects of the Proposed Action**

Effects of the action refer to the direct and indirect effects of the proposed action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

Direct effects encompass the immediate, often obvious effect of the proposed action on the desert tortoise or its habitat. Indirect effects are caused by or will result from the proposed action and are later in time, but still reasonably certain to occur. In contrast to direct effects, indirect effects can often be more subtle, and may affect desert tortoise populations and habitat quality over an extended period of time, long after project activities have been completed. Indirect effects are of particular concern for long-lived species such as the desert tortoise, because project-related effects may not become evident in individuals or populations until years later.

Disturbance would include construction of a transmission line, new access roads, temporary staging areas, and removal of vegetation. Direct impacts to the desert tortoise would be the permanent loss of habitat utilized by tortoises for foraging, breeding, and cover due to the construction of the transmission line and permanent access roads. Vegetation that serves as shelter and substrates suitable for burrowing, nesting, and overwintering would be impacted by the project. Desert tortoise burrows may be destroyed within the project area. In addition, any tortoise on the ROW or access roads during construction hours would be highly vulnerable. Desert tortoise may be killed or injured by project vehicles and equipment on the ROW or access roads. Equipment utilized for stringing or tensioning wires could crush tortoises or collapse dens both occupied or unoccupied if not found during clearance surveys. Project vehicles or equipment that stray from designated areas may crush desert tortoises above ground or in their burrows or damage habitat outside the ROW. Tortoises may take refuge underneath project vehicles and equipment and be killed or injured when the equipment or vehicle is moved. Tortoises that enter the project area during the project activities may need to be captured and moved out of harm's way; as a result tortoises may be adversely affected if handled improperly. BLM's and DOD's proposal to provide an authorized biologist onsite; conduct pre-activity tortoise clearance surveys; temporarily cease activities if a tortoise is located onsite and remove the tortoise from harm's way; present a worker education program which includes but is not limited to instructing personnel to check under parked vehicles before moving them; implement a speed limit; and restrict vehicles and equipment to flagged work area boundaries and designated access roads should minimize these effects.

Native vegetation within the project area would be removed for temporary staging areas. Removal of native vegetation can encourage the infiltration and proliferation of invasive alien plant species, which can alter the native plant community, and adversely affect the plant diversity and quantity of forage on which tortoise depend. Recurrent fires due to presence of these alien annual plant species can exacerbate this problem. Measures proposed by BLM and DOD to flag

work area boundaries, prohibit cross-country travel, and implement a restoration plan for temporary construction areas should minimize these effects. In addition, topsoil that is removed would be stockpiled, and replaced on disturbed areas, which should also minimize these effects.

Other direct impacts to the desert tortoise could include tortoises killed or injured as a result of being trapped in open excavations. In addition, if fuel or other hazardous materials are spilled in desert tortoise habitat, desert tortoises and their habitat may be adversely affected as a result. As minimization measures for these potential effects on the desert tortoise, BLM and DOD propose to cover or immediately backfill excavations and require hazardous spills and contaminated spoils immediately cleaned up and removed from the site.

The resulting indirect impacts to the desert tortoise may include the risk of death, injury, or collection of populations inhabiting the area. These additive long-term impacts are likely to occur due to increased access by the public to the transmission line and surrounding lands. Tortoise injuries or losses may result from accidental human encounters, collection of tortoises for pets, encounters with domestic pets, increased off-road travel (motorized and bicycle), and accidental encounters with maintenance workers and activities in the area. There also is a potential for an increase in the number of predatory and scavenger species due to the presence of humans and illegal trash dumping. Workers associated with the proposed project may provide food in the form of trash and litter; or water, which attracts important tortoise predators such as the common raven, kit fox, and coyote (BLM 1990, Boarman and Berry 1995). Natural predation in undisturbed, healthy ecosystems is generally not an issue of concern. However, predation rates may be altered when natural habitats are disturbed or modified. Common raven populations in some areas of the Mojave Desert have increased 1500 percent from 1968 to 1988 in response to expanding human use of the desert (Boarman 1992). Since ravens were scarce in this area prior to 1940, the current level of raven predation on juvenile desert tortoises is considered to be an unnatural occurrence (BLM 1990). BLM and DOD propose to minimize the effects above by implementing a desert tortoise awareness program and litter-control measures, permanently closing all new access roads not required for future maintenance of the line, and reporting raven predation of tortoises to the Service.

## **V. Cumulative Effects**

Cumulative effects include the effects of future State, tribal, local government, or private actions that are reasonably certain to occur in the project area considered in this biological opinion. Because future construction of the NPC transmission line south of the Metering Station would require appending an existing consultation under section 7, its potential effects on the desert tortoise are not considered cumulative effects pursuant to this consultation. The Service is unaware of any cumulative effects in the action area.

## **VI. Conclusion**

After reviewing the current status of the desert tortoise, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the project, as proposed and analyzed, is not likely to jeopardize the continued existence of the threatened desert tortoise (Mojave population).

The Service has determined that the level of effect described herein will not appreciably reduce the likelihood of survival and recovery of the Mojave population of the desert tortoise in the wild because:

1. The proposed project will not result in a level of habitat disturbance or take of desert tortoise that would significantly affect the rangewide number, distribution, or reproduction of the species; and
2. Measures have been proposed by BLM and DOD to minimize the effects of the proposed action on the desert tortoise.

### **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The terms and conditions may include: (1) restated measures proposed by BLM and DOD; (2) modified measures proposed by BLM and DOD; or (3) additional measures considered necessary by the Service. Where these terms and conditions vary from or contradict the minimization measures proposed under the Description of the Proposed Action, specifications in these terms and conditions shall apply. The measures described below are nondiscretionary and must be implemented by BLM and DOD so that they become binding conditions of any project, contract, grant, or permit issued by BLM and DOD as appropriate, in order for the exemption in section 7(o)(2) to apply. The Service's evaluation of the effects of the proposed actions includes

consideration of the measures developed by BLM and DOD, and repeated in the Description of the Proposed Action portion of this biological opinion, to minimize the adverse effects of the proposed action on the desert tortoise. Any subsequent changes in the minimization measures proposed by BLM and DOD may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR § 402.16. These reasonable and prudent measures are intended to clarify or supplement the protective measures that were proposed by BLM and DOD as part of the proposed action.

BLM and DOD have a continuing duty to regulate the activity that is covered by this incidental take statement. If BLM and DOD fail to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

### **I. Amount of Take**

Based on the analysis of impacts provided above, measures proposed by BLM and DOD, and anticipated project duration the Service anticipates that the following take could occur as a result of the proposed action:

1. The Service estimates that no more than one desert tortoise would be killed or injured as a result of the proposed project.
2. All desert tortoises located in harm's way in work areas may be captured and moved by an authorized biologist. Based on the timing and duration of the project and desert tortoise survey data, the Service estimates that no more than 37 desert tortoises will be taken (*i.e.*, other than killed or injured) as a result of project activities.
3. No desert tortoise eggs may be destroyed during project activities, although an unknown number of tortoise eggs may be affected (*i.e.*, moved off the action area into adjacent undisturbed habitat by the authorized biologist).
4. An unknown number of desert tortoises may be preyed upon by ravens or other subsidized desert tortoise predators drawn to trash in the project area.

### **II. Effect of the Take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species.

### **III. Reasonable and Prudent Measures**

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of desert tortoise:

1. BLM and DOD shall implement measures to minimize mortality or injury of desert tortoise due to project activities including capture and handling and entrapment of desert tortoises in excavations.
2. BLM and DOD shall implement measures to minimize predation on tortoises by ravens or other desert tortoise predators attracted to the project area.
3. BLM and DOD shall implement measures to minimize loss and long-term degradation and fragmentation of desert tortoise habitat, such as soil compaction, erosion, crushed vegetation, introduction of weeds or contaminants as a result of project activities.
4. BLM and DOD shall implement measures to ensure compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion.

### **IV. Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, BLM and DOD must fully comply with the following terms and conditions, which implement the reasonable and prudent measures described above.

1. To implement Reasonable and Prudent Measure Number 1, BLM and DOD shall ensure implementation of the following measures to minimize mortality or injury of desert tortoise:
  - a. BLM and DOD shall ensure that an authorized desert tortoise biologist is on-site during construction activities. In accordance with *Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise* (Service 1992), an authorized desert tortoise biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related fields as determined by the Service. The biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign, which should include a minimum of 60 days field experience. All tortoise biologists shall comply with the Service-approved handling protocol (DTC 1994, revised 1999). In addition, the biologist shall have the ability to recognize and accurately record survey results and must be familiar with the terms

and conditions of the biological opinion. Potential biologists and monitors shall complete the attached form (Attachment A) and submit it to BLM, DOD, and the Service for review and approval.

- b. A desert tortoise education program shall be presented to all personnel onsite during construction and operation of the proposed project. The program will include information on the biology and distribution of the desert tortoise, its legal status and occurrence in the proposed project area, the definition of "take" and associated penalties, the measures designed to minimize the effects of construction activities, methods employees can use to implement the measures, and reporting procedures to be used when desert tortoises are encountered. The program shall instruct participants to report all observations of listed species and their sign during construction activities to the authorized biologist.
- c. All areas to be disturbed shall have boundaries flagged before beginning the activity and all disturbances would be confined to the flagged areas. All project personnel will be instructed that their activities must be confined to locations within flagged areas. Disturbance beyond the actual construction zone will be prohibited.
- d. Before surface-disturbing activities occur, an authorized desert tortoise biologist shall conduct a clearance survey to locate and remove tortoises using techniques providing full coverage of all areas. All desert tortoise burrows and other species' burrows that may be used by tortoises, will be examined to determine occupancy of each burrow by desert tortoises.
- e. All burrows located within areas proposed for disturbance, whether occupied or vacant, shall be excavated by an authorized biologist and collapsed or blocked to prevent desert tortoise re-entry. All burrows will be excavated with hand tools to allow removal of desert tortoises. All desert tortoise handling and excavations will be conducted by an authorized desert tortoise biologist in accordance with Service-approved protocol (DTC 1994, revised 1999).
- f. If a desert tortoise appears in the action area, project activities that threaten the desert tortoise shall cease until the desert tortoise moves out of harm's way or is moved out of harm's way by an authorized biologist. Any such desert tortoise will be relocated 300 to 1,000 feet offsite into adjacent undisturbed and protected habitat on Federal lands by a qualified biologist. A pair of new, disposable latex gloves will be used for each tortoise that must be handled. Tortoises found above ground will be placed under a marked bush in the shade; in an unoccupied burrow of similar

size/orientation; or a burrow constructed by the authorized biologist in accordance with Section B.5.f. (DTC 1994, revised 1999). Any tortoise found within one hour before nightfall will be placed individually in a clean cardboard box and kept overnight in a cool predator-free location. To minimize stress to the tortoise, the box will be covered and kept upright. Each box will be used only once and will then be discarded. The tortoise will be released the next day in the same area from which it was collected and placed under a marked bush in the shade.

