

# U.S. Department of the Interior Bureau of Land Management

---

**Environmental Assessment NV-040-07-048  
July 2008**

## **Southwest Intertie Project Southern Portion**

***Location:* Portions of Clark, Lincoln, White Pine Counties, Nevada  
BLM Right-of-Way Grant NVN-85210**

***Applicant/Address:* Great Basin Transmission, LLC  
400 Chesterfield Center, Suite 110  
St. Louis, Missouri 63017**

U.S. Department of the Interior  
Bureau of Land Management  
Ely District Office  
Phone: 775-289-1800  
Fax: 775-289-1910



# **ENVIRONMENTAL ASSESSMENT**

For the:

**Southwest Intertie Project  
Southern Portion  
NV-040-07-048**

**Bureau of Land Management**

**July 2008**

# TABLE OF CONTENTS

---

Section 1.0	Introduction and Purpose and Need	
1.1	Introduction.....	1- 1
1.1.1	Background.....	1- 1
1.1.2	ROW Amendment Application and Related NEPA Analysis .....	1- 2
1.2	Purpose and Need .....	1- 3
Section 2.0	Proposed Action and Alternatives	
2.1	Proposed Action .....	2- 1
2.1.1	Harry Allen Substation Area .....	2- 1
2.1.2	Thirtymile Substation .....	2- 1
2.2	Coyote Springs Realignment.....	2- 8
2.3	No Action Alternative .....	2-11
2.4	Alternatives Considered But Eliminated .....	2-11
2.4.1	Transmission Line Alternatives.....	2-11
2.4.2	Substation Alternatives .....	2-11
Section 3.0	Affected Environment for the Extension of the Right-of-Way to the Harry Allen Substation and for the Thirtymile Substation	
3.1	Introduction.....	3- 1
3.2	Biological Resources .....	3- 1
3.2.1	Vegetation .....	3- 1
3.2.2	Noxious Weeds and Invasive Species.....	3- 2
3.2.3	Wildlife .....	3- 3
3.2.4	Migratory Birds.....	3- 4
3.2.5	Wild Horses and Burros.....	3- 5
3.2.6	Threatened and Endangered Species/Special Status Species .....	3- 5
3.3	Cultural Resources .....	3- 6
3.3.1	Right-of-Way Extension to the Harry Allen Substation .....	3- 6
3.3.2	Thirtymile Substation .....	3- 6
3.4	Paleontological Resources .....	3- 7
3.4.1	Right-of-Way Extension to the Harry Allen Substation .....	3- 7
3.4.2	Thirtymile Substation .....	3- 8
3.5	Land Use, Recreation, and Access .....	3- 8
3.5.1	Right-of-Way Extension to the Harry Allen Substation .....	3- 8
3.5.2	Thirtymile Substation .....	3- 9
3.6	Visual Resources .....	3-10
3.6.1	Right-of-Way Extension to the Harry Allen Substation .....	3-10
3.6.2	Thirtymile Substation .....	3-10
3.7	Wildfire Management .....	3-11
3.7.1	Right-of-Way Extension to the Harry Allen Substation .....	3-11
3.7.2	Thirtymile Substation .....	3-11
3.8	Wilderness and Wild and Scenic Rivers.....	3-12
3.9	Prime and Unique Farmlands.....	3-12
3.10	Earth Resources.....	3-12
3.10.1	Right-of-Way Extension to the Harry Allen Substation .....	3-13
3.10.2	Thirtymile Substation .....	3-13

---

Table of Contents (continued)

3.11	Air Resources.....	3-14
	3.11.1 Federal .....	3-14
	3.11.2 State .....	3-14
	3.11.3 Local .....	3-14
	3.11.4 Right-of-Way Extension to the Harry Allen Substation .....	3-15
	3.11.5 Thirtymile Substation .....	3-15
3.12	Hazardous Materials .....	3-15
	3.12.1 Right-of-Way Extension to the Harry Allen Substation .....	3-15
	3.12.2 Thirtymile Substation .....	3-15
3.13	Socioeconomics and Environmental Justice .....	3-15
	3.13.1 Right-of-Way Extension to the Harry Allen Substation .....	3-16
	3.13.2 Thirtymile Substation .....	3-16
3.14	Areas of Critical Environmental Concern.....	3-17
	3.14.1 Right-of-Way Extension to the Harry Allen Substation .....	3-17
	3.14.2 Thirtymile Substation .....	3-17
Section 4.0	Environmental Consequences for the Extension of the Right-of-Way to the Harry Allen Substation and for the Thirtymile Substation	
4.1	Introduction.....	4- 1
4.2	No Action Alternative .....	4- 1
4.3	Biological Resources .....	4- 1
	4.3.1 Vegetation .....	4- 1
	4.3.2 Noxious Weeds and Invasive Species.....	4- 2
	4.3.3 Wildlife .....	4- 4
	4.3.4 Migratory Bird Treaty Act.....	4- 4
	4.3.5 Threatened and Endangered Species/Special Status Species .....	4- 5
4.4	Cultural Resources .....	4- 6
	4.4.1 Right-of-Way Extension to the Harry Allen Substation .....	4- 6
	4.4.2 Thirtymile Substation .....	4- 6
4.5	Paleontological Resources .....	4- 6
	4.5.1 Right-of-Way Extension to the Harry Allen Substation .....	4- 6
	4.5.2 Thirtymile Substation .....	4- 6
4.6	Land Use, Recreation, and Access .....	4- 6
	4.6.1 Right-of-Way Extension to the Harry Allen Substation .....	4- 6
	4.6.2 Thirtymile Substation .....	4- 7
4.7	Visual Resources .....	4- 7
	4.7.1 Right-of-Way Extension to the Harry Allen