- g. Desert tortoises shall be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (*e.g.*, gaping, foaming at the mouth, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95°F (35°C). Ambient air temperature shall be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface. No desert tortoise shall be captured if the ambient air temperature is anticipated to exceed 95°F (35°C) before handling and relocation can be completed. If the ambient air temperature exceeds 95°F (35°C) during handling or processing, desert tortoises shall be kept shaded in an environment that does not exceed 95°F (35°C), and the animals shall not be released until ambient air temperature declines to below 95°F (35°C).
- h. During the period of highest tortoise activity (approximately March 1 through October 31), all trenches and other excavations with side slopes steeper than a 1-ft rise to 3-ft length shall be immediately backfilled prior to being left unattended, or: (1) fenced with tortoise-proof fencing, (2) covered with tortoise-proof fencing, (3) covered with plywood or a similarly impassable material, or (4) constructed with escape ramps at each end of the trench and every 1,000 ft in between (at a minimum). All coverings and fences will have zero ground clearance. If alternative (4) is selected, the trench or other excavation will be inspected periodically and following periods of substantial rainfall to ensure structural integrity and that escape ramps are functional. An open trench or other excavation will be inspected for entrapped animals immediately prior to backfilling. If at any time a tortoise is discovered within a trench, all activity associated with that trench will cease until an authorized biologist has removed the tortoise in accordance with Service-approved guidelines (DTC 1994, revised 1999).

- i. All fuel, transmission or brake fluid leaks, or other hazardous waste leaks, spills, or releases shall be reported immediately to the designated environmental supervisor. The environmental supervisor shall be responsible for spill material removal and disposal to an approved offsite landfill, and if necessary, will notify the appropriate Federal agency. Servicing of construction equipment will take place at a designated area.
  - j. Project personnel shall exercise caution when commuting to the project area to minimize any chance for the inadvertent injury or mortality of species encountered on major roads leading to and from the project site. All desert tortoise observations, including mortalities, shall be reported directly to an authorized biologist.
  - k. A maximum speed limit of 25 miles per hour shall be maintained while traveling on the project site and the unpaved access roads. Authorized biologists will monitor speed limit compliance during construction. Cross-country travel outside the project area shall be prohibited.
  - l. Any time a vehicle is parked, whether the engine is engaged or not, the ground around and underneath the vehicle shall be inspected for desert tortoises prior to moving the vehicle. If a desert tortoise is observed, an authorized biologist will be contacted. If possible, the tortoise will be left to move on its own. If the tortoise does not move within 15 minutes, the tortoise will be removed and relocated by the authorized biologist.
2. To implement Reasonable and Prudent Measure Number 2, BLM and DOD shall ensure implementation of the following measures to minimize predation on tortoises by ravens or other desert tortoise predators attracted to the project area:
  - a. A litter-control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit fox, coyotes, and common ravens. Trash and food items shall be disposed of properly in predator-proof containers with re-sealing lids. Trash containers shall be emptied and construction waste removed daily from the project area and disposed of in an approved landfill.
  - b. Observations of raven predation on desert tortoise shall be reported to the Service.
3. To implement Reasonable and Prudent Measure Number 3, BLM and DOD shall ensure implementation of the following measures to minimize loss and long-term degradation and fragmentation of desert tortoise habitat, such as soil compaction,

erosion, crushed vegetation, introduction of weeds or contaminants as a result of construction activities:

- a. All new access roads not required for maintenance shall be permanently closed using methods approved by the landowner/manager (*e.g.*, stockpiling and replacing topsoil, rock replacement, or revegetation).
- b. All construction, operation and maintenance activities shall be conducted in a manner that minimizes disturbance to vegetation and drainage channels.
- c. In temporary construction areas (*e.g.*, pull and tension sites, and structure sites) where ground disturbance is substantial or where re-contouring is required, surface restoration shall occur as required by the land management agency. The method of restoration shall consist of removing and stockpiling topsoil and large rocks from disturbed areas to return temporarily disturbed areas to original contours.
- d. The proposed project would disturb a total of 148.06 acres of desert tortoise habitat on Federal lands. The compensation rate for disturbance to desert tortoise habitat in the project area is \$723 per acre. These fees will be indexed for inflation and will be adjusted accordingly for the year the fees paid. Fees for disturbance of Federal lands are paid into the Clark County section 7 account. The next rate adjustment will occur on March 1, 2008. **If paid prior to March 1, 2008, the total section 7 fees due for disturbance of Federal lands would be \$107,047.** The section 7 payments shall be accompanied by the attached Section 7 Fee Payment Form (Enclosure B), and completed by the payee. The project proponent or applicant may receive credit for payment of such fees and deduct such costs from desert tortoise impact fees charged by local government entities. Payment shall be by certified check or money order payable to Clark County and delivered to:

Clark County Desert Conservation Program  
c/o Dept. of Air Quality and Environmental Management  
Clark County Government Center  
500 S. Grand Central Parkway, first floor (front counter)  
Las Vegas, Nevada 89106  
(702) 455-5821

The proposed project also would disturb 1.02 acres of desert tortoise habitat on State of Nevada lands. The project proponent has agreed to pay appropriate mitigation fees to comply with the Clark County MSHCP.

The applicants would be required to provide proof of adherence to the provisions of the MSHCP to BLM for Clark County lands included in the proposed project. Proof of adherence refers to payment receipts for mitigation fees assessed under the MSHCP prior to any surface-disturbing activity within the proposed action area. By complying with the section 10(a)(1)(B) incidental take permit and MSHCP, effects of the proposed action would be minimized and mitigated through implementation of measures administered through MSHCP activities and programs.

4. To implement Reasonable and Prudent Measure Number 4, BLM and DOD shall ensure implementation of the following measures to ensure compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion:
  - a. BLM and DOD shall designate an authorized desert tortoise biologist who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and coordinating with the Service. The authorized biologist shall have the authority to halt activities that may be in violation of the stipulations.
  - b. The authorized biologist shall record each observation of desert tortoise handled. Information shall include the following: Location, date and time of observation; whether tortoise was handled, general health and whether it voided its bladder; location tortoise was moved from and location moved to; and unique physical characteristics of each tortoise. A final report shall be submitted to the Service's Southern Nevada Field Office in Las Vegas, Nevada, within 90 days of completion of the project.

The Service believes that no more than one desert tortoise will be accidentally injured or killed and an unknown number of tortoises may be taken by harassment or capture and moved out of harm's way during project activities (however, the Service believes that no more than 37 desert tortoises will be harassed or captured and moved); an unknown number of desert tortoise eggs or nests are anticipated or authorized to be impacted by the project (desert tortoise eggs that are present in the action area would be relocated offsite into adjacent undisturbed habitat by the authorized biologist); and an unknown number of desert tortoises may be taken in the form of indirect mortality through predation by ravens drawn to the project area.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take or loss of habitat identified is exceeded, such incidental take and habitat loss represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. BLM

and DOD must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

## **VI. Reporting Requirements**

Upon locating a dead or injured endangered or threatened species, initial notification must be made to the Service's Southern Nevada Field Office in Las Vegas, Nevada at (702) 515-5230. Care should be taken in handling sick or injured desert tortoises to ensure effective treatment; care should be taken for the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of injured desert tortoises or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by the Service to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. All deaths, injuries, and illnesses of desert tortoises, whether associated with project activities or not, will be summarized in an annual report.

The following actions should be taken for injured or dead tortoises if directed by the Service:

1. Injured desert tortoises shall be delivered to any qualified veterinarian for appropriate treatment or disposal.
2. Dead desert tortoises suitable for preparation as museum specimens shall be frozen immediately and provided to an institution holding appropriate Federal and State permits per their instructions.
3. Should no institutions want the desert tortoise specimens, or if it is determined that they are too damaged (crushed, spoiled, etc.) for preparation as a museum specimen, then they may be buried away from the project area or cremated, upon authorization by the Service.
4. BLM, DOD or the project proponent shall bear the cost of any required treatment of injured desert tortoises or cremation of dead desert tortoises.
5. Should injured desert tortoises be treated by a veterinarian and survive, they may be transferred as directed by the Service.

## **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service offers the following conservation recommendation:

*We recommend that construction activities within desert tortoise habitat occur from November through February to further minimize or avoid impacts to the desert tortoise which is generally inactive during this period.*

In order for the Service to be kept informed of actions minimizing or avoiding adverse impacts, or benefiting listed species or their habitats, we request notification of the implementation of our conservation recommendation.

### REINITIATION

This concludes formal consultation on the actions outlined in your request dated December 18, 2006. As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If we can be of any further assistance, please contact Leilani Takano in the Southern Nevada Field Office at (702) 515-5230.



For Robert D. Williams

#### Attachments

cc:

Commander, Department of the Air Force, Nellis Air Force Base, Nevada  
(Attn: Colonel Michael L. Bartley)

Administrator, Clark County Desert Conservation Program, Department of Air Quality and  
Environmental Management, Las Vegas, Nevada

Supervisory Biologist - Reptiles, Nevada Department of Wildlife, Las Vegas, Nevada

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## ATTACHMENT A

### DESERT TORTOISE MONITOR AND BIOLOGIST RESPONSIBILITIES AND QUALIFICATIONS

**DESERT TORTOISE MONITOR** -- Approved by the Fish and Wildlife Service to monitor project activities within desert tortoise habitat, ensure proper implementation of protective measures, and record and report desert tortoise and sign observations in accordance with approved protocol, report incidents of noncompliance in accordance with a biological opinion or permit, move desert tortoises from harm's way when desert tortoises enter project sites and place these animals in "safe areas" pre-selected by Authorized Biologists or maintain the desert tortoises in their immediate possession until an Authorized Biologist assumes care of the animal. Monitors assist Authorized Biologists during surveys and often serve as "apprentices" to acquire experience. Monitors are not authorized to conduct presence/absence or clearance surveys unless directly supervised by an Authorized Biologist; "directly supervised" means the Authorized Biologist is direct voice and sight contact with the Monitor.

**AUTHORIZED BIOLOGIST** -- Approved by the Fish and Wildlife Service to conduct all activities described in the previous section for Desert Tortoise Monitors, and to locate desert tortoises and their sign (i.e., conduct presence/absence and clearance surveys) and ensure that the effects of the project on the desert tortoise and its habitat are minimized in accordance with a biological opinion incidental take permit. Authorized Biologists must keep current with the latest information on U.S. Fish and Wildlife Service protocols and guidelines. An Authorized Biologist must have thorough and current knowledge of desert tortoise behavior, natural history, and ecology, physiology, and demonstrated substantial field experience and training to safely and successfully:

- handle and temporarily hold desert tortoises
- excavate burrows to locate desert tortoise or eggs
- relocate/translocate desert tortoises
- reconstruct desert tortoise burrows
- unearth and relocate desert tortoise eggs
- locate, identify, and record all forms of desert tortoise sign

#### GENERAL DESERT TORTOISE BIOLOGIST/MONITOR QUALIFICATIONS STATEMENT

This form should be used to provide your qualifications to agency officials if you intend to handle or survey desert tortoises during construction or other projects authorized under Sections 7 or 10 (HCPs) of the Endangered Species Act. If you seek approval to attach/remove/insert any devices or equipment to/into desert tortoises, withdraw blood, or conduct other procedures on desert tortoises, a recovery permit or similar authorization may be required.

Application for a recovery permit requires completion of Form 3-200-55, which can be downloaded at <http://www.fws.gov/forms/3-200-55.pdf>. Supplemental information for the recovery permit application should be provided with the form, *Statement of Skills and Experience with Specialized Desert Tortoise Procedures*, which is available from a U.S. Fish and Wildlife Service Field Office.

#### 1. Contact Information:

<b>Name</b>	
<b>Address</b>	
<b>City, State, Zip Code</b>	
<b>Phone Number(s)</b>	
<b>Email Address</b>	

2. Date of Statement:

3. States in which authorization is requested (check all that apply):

- California     Nevada     Utah     Arizona

4. Please provide information on the project:

USFWS BO or HCP Number		Date:
Project Name		
Federal Agency		
Proponent or Contractor		

5. Specify project and/or activities anticipated that require authorization (e.g. capture/release, weigh, measure, attach and remove telemetry devices and other hardware, etc.). Specifically reference the relevant document and page numbers with authorizing statements (e.g., BO, page 19, terms and conditions 6, 7, and 8):

6. If you hold, or have held, any relevant state or federal wildlife permits, provide the following:

Species	Dates	State (specify) or Federal Permit Number	Authorized Activities

7. Education (provide up to three, listing most recent first):

Institution	Dates attended	Major/Minor	Degree received
1.			
2.			
3.			

**8. Desert Tortoise Training. Include numbers of animals handled under the Experience section (No. 9 below).**

Name/Type of Training	Dates (From/To)	Location	Instructor/Sponsor
1.			
2.			
3.			
4.			

**9. Experience** – Complete for each position held, attach additional sheets as necessary. Include only those positions relevant to the requested work with desert tortoises. Distinguish between Mojave desert tortoise and other experience. Include only your experience, not information for the project you worked on (e.g. if 100 tortoises were handled on a project and you handled 5 of those tortoises, include only those 5). List most recent experience first.

<b>General Field Experience:</b>		
Project Name & Job Title	Dates (From/To)	Job Duties & Responsibilities/ Skills Used or Acquired
1.		
2.		
3.		
4.		



<b>Specific Desert Tortoise Field Experience Continued:</b>					
<b>i. Number of blood samples that you personally collected from <u>other relevant species</u> or <u>captive</u> desert tortoises (circle one for each size category).</b> <u>Specify species or if captive desert tortoises:</u> <u>Specify type of procedure:</u>					
<100 mm: Zero	<10	10-50	50-100	100-200	>200
≥100 mm: Zero	<10	10-50	50-100	100-200	>200
<b>j. Experience conducting other procedures on <u>wild, free-ranging</u> desert tortoises (circle one for each size category).</b> <u>Specify type of procedure:</u>					
<100 mm: Zero	<10	10-50	50-100	100-200	>200
≥100 mm: Zero	<10	10-50	50-100	100-200	>200
<b>k. Experience conducting other procedures on <u>other relevant species</u> or <u>captive</u> desert tortoises (circle one for each size category).</b> <u>Specify species or if captive desert tortoises:</u> <u>Specify type of procedure:</u>					
<100 mm: Zero	<10	10-50	50-100	100-200	>200
≥100 mm: Zero	<10	10-50	50-100	100-200	>200
<b>l. Prior authorizations for desert tortoise under <u>Biological Opinions</u> or <u>Habitat Conservation Plans</u> (specify number, date, project name and location). <u>Do not reiterate "general field experience" information:</u></b>					

**10. Provide at least 3 references that can verify your field qualifications and skills:**

Name	Employer/Position	Address/Location	Phone Number	Email
1.				
2.				
3.				

I certify that the information submitted in this form is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. Ch.47, Sec. 1001.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

**ATTACHMENT B**  
**SECTION 7 FEE PAYMENT FORM**  
Entire form is to be completed by project proponent

**Biological Opinion File Number:** 1-5-07-F-456

**Fish and Wildlife Service Office that issued the Opinion:**  
Nevada Fish and Wildlife Office, Reno, Nevada

**Species:** Desert tortoise (*Gopherus agassizii*)

**Project:** \_\_\_\_\_

**Number of acres anticipated to be disturbed:**

**County - Nevada:** \_\_\_\_\_

**Fee rate (per acre):** \$ 723 (until March 1, 2008)

**Total payment required:** \$ 107,047 (until March 1, 2008)

**Amount of payment received:** \$ \_\_\_\_\_ **Date of receipt:** \_\_\_\_\_

**Check or money order number:** \_\_\_\_\_

**Project proponent:** \_\_\_\_\_ **Telephone number:** \_\_\_\_\_

**Authorizing agencies:**

**Make checks payable to:** Clark County Treasurer

**Deliver check to:**  
Clark County Desert Conservation Program  
c/o Dept. of Air Quality and Environmental Management  
Clark County Government Center  
500 S. Grand Central Parkway, first floor (front counter)  
Las Vegas, Nevada 89106  
(702) 455-5821



# United States Department of the Interior



**FISH AND WILDLIFE SERVICE**  
Nevada Fish and Wildlife Office  
4701 North Torrey Pines Drive  
Las Vegas, Nevada 89130  
Ph: (702) 515-5230 ~ Fax: (702) 515-5231

July 13, 2011  
File Nos. 84320-2007-F-0005-R001 and  
1-5-07-F-456

## Memorandum

**To:** Assistant Field Manager, Division of Renewable Resources, Las Vegas Field Office,  
Bureau of Land Management, Las Vegas, Nevada

**From:** Acting State Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

**Subject:** Reinitiation of Formal Consultation for the Stirling to Northwest Transmission Line  
Project to Include an Additional 5.69 Miles, Clark and Nye Counties, Nevada

This responds to your December 13, 2010, memorandum requesting reinitiation of consultation on the Stirling to Northwest Transmission Line Project to include an additional 5.69 miles of overhead transmission line within occupied habitat for the federally listed desert tortoise (Mohave population) (Desert View to Northwest Addition) and the Desert View Metering Station. The original biological opinion (File No. 1-5-07-F-456) for this project was issued to the Bureau of Land Management's (BLM) Las Vegas Field Office on June 27, 2007.

The Stirling to Northwest Transmission Line Project being proposed by Valley Electric Association, Incorporated is a 42.39-mile, 230 kilovolt overhead transmission line extending from the Desert View Metering Station to the Stirling Mountain Substation along U.S. Highway 95 northwest of Las Vegas, Nevada. The project would be constructed and operated on 205.32 acres of lands managed by BLM, the Las Vegas Band of Paiutes, and the State of Nevada.

If you require additional assistance regarding this consultation, please contact Brian A. Novosak in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

*Jill A. Ralston*  
for Jill A. Ralston

## Attachments

cc:  
Administrator, Clark County Desert Conservation Program, Department of Air Quality and  
Environmental Management, Las Vegas, Nevada  
Commander, Department of the Air Force, Nellis Air Force Base, Nevada  
Superintendent, Southern Paiute Agency, Bureau of Indian Affairs, St. George, Utah  
Supervisory Biologist – Reptiles, Nevada Department of Wildlife, Las Vegas, Nevada  
Tribal Chairperson, Las Vegas Band of Paiutes, Las Vegas, Nevada

TAKE PRIDE  
IN AMERICA 

**ATTACHMENT**

**BIOLOGICAL OPINION**

**CONSULTATION HISTORY**

- August 29, 2006: Valley Electric Association, Inc. (Valley Electric) executed an Interconnection Agreement with Nevada Power Company (NV Energy). Under the agreement, Valley Electric was responsible for permitting, constructing, operating, and maintaining approximately 36.7 miles of new 230 kilovolt (kV) overhead transmission line extending from Desert View Metering Station to the Stirling Mountain Substation, while NV Energy would permit, construct, operate and maintain an additional 5.69 miles of 230 kV transmission line from Desert View Metering Station to the Northwest Substation.
- June 27, 2007: The Fish and Wildlife Service (Service) issued the biological opinion and incidental take statement permitting take of desert tortoises for 36.7 miles of overhead transmission line on 148.06 acres. The Service estimated that no more than 1 desert tortoise would be killed or injured and no more than 37 desert tortoises would be taken through harassment (relocation). The Service did not exempt the take of any desert tortoise eggs.
- June 2010: NV Energy established that construction, operation, and maintenance of the remaining 5.69 miles of the transmission line from Desert View Metering Station to Northwest Substation no longer served them. Therefore, Valley Electric opted to obtain the necessary Bureau of Land Management (BLM) permits and the Tribal Consent and Bureau of Indian Affairs (BIA) approval needed for a right-of-way (ROW) for this segment of line.
- December 13, 2010: In its capacity as lead agency, the Bureau of Land Management (BLM) requested reinitiation of consultation for this segment of line (BLM 2010) to add these 5.69 miles to the existing project. Upon review, the information provided was determined to be sufficient and the Service reinitiated formal consultation on that date.
- June 10, 2011: The BLM requested to add the construction and operation of a new electric substation, termed the Desert View Metering Station, to the project (BLM 2011). They also updated the amount of acreage that would be disturbed.

## **PROPOSED ACTION**

Valley Electric proposes to construct, operate, and maintain 5.69 miles of 230 kV overhead transmission line that would connect to the Stirling to the Desert View Transmission Line (Desert View to Northwest Addition). Of the proposed 5.69 miles, 4.3 miles would be constructed on lands administered by the BIA within the Las Vegas Band of Paiutes Tribal Reservation. On those lands a ROW would be granted 80 feet wide to support a quad circuit structure that is typically 120 - 140 feet in height. The remaining 1.39 miles would be constructed on lands administered by the BLM. A 100-foot wide ROW would be granted to support a double circuit structure that is typically 90 - 120 feet in height. Additionally, a new substation, termed the Desert View Metering Station, would be constructed on BLM lands along the northwest corner of the tribal lands. An access road adjacent to the transmission line, pulling sites, and laydown areas would be constructed resulting in about 25.82 acres of short-term and 5.78 acres of long-term ground disturbance on tribal land, and 23.37 acres of short-term and 10.62 acres of long-term ground disturbance on BLM-managed land. No access road would need to be constructed to access the new substation.

No other modifications to the proposed project are anticipated at this time. A detailed description of the proposed project is available in BLM's October 2006 biological assessment request (BLM 2006) and is hereby incorporated by reference.

## **PROPOSED MINIMIZATION MEASURES**

No additional mitigation or minimization measures are proposed beyond those in the existing biological opinion. The existing measures include: presenting a desert tortoise education program; enforcing a speed limit; confining vegetative disturbance; surveying for and relocating desert tortoises out of harm's way; keeping hazardous materials from being drained onto the ground; implementing a litter-control program; conducting surface restoration; and paying fees to compensate for the long-term loss of desert tortoise habitat.

## **ENVIRONMENTAL BASELINE**

Refer to the 2007 biological opinion for information on the basic environmental characterization of the action area.

### *Status of the species within the action area*

In spring 2008, desert tortoise pre-project survey clearances were conducted for the access roads associated with the 36.7 miles of transmission lines. During those surveys 15 desert tortoises were observed; none were handled, and none were injured or killed.

The access roads were constructed between summer 2008 and 2010 and 11 desert tortoises were observed, 2 were moved out of harm's way, and none were injured or killed. No other construction activity has taken place since that time. Preparation for and placement of structures along the proposed line route is currently underway, and the line conductor stringing is anticipated to take place in fall 2011.

Between September 28 and October 5, 2010, field surveys for desert tortoise along the Desert View to Northwest alignment were conducted by biological contractors using Service-approved protocols (Service 2010). Using this sampling method, 8 live tortoises, 97 burrows, 9 burrows with scat, 1 burrow with egg shells, 10 pellets, 1 scat, and 3 carcasses were located on 158 acres (Figure 1). Using the formula in the protocol, it is estimated that there are 15.8 (5.84 - 42.98) sub-adult and adult desert tortoises within the subsequent action area.

#### *Factors affecting the species within the action area*

In addition to the factors discussed in the 2007 biological opinion (File No. 1-5-07-F-456), the Service issued a biological opinion to the BIA on May 25, 2001, for development of 2,200 acres west of U.S. Highway 95 (File No. 1-5-01-F-427R). The project is named Snow Mountain Resort and would provide housing and resort facilities including: 6,600 homes; three 18-hole golf courses; a golf clubhouse; commercial, retail, and office development; a hotel; a recreation and cultural facility; and a town square with amphitheater and associated infrastructure.

### **EFFECTS OF THE MODIFIED PROPOSED ACTION**

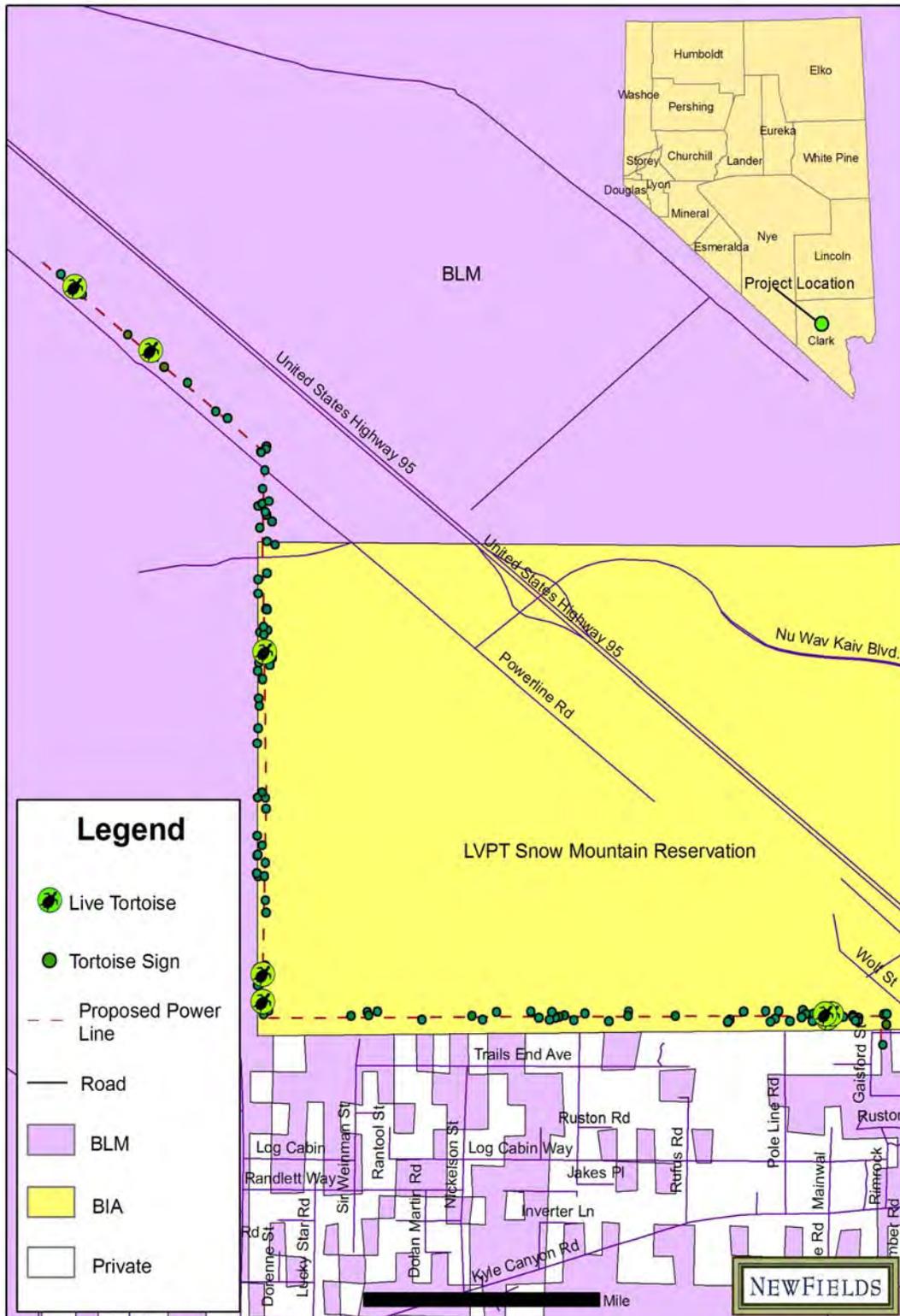
In addition to the effects discussed in the 2007 biological opinion, approximately 65.6 acres of additional desert tortoise habitat would be disturbed as a result of construction and operation of this transmission line.

### **CUMULATIVE EFFECTS OF THE MODIFIED PROPOSED ACTION**

Cumulative effects include the effects of future State, tribal, local government, or private actions that are reasonably certain to occur in the project area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The Service is unaware of any reasonably foreseeable future non-Federal actions in the action area.

Figure 1. Tortoise sign observed during 2010 protocol surveys



## INCIDENTAL TAKE STATEMENT

In the 2007 biological opinion the Service determined that:

- No more than one desert tortoise would be killed or injured as a result of the proposed project.
- All desert tortoises located in harm's way in work areas may be captured and moved by an authorized desert tortoise biologist (authorized biologist). Based on the timing and duration of the project and desert tortoise survey data, the Service estimates that no more than 37 desert tortoises will be taken (i.e., other than killed or injured) as a result of project activities.
- No desert tortoise eggs may be destroyed during project activities, although an unknown number of tortoise eggs may be affected (i.e., moved off the action area into adjacent undisturbed habitat by the authorized biologist).
- An unknown number of desert tortoises may be preyed upon by ravens or other subsidized desert tortoise predators drawn to trash in the project area.

Based on the analysis of impacts provided above, there will be no adjustment in the amount of incidental take exempted for the modified project. The additional measures below apply to the Desert View to Northwest portion of the line and the new substation, while modified measures apply to all project activities described to date.

## TERMS AND CONDITIONS

### Additional Measures

1. Prior to surface-disturbing activities associated with the proposed project on BLM-managed lands, BLM shall ensure remuneration fees are collected at the rate of \$786 per acre of disturbance on BLM-managed lands for a total of \$26,716.14 (33.99 acres). These fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>. The next adjustment will occur on March 1, 2012.

These fees will be paid directly from the project proponent to BLM's State Office in Reno, Nevada. These funds are independent of any other fees collected by BLM for desert tortoise conservation planning. The payment shall be accompanied by the attached Section 7 Land Disturbance Fee Payment Form and completed by the payee.

2. Prior to surface-disturbing activities associated with the proposed project on tribal lands, the BIA or BLM shall ensure collection of remuneration fees at the rate of \$786 per acre

of disturbance on tribal lands for a total of \$24,837.60 (31.6 acres). These fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>. The next adjustment will occur on March 1, 2012.

Remuneration fees shall be used for the sole purpose of implementing actions that benefit desert tortoise over time, including management and recovery in Nevada. Fees will be used to fund the highest priority actions in Nevada, and

- BLM,
- BIA,
- other jurisdictional Federal agencies, and
- the Service

will identify and give priority to actions directly linked to the proposed project’s impacts. Deference will be given to actions nominated by the Las Vegas Band of Paiutes. Either the Service or BIA will advise the project proponent in writing of the selected actions and provide a copy of the written notice to the Tribe. Fees will be paid directly by the project proponent to the management entity of the selected actions.

The BLM, BIA, other jurisdictional Federal agency, or project proponent shall coordinate with the Service’s Nevada Fish and Wildlife Office in Las Vegas prior to disbursement of fees.

The BIA shall obtain documentation confirming receipt of payment of the remuneration fees and a copy of the documentation shall be sent to the Desert Tortoise Recovery Office in Reno, Nevada Fish and Wildlife Office in Las Vegas, and the Tribe.

Desert Tortoise Recovery Office  
 1340 Financial Blvd., Ste. 234  
 Reno, NV 89502  
 (775) 861-6300

Nevada Fish and Wildlife Office  
 4701 N. Torrey Pines Drive  
 Las Vegas, NV 89130  
 (702) 515-5230

Las Vegas Band of Paiutes  
 1 Paiute Drive  
 Las Vegas, NV 89106  
 (702) 386-3926

Modification to Existing Measures

2.b. is modified as follows:

A qualified biologist shall conduct monthly nest surveys of the transmission line ROW during the raven breeding season and document the presence of all nests and the species using them. During these monthly surveys, the authorized biologist also will document any sign of predation of desert tortoises below the nest and in the vicinity of the transmission line. If sign of predation is found under a nest, it will be reported to BLM, who will immediately notify the Service. All raven nests will be removed from the transmission line by authorized personnel and the nesting material will be disposed of at least once per year when desert tortoises are least active.

-AND-

All project structures shall be designed to deter the perching and nesting of ravens.

3.d. is modified as follows:

Prior to new surface-disturbing activities associated with the previously-proposed project (36.7 miles), the BLM or other jurisdictional Federal agency shall collect remuneration fees at the rate of \$786 per acre of disturbance, if fees have not yet been collected. These fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>. The next adjustment will occur on March 1, 2012.

Fees will be paid directly to BLM's State Office in Reno, Nevada. These funds are independent of any other fees collected by BLM for desert tortoise conservation planning.

## **CONSERVATION RECOMMENDATIONS**

- *We recommend that construction activities within desert tortoise habitat occur from November through February to further minimize or avoid impacts to the desert tortoise, which is generally inactive during this period.*
- *We also recommend that no spur roads be developed. Power pole pads should be placed within the surface disturbance associated with construction and maintenance access road.*

This concludes reinitiation of consultation for the Stirling to Northwest Transmission Line to include an additional 5.69 miles of overhead transmission line and a substation within desert tortoise habitat. The existing biological opinion is hereby incorporated by reference into this reinitiation with the modifications provided in this memorandum including BLM's proposed action.

## **LITERATURE CITED**

BLM (Bureau of Land Management). 2006. Memorandum: Request for Initiation of Formal Consultation on the Sterling Mountain to Northwest 230kV Transmission Line Project. December 18, 2006. 35 pp. plus figures.

BLM (Bureau of Land Management). 2010. Memorandum: Request for Reinitiation of Consultation on the Stirling to Northwest Transmission Line Project, Clark and Nye Counties, Nevada (File No. 1-5-07-F-456). December 13, 2010. 16 pp.

BLM (Bureau of Land Management). 2011. Memorandum: Request to add 16 acre substation to the reinitiation request on the Northwest Transmission Line Project, Clark and Nye Counties, Nevada (File No. 1-5-07-F-456). June 10, 2011. 3 pp.

Service (Fish and Wildlife Service). 2010. Desert tortoise field manual. Available at:  
*[http://www.fws.gov/ventura/speciesinfo/protocols\\_guidelines/](http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/)*





# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office  
4701 North Torrey Pines Drive  
Las Vegas, Nevada 89130  
Ph: (702) 515-5230 ~ Fax: (702) 515-5231

July 28, 2011

File Nos. 84320-2007-F-0005-R001 and  
1-5-07-F-456

### Memorandum

**To:** Assistant Field Manager, Division of Renewable Resources, Las Vegas Field Office,  
Bureau of Land Management, Las Vegas, Nevada

**From:** Acting State Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

**Subject:** CORRECTION: Reinitiation of Formal Consultation for the Stirling to Northwest  
Transmission Line Project to Include an Additional 5.69 Miles, Clark and Nye Counties,  
Nevada

This responds to your staff's July 18, 2011, e-mail correcting the amount of acreage disturbance for the project within occupied habitat for the federally listed desert tortoise (*Gopherus agassizii*) (Mohave population).

The July 13, 2011, biological opinion (File No. 84320-2007-F-0005-R001) for this project stated there would be 25.82 acres of short-term, 5.78 acres of long-term ground disturbance on tribal land, and 23.37 acres of short-term, and 10.62 acres of long-term ground disturbance on Bureau of Land Management (BLM)-managed land. However the email clarified that the short-term disturbance amount was included the long-term disturbance figures in the Biological Assessment. Therefore, the total anticipated surface disturbance would be 25.82 acres on tribal land and 23.37 acres on BLM-managed land. We have updated the remuneration fees schedule to reflect this change.

#### Term and Condition 2 is modified to read:

2. Prior to surface-disturbing activities associated with the proposed project on tribal lands, the BIA or BLM shall ensure collection of remuneration fees at the rate of \$786 per acre of disturbance on tribal lands for a total of \$20,294.52 (25.82 acres). These fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at:  
<http://stats.bls.gov/news.release/cpi.nr0.htm>. The next adjustment will occur on March 1, 2012.

If you require additional assistance regarding this consultation, please contact Brian A. Novosak in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

for   
Jill A. Ralston

TAKE PRIDE  
IN AMERICA 

**Attachments**

**cc:**

**Administrator, Clark County Desert Conservation Program, Department of Air Quality and  
Environmental Management, Las Vegas, Nevada**

**Commander, Department of the Air Force, Nellis Air Force Base, Nevada**

**Superintendent, Southern Paiute Agency, Bureau of Indian Affairs, St. George, Utah**

**Reptile Biologist, Nevada Department of Wildlife, Las Vegas, Nevada**

**Tribal Chairperson, Las Vegas Band of Paiutes, Las Vegas, Nevada**

## SECTION 7 LAND DISTURBANCE FEE PAYMENT FORM

**Biological Opinion File Number:** 84320-2007-F-0005-R001 and 1-5-07-F-456

**Biological Opinion Issued By:** Nevada Fish and Wildlife Office, Las Vegas, Nevada

**Species:** Desert Tortoise (*Gopherus agassizii*) (Mojave population)

**Project Name:** Stirling to Northwest Transmission Line (Desert View to Northwest Addition)

**Project Proponent:** Valley Electric Association, Inc.

**Phone Number:** 775-727-5312

Payment Calculations:	Clark County		_____ County		_____ County	
	Critical habitat	Non-critical habitat	Critical habitat	Non-critical habitat	Critical habitat	Non-critical habitat
# acres anticipated to be disturbed on Federal land	0	33.99 23.37				
Fee rate (per acre)	n/a	\$786.00				
<b>Total cost/habitat type (per county)</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total cost per county</b>		26,716.14 18,368.82	\$ -	\$ -	\$ -	\$ -

**Total payment required (all counties):** \$ -

**Amount paid:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Check/Money Order #:** \_\_\_\_\_

**Authorizing agencies:** Bureau of Land Management, Las Vegas Nevada

**Make check payable to:** Bureau of Land Management

<b>Deliver check to:</b>	<b><u>Physical Address</u></b> Bureau of Land Management Attn: Information Access Ctr 1340 Financial Blvd. Reno, NV 89502	<b><u>PO Box</u></b> Bureau of Land Management Attn: Information Access Ctr PO Box 12000 Reno, NV 89520-0006
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For BLM Public Room

**Process check to:**  
Contributed Funds-All Other  
WBS: LVTFF1000800  
7122 FLPMA  
All other Res. Dev. Project and Management  
Remarks: LLNV9300000 L71220000.JP0000 LVTFF1000800 Desert  
Tortoise Conservation Program

Please provide a copy of this completed payment form and the payment receipt to NV-930, Attn: T&E Program Lead  
**\*\*T&E Program Lead will provide a copy to the appropriate District Office(s)**

Updated July 28, 2011

Appendix B  
Letter from Assistant Secretary, Larry Echo Hawk



# United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, DC 20240

**JUN 30 2010**

Honorable Marcia Mahone  
Chairperson, Las Vegas Paiute Tribe  
Number One Paiute Drive  
Las Vegas, Nevada 89106-3261

Dear Chairperson Mahone:

Thank you for your letter dated November 18, 2009, regarding the title to the Highway Strip, a 400-foot strip of land approximately 2.7 miles long that bisects the Reservation of the Las Vegas Paiute Tribe and is subject to a preexisting easement for U.S. Highway 95. This easement was originally granted in 1934. The 1983 Act creating the Reservation, Public Law 98-203 preserves the Highway Strip for the purposes of right-of-way for United States Highway numbered 95.

The Tribe previously requested the views of the Assistant Secretary – Indian Affairs on the ownership of the Highway Strip. The Office of the Assistant Secretary sent a letter on May 17, 2009, in response to the Tribe's request. In pertinent part, the letter states the following:

The Office of the Assistant Secretary has reviewed the Act's text and legislative history in close consultation with the SOL-DIA. Regarding the Act's purpose to create a Reservation for the Tribe, and as reflected in the files of the Bureau of Indian Affairs Land Title and Records Office, we have determined that the United States holds title to the Highway Strip in trust for the Tribe. Pursuant to Congress' directive, the Highway Strip is reserved for the purpose of a right-of-way for Highway 95.

Under the applicable law and regulations, recognition of the Tribe's beneficial interest in the Highway Strip gives the Tribe discretion to determine whether (and on what conditions) any additional, non-highway uses will be allowed in the Highway Strip and permits additional, appropriate uses of this land with Tribal consent and the approval of the Bureau of Indian Affairs.

Your letter requests that we reaffirm that finding.

Based on the information noted by the Office of the Assistant Secretary in its letter of May 17, 2009, and the information that you have provided, both in your letter and in subsequent communications, I find and agree that the United States holds title to the Highway Strip in trust

for the Las Vegas Paiute Tribe of Indians. Therefore, requests for any rights-of-way across this strip of land should be brought to the Bureau of Indian Affairs for consideration as provided for under 25 U.S.C. § 323 and the implementing regulations at 25 C.F.R. Part 169, which, as mentioned before, also requires consent of the Tribe.

Sincerely,



For Larry Echo Hawk  
Assistant Secretary – Indian Affairs

cc: Stephen McHugh, Esq., Holland & Knight  
Bob Ross, Las Vegas Field Manager, BLM  
Ron Wenker, Nevada State Director, BLM  
Tim Spisak, Deputy Assistant Director, Minerals and Realty Management, BLM  
Robert Abbey, Director, BLM  
Rodney McVey, Acting Western Regional Director, BIA  
Luke Miller, Esq., Office of the Pacific Regional Solicitor

Appendix C  
Biological Assessment

**BIOLOGICAL ASSESSMENT  
DESERT VIEW METERING STATION TO NORTHWEST SUBSTATION  
TRANSMISSION LINE CLARK COUNTY, NEVADA**



Prepared for:

Electrical Consultants, Incorporated

3521 Gabel Road  
Billings, MT 59102

Prepared by:



8250 West Charleston Boulevard, Suite 100

Las Vegas, NV 89117

December 2010

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## 1.0 INTRODUCTION

On August 29, 2006 Valley Electric Association (Valley Electric, VEA) executed an Interconnection Agreement with Nevada Power Company (NPC) to accept 230 kV electric service from Desert View Metering Station as identified in NPC's Valley Electric Association's Interconnection Project. Under the agreement, VEA was to be responsible for permitting, constructing, operating and maintaining approximately 36.7 miles of new 230 kV overhead transmission line extending from Desert View Metering Station to VEA's Stirling Mountain Substation. In return, NPC would permit, construct, operate and maintain an additional 5.69 miles of 230 kV transmission line from Desert View Metering Station to NPC's Northwest Substation.

VEA completed the permitting of the Stirling Mountain to Northwest Project from Stirling Mountain Substation located in Section 7, T16S R54E extending generally southeast and terminating in Section 16, T18S, R59E. This portion of the project received a completed right of way grant (N-62861) from the BLM in October of 2007. Following the attainment of this right of way grant and associated notice to proceed, VEA initiated construction efforts on this transmission line segment.

The Stirling to Northwest 230 kV transmission line construction authorized by File No. 1-5-07-F-456 was initiated in the summer of 2008. Construction of the access roads along the project is 100% complete. The identification, clearing and fencing of all construction material storage sites is 100% complete and materials are currently stockpiled for construction. Preparation for and placement of structures along the proposed line is currently underway and anticipated to be 100% complete by spring of 2010. The transmission line conductor stringing has not yet been initiated but is anticipated to take place in the fall of 2011.

Subsequently in 2010, NV Energy (formerly known as NPC) established that the permitting, construction, operation and maintenance of the remaining 5.7 miles of the proposed 230 kV transmission line from Desert View Metering Station to Northwest Substation no longer served the interest of NV Energy. Therefore, NV Energy preferred that VEA obtain the necessary BLM permits for this 5.7 mile segment of transmission line.

This Biological Assessment will address the potential impacts of the last 5.7 miles necessary to complete the interconnection of VEA's Stirling Mountain Substation to NV Energy's Northwest Substation through Desert View Metering Station. It is anticipated that review of this remaining segment will be conducted as an amendment to the original project file, N-62861 and will be titled the Desert View to Northwest 230 kV Transmission Line Project.

Knight & Leavitt Associates, Inc. previously surveyed the project limits with the exception of a 5.7 mile area associated with the Las Vegas Paiute Reservation and documented their results in a report titled *Biological Assessment Stirling Mountain to Northwest 230kV Transmission Line Project Nye and Clark Counties, Nevada* (BO File No. 1-5-07-F-456). The purpose of this biological assessment is supplement the previous biological assessment, and biological opinion File No. 1-5-07-F-456, to address impacts to Mojave desert tortoise (*Gopherus agassizii*) within the 5.7 miles that was previously unsurveyed.

The biological assessment was designed to include information needed by the U.S. Fish and Wildlife Service (USFWS) to complete a Biological Opinion, in accordance with the requirements of Section 7 of the Endangered Species Act, as amended.

It is anticipated that USFWS will find that potential impacts to the desert tortoise would be reduced to an acceptable level with the adoption of and compliance with the terms and conditions of the standard mitigation measures discussed in biological opinion File No. 1-5-07-F-456.

## **2.0 PROPOSED ACTION**

The 5.69 mile portion of the proposed transmission project right-of-way (ROW) extends through lands administered by the Bureau of Land Management (BLM) and the Las Vegas Paiute Reservation (LVPR) is administered by the Bureau of Indian Affairs (BIA) (Figure 1 and 2). Design and construction of the project are described in BO File No. 1-5-07-F-456. Within the 4.3 miles of the LVPR there would be less than 19 acres of short term ground disturbance and less than 4 acres of long term ground disturbance. This ground disturbance would be associated with the construction of the transmission line, 15 foot wide access road adjacent to the transmission line, pulling sites and laydown areas.

The proposed ROW on BLM lands is 100 feet and a double circuit structure will be used that is typically 90 – 120 feet in height. Within the reservation boundary 80 feet of ROW will be needed and a quad circuit structure will be used that is typically 120 – 140 feet in height. Approximately 230 feet of ROW was surveyed to account for any potential changes in the proposed transmission project location prior to construction.

Maintenance of the proposed transmission system will consist of monitoring, testing, and repair of equipment, as appropriate, based on a set maintenance program and schedule. Valley Electric would visually inspect the ROW at least annually, and each structure will be inspected at least once every 5 years. Some portions of access roads would be maintained, if necessary, to allow access of workers and equipment for maintenance.

Valley Electric would maintain the ROW in accordance with Federal land managers' stipulations. Maintenance would be performed as needed. When access is required for non-emergency maintenance and repairs, VEA would adhere to the same precautions taken during construction.

Emergency maintenance would involve prompt movement of crews to repair or replace any damage. Crews would be instructed to protect plants, wildlife and other environmental resources. Restoration procedures following completion of repair work would be similar to those prescribed for normal construction. Limiting noise, dust and the danger caused by maintenance vehicle traffic provide for the comfort and safety of local residents.

Table 1. Summary of Ground Disturbance

Segment	Right-of-Way <sup>1</sup>		New Access Roads <sup>2</sup>		Structures <sup>3</sup>		Pulling Sites <sup>4</sup>		Laydown Areas <sup>5</sup>		Total <sup>6</sup>			
	Description	Length (mi.)	Width (ft.)	Acres	Short-term (Acres)	Long-term (Acres)	Number	Short-term Acres	Number	Short-term Acres	Short-term Acres	Long-term Acres		
<b>BLM</b>														
Sections 16, 21, 22 of T8S R59E	1.5	150	22.27	2.73	1.82	13	3.25	0.26	1	0.46	13	2.21	8.65	2.08
<b>Non-BLM – LVPT Reservation</b>														
Sections 27, 26, 27, 34, 35, 36 of T8S R59E	4.2	80	40.73	7.64	5.09	35	8.75	0.70	3	1.38	35	5.95	23.72	5.79
<b>Total Project</b>	5.7	--	63.00	10.37	6.91	48	12.00	0.96	4	1.84	48	8.16	32.37	7.87

<sup>1</sup> ROW width 100 ft

<sup>2</sup> Assumptions for Short-Term & Long-Term Impact for Access Roads: Short-term = 15 ft wide, Long-term = 10 ft wide

<sup>3</sup> Structure – Maximum disturbance per structure: Short-term 0.25 ac and Long-term 0.02 ac.

<sup>4</sup> Pulling Site – 0.46 ac (100 x 200 ft).

<sup>5</sup> Laydown Area – 0.17 ac (50 x 150 ft).

<sup>6</sup> Long-term acres are the residual impact acres once construction has been completed. Acres include areas disturbed by structures, metering stations, substations, new access roads, pulling sites and laydown areas as appropriate. Material storage areas would be located within the termination stations.

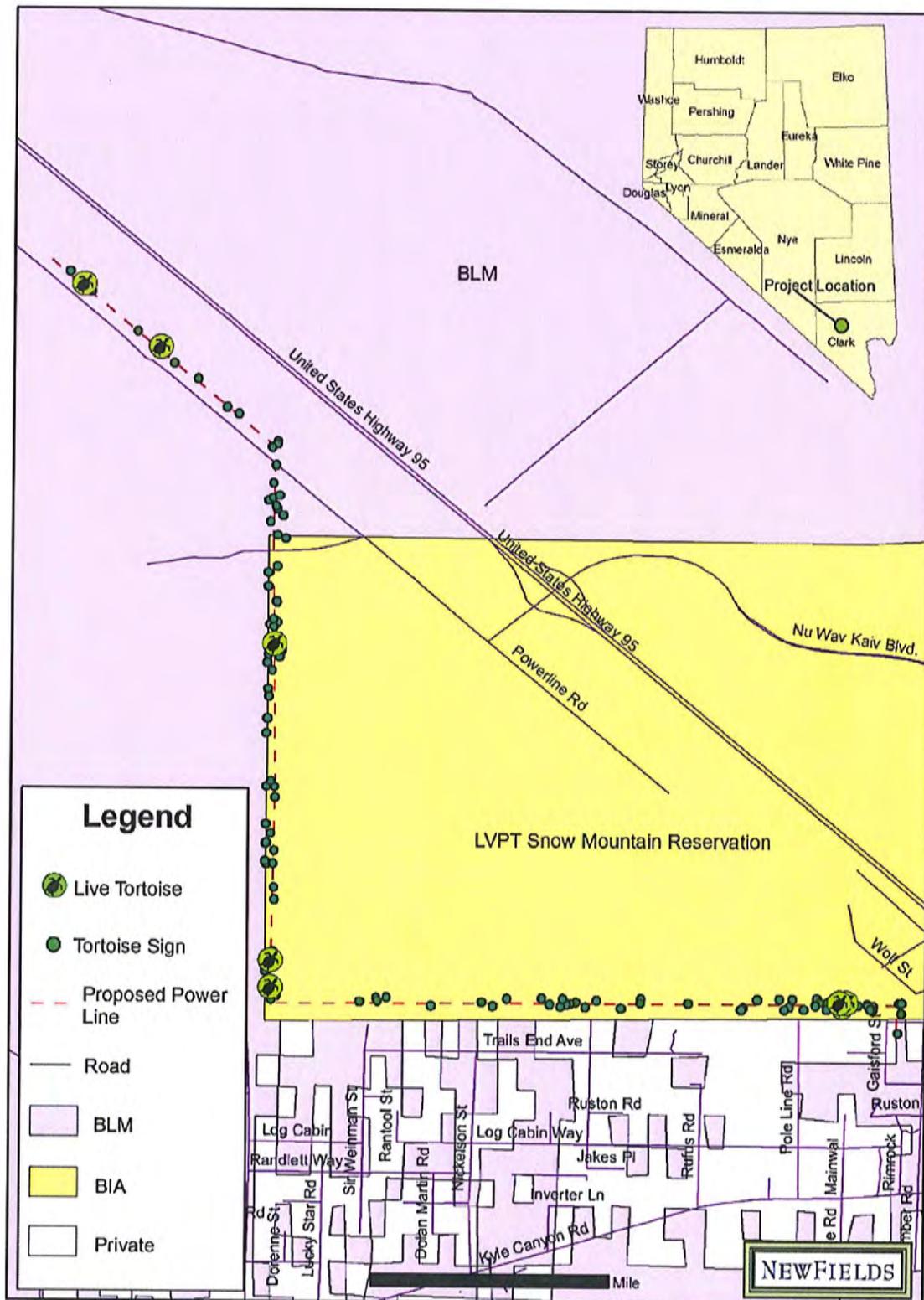


Figure 1. Tortoise Sign Observed During USFWS 2010 Protocol Survey Transects

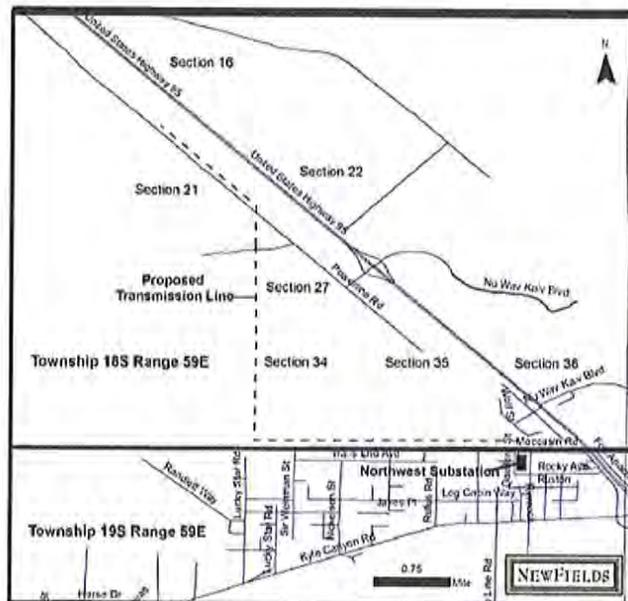


Figure 2. Township, Range and Section Information

### 3.0 ENVIRONMENTAL EFFECTS

Much of the survey area is undisturbed Mojave Desert Scrub. The project area starts at the Northwest Substation and travels through the southern and western edge of the LVPR which is administered by the BIA. The survey area then extends approximately 1.47 miles to the north and northwest onto lands managed by the BLM. There are roads and trails through much of the area. The proposed transmission project ROW extends through the Tule Springs Park, Corn Creek Springs and Corn Creek Spring Northwest United States Geological Survey (USGS) 7.5 minute quadrangles. The Northwest Substation is located in Township 19S Range 59E, Section 1. The proposed transmission line enters Township 18S Range 59E at Section 36, and then travels west through Sections 35 and 34, then north through Sections 34, 27 and 22, and northwest through Sections 21 and 16 (Figure 2). The topography within the project area varies from approximately 3,000 to 3,300 feet above mean sea level. Signs of human use include trails, litter, signs of target shooting and existing roads. Project related impacts associated with the powerline project are expected to be limited to the approved right-of-way.

#### 3.1 Vegetation

Mojave creosote bush scrub was the predominant vegetation community throughout the project area. No federal- or state-protected plant species or sensitive species were identified as occurring within the project area and none were observed during the field investigations.

##### 3.1.1 Mojave Creosote Bush Scrub

This vegetation community is widespread in the Mojave Desert and occurs below about 5,000 feet in elevation. Vegetation typical of the creosote bush scrub community and common within the survey area include: creosote bush, white bursage, broom snakeweed, desert trumpet, and desert globemallow. Table 1 below is a list of the plant species identified within the project area.

Scientific Name <sup>1</sup>	Common Name <sup>1</sup>	Family <sup>1</sup>
<i>Ambrosia dumosa</i>	White Bursage	Asteraceae
<i>Baileya multiradiata</i>	Desert-Marigold	Asteraceae
<i>Encelia virginensis</i>	Brittlebush	Asteraceae
<i>Hymenoclea salsola</i>	Cheesebush	Asteraceae
<i>Amsinckia tessellata</i>	Devil's Lettuce	Boraginaceae
<i>Guillenia lasiophylla</i>	California Mustard	Brassicaceae
<i>Coryphantha chlorantha</i>	Pincushion cactus	Cactaceae
<i>Cylindropuntia echinocarpa</i>	Silver Cholla	Cactaceae
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Cottontop Cactus	Cactaceae
<i>Echinocereus engelmannii</i>	Hedgehog Cactus	Cactaceae
<i>Mammillaria tetrancistra</i>	Fish Hook Cactus	Cactaceae
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail Cactus	Cactaceae
<i>Ephedra nevadensis</i>	Nevada Ephedra	Ephedraceae
<i>Psoralea fremontii</i> var. <i>fremontii</i>	Indigo Bush	Fabaceae
<i>Salazaria mexicana</i>	Bladder Sage	Lamiaceae
<i>Yucca schidigera</i>	Mojave Yucca	Liliaceae
<i>Yucca brevifolia</i>	Joshua Tree	Liliaceae
<i>Pleuraphis rigida</i>	Galleta Grass	Poaceae
<i>Eriogonum deflexum</i> var. <i>deflexum</i>	Skeleton Weed	Polygonaceae
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California Buckwheat	Polygonaceae
<i>Eriogonum inflatum</i> var. <i>inflatum</i>	Desert Trumpet	Polygonaceae
<i>Prunus fasciculata</i> var. <i>fasciculata</i>	Desert Almond	Rosaceae
<i>Larrea tridentata</i>	Creosote Bush	Zygophyllaceae

<sup>1</sup>Nomenclature follows:

Niles & Leary, 2007. Annotated checklist of the vascular plants of the Spring Mountains Clark and Nye Counties, Nevada. *Mentzelia*, The Journal of the Nevada Native Plant Society, Number 8.

Baldwin B. et al. 2002. The Jepson Desert Manual: vascular plants of southeastern California. University of California Press, Berkeley, Los Angeles, and London, 1400 pages.

### 3.2 Wildlife

The proposed project area supports wildlife characteristic of the northeastern Mojave Desert. Wildlife observed during surveys are described below.

### Reptiles

Several species of reptiles were observed during the 2010 desert tortoise field surveys conducted by NewFields. These species include the western whip-tail lizard (*Aspidoscelis tigris*), desert tortoise, and sidewinder rattlesnake (*Crotalus cerastes*).

### Birds

Bird species observed during the surveys include the turkey vulture (*Cathartes aura*), common raven (*Corvus corax*) and red-tailed hawk (*Buteo jamaicensis*).

### Mammals

Mammal species observed directly, or indirectly from sign such as burrows, tracks, and droppings, include the black-tailed hare (*Lepus californicus*), coyote (*Canis latrans*) and evidence of kit fox (*Vulpes macrotis*). Abundant evidence suggested the presence of common Mojave Desert rodent inhabitants such as cactus mice (*Peromyscus* spp.) and Merriam kangaroo rats (*Dipodomys merriami*).

## 3.3 Endangered and Threatened Species

The desert tortoise is the only federally listed endangered or threatened species known to occur in the project area. The protective status of the desert tortoise also provides federal protection to designated critical habitat of the desert tortoise. This assessment was made using field investigations and literature searches.

### 3.3.1 Desert Tortoise

If basic habitat requirements are met, the desert tortoise can survive and reproduce within the varied vegetation communities of the Mojave region (USFWS 1994). These requirements include sufficient suitable plants for forage and cover, suitable substrates for burrow and nest sites, and freedom from disturbance. Throughout most of the Mojave region, the desert tortoise occur primarily on flats and bajadas with soils ranging from sand to sandy-gravel characterized by scattered shrubs and abundant inter-shrub space for herbaceous plant growth. They are also found on rocky terrain and slopes.

There is significant geographic variation in the way desert tortoise use available resources. Desert tortoises within the project vicinity are generally found in Creosote Bush Scrub communities of flats, valley bottoms, alluvial fans, and bajadas. Two or more desert tortoises often den together in caliche caves in bajadas and washes, and they typically eat summer and winter annuals, cacti, and perennial grasses. (USFWS 1994).

The factors causing the decline of the desert tortoise are primarily human related. These factors include collection of desert tortoises for pets, food, and commercial trade, collision with vehicles on roads and highways, mortality from gunshot and ORV travel cross-country or on trails. Predation by the common raven is intense on younger age classes of desert tortoise. Raven populations have shown a 15-fold increase in the Mojave Desert from 1968 to 1988 (Berry 1990). Increased food supplies from road kills, landfills, trash, garbage dumps, agricultural development, new perch and nest sites all contribute to the increased population of ravens. Berry (1990) speculated that raven predation has resulted in such high juvenile desert tortoise loss in some portions of the Mojave that recruitment of juveniles into the adult population has been halted.

Upper respiratory track disease (URTD) was discovered in wild populations in 1990 and is currently a major cause of mortality in the western Mojave Desert population. Habitat degradation, poor nutrition, and drought have increased the desert tortoises' susceptibility to this disease (USFWS 1994). It is thought that URTD is transmitted between desert tortoise populations when desert tortoises are captured as pets, then subsequently released.

Habitat fragmentation, degradation, and loss are also major factors in desert tortoise decline. Habitat degradation forces desert tortoise to forage over larger areas, exposing them to greater dangers. The conversion of native perennial grasses, annuals, and shrubs to inedible exotic species has reduced food sources for the desert tortoise and increased susceptibility to wildfires thus increasing tortoise mortality.

## **4.0 SITE INVESTIGATION**

### **4.1 Action Area**

The action area is primarily on undisturbed Mojave Desert Scrub habitat on lands administered by the BLM and BIA. The southern portion of the project area does contain a checker board pattern of private and BLM administer lands. The action area contains existing roads and a powerline adjacent to Powerline Road (Figure 1). There are residential homes on private parcels in the southern portion of the project area and within the LVPT reservation. The Northwest Substation occurs in the southeast portion of the project area (Figure 2). There are no other known projects within the action area.

### **4.2 Survey Preparation**

Prior to on-site investigation, species of concern were identified through literature searches and agency comment (USFWS 2008). The desert tortoise is the only species in the project area listed as federally threatened or endangered, with a classification of federally threatened.

### **4.3 Tortoise Surveys (100 Percent Coverage)**

During a USFWS-established desert tortoise active period between September 28 through October 5 2010, biologists experienced with regional and local resources conducted wildlife surveys within the project alignment in accordance with USFWS protocols. The survey area was located using topographical maps, aerial photographs, and global positioning system (GPS) coordinates. Physical landmarks such as roads, and existing power lines were also used to orient the survey.

The objective of the field surveys was to obtain a comprehensive sample of the tortoise population density within the project area. Biologists surveyed the proposed project area by using 10-meter (33-foot) wide parallel transects. All 158 acres were surveyed using this standard USFWS "100 percent coverage" method (USFWS 2010).

Observations of tortoise sign (live tortoises, carcasses, shell, bones, scute, scat, burrows, pellets, etc.) were recorded using data sheets, a Garmin Dakota 20, Garmin Oregon 450, and Garmin GPSMAP 76.

Data collected within the project area was analyzed using the spread sheet provided with the USFWS 2010 Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats. The method uses the total project area, total transect lengths, and winter rainfall (Table 2) to predict the likely hood of observing an adult tortoise above ground during the survey. The spreadsheet then produces the predicted number of tortoises within the action area at a 95% confidence interval. Figure 1 shows the distribution of tortoise sign observed within the project area. Results of the survey are below.

- Area surveyed (Acres) = ~158
- Tortoise sign (burrows, scat, carcass) = 121 (97 burrows, 9 burrows with scat, 1 burrow with egg shells, 10 pellets, 1 scat, 3 carcasses)
- Live tortoise = 8
- Total sign = 129

#### **4.4 Other Projects Within the Action Area**

##### ***Three Lakes Valley Ground Water Development Project***

The SNWA is proposing to develop its existing groundwater rights from Three Lakes Valley north and South and Tikaboo Valley South, in northwestern Clark County. The Three Lakes Valley Groundwater Development Project (Three Lakes Project) includes the development and delivery of approximately 8,000 acre-feet per year (afy) to the Las Vegas Valley.

The proposed facilities include nine groundwater production wells located along U.S. Highway 95, approximately 25 miles of up to 30-inch diameter buried pipeline primarily along U.S. Highway 95, approximately 12 miles of 12 kV overhead power line adjacent to the pipeline, a maintenance yard, a disinfection-fluoridation facility, a rate of flow control station (ROFC), and four groundwater monitoring wells. The pipeline would terminate at the Las Vegas Valley Water District's Log Cabin Reservoir.

The resource areas potentially cumulatively affected with the Three Lakes Project include air quality, cultural and paleontological resources, fish and wildlife resources, geology and soils, hazardous materials, noise, recreation, transportation and utilities, visual resources, water resources and hydrology, and wild horse and burro management.

##### ***Las Vegas Paiute Development Project***

The Las Vegas Tribe of Paiute Indians operates a golf resort with three 18-hole golf courses at its Las Vegas Paiute Indian Reservation. The Tribe is also considering development of a master-planned community on approximately 2,000 acres of reservation land and has teamed with a private development company, LasCal Development Group. The development may include residential housing, commercial space, a casino, community facilities, and the necessary infrastructure. It would serve between 12,000 and 25,000 people. It would be developed in at least two phases, the schedules for which have not yet been identified.

Table 3. USFWS Spreadsheet Predicting Number of Adult Tortoises in Action Area		
<b>Table 3. USFWS Desert Tortoise Pre-Project Survey Guidance</b>		
What is the estimated number of tortoises and associated 95% confidence interval for the action area?		
<b>INSTRUCTIONS</b> Use this tab when your transects were of unequal length.		
Enter the appropriate values from the survey into the yellow cells below. The number of tortoises and associated 95% confidence interval for the action area will be calculated.		
	<b>N =</b>	<b>15.8</b>
	<b>Lower 95%CI =</b>	<b>5.84</b>
	<b>Upper 95%CI =</b>	<b>42.98</b>
Total action area (acres)		<b>158</b>
Prob that a tort is above ground given winter rainfall (Pa from Table 2) =		<b>0.800</b>
Total length of transects walked (km) =		<b>64</b>
Number of transects walked =		<b>28</b>
Number of tortoises found during surveys (n) =		<b>8</b>
<i>Transects of various lengths</i>		
Transect	Length (km)	Tortoises within 5m of centerline
1	0.2	0
2	3.4	2
3	3.7	3
4	1.8	2
5	0.2	0
6	3.4	0
7	3.7	0
8	1.8	0
9	0.2	0
10	3.4	0
11	3.7	0
12	1.8	0
13	0.2	0
14	3.4	0
15	3.7	0
16	1.8	0
17	0.2	0
18	3.4	0
19	3.7	0
20	1.8	0
21	0.2	0
22	3.4	0
23	3.7	0
24	1.8	0
25	0.2	0
26	3.4	1
27	3.7	0
28	1.8	0

## **5.0 EFFECT ANALYSIS FOR THE PROPOSED ACTION**

### **5.1 Direct Impacts**

Direct impacts to the desert tortoise will be the risk of death or injury to any tortoise inhabiting the ROW or surrounding area during the construction period and future use of the area. It is documented that tortoises do exist within the proposed project area and surrounding desert. It is highly likely that tortoises may wander onto the proposed project area during construction of the transmission line and future use of the area. Death or injury would result if a tortoise is run over by a piece of heavy equipment or service vehicle during construction. In order for this form of take to occur, the tortoise and vehicle must occupy the same place at the same time. This will be a concern during the periods of construction and future site use. There will also be a permanent loss of some desert tortoise habitat from transmission line construction in permanently disturbed areas such as pole sites and access roads.

### **5.2 Indirect Impacts**

The resulting indirect impacts to the Mojave desert tortoise may include the risk of death, injury or collection of populations inhabiting the area. These additive long-term impacts are likely to occur due to increased access by the public to the transmission line and surrounding lands. Tortoise injuries or losses may result from accidental human encounters, collection of tortoises for pets, encounters with domestic pets, increased off-road travel (motorized and bicycle), and accidental encounters with maintenance workers and activities in the area. There is also a potential for an increase in the number of predatory and scavenger species due to the presence of humans and illegal trash dumping. It is well documented that species such as coyotes and ravens have adapted well to exploiting human encroachment on their traditional habitat. These animals can thrive off of a diet of garbage. As a result, the potential upward trend of predatory species may impact hatchlings or sub-adult Mojave desert tortoises within the vicinity of the transmission line.

### **5.3 Cumulative Effects**

Other non-federal projects occurring within Clark County would fall under the purview of the Clark County Multiple Species Habitat Conservation Plan and associated incidental take permit for impacts to desert tortoise and other covered wildlife and plant species. Other federal projects would require separate consultation for listed species pursuant to Section 7 of the Endangered Species Act. Impacts of current and future private and state actions in and near the project area that are reasonably certain to occur and would not be subject to Section 7 consultation with USFWS.

Opening up areas to casual vehicular access by the public causes indirect impacts. Increased hunting, wildlife harassment, vehicle collisions and spread of noxious weeds can result in areas that had previously been unroaded. Other indirect effects resulting from providing additional perching and/or nesting structures for birds that may prey on juvenile tortoises.

Mojave desert bush scrub habitat, cacti, yuccas, and other sensitive plants beyond the corridor of the Desert View Metering Station to Northwest Substation Transmission Line Project may experience cumulative adverse effects by the anticipated increase in population the Las Vegas Paiute Indian Reservation. This increase would result in an overall increase in use of lands that

may lead to compacted soils and increased soil erosion; crushed, removed, or destroyed vegetation; altered hydrology; and increased non-point source pollution. All of these activities may result in cumulative harm to the desert tortoise through habitat loss or degradation and additional mortality from access road construction and off-highway vehicle use. Increased surface disturbance would result in cumulative loss of habitat for wildlife that inhabits the areas proposed for future projects. The significance of the loss would depend on the availability of adjacent suitable replacement habitat and the mobility of the wildlife to escape harm.

## **6.0 MITIGATION AND MINIMIZATION MEASURES**

No additional mitigation or minimization measures are needed beyond those in biological opinion File No. 1-5-07-F-456.

## **7.0 CONCLUSION**

Based on the current status of the desert tortoise, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, the proposed action is likely to adversely affect the desert tortoise. Tortoise are present within the project area and impacts to the desert tortoise would be limited through conservation/minimization measures for the project; therefore, the adverse affect to the desert tortoise is expected to be minor.

## 8.0 REFERENCES AND LITERATURE CITED

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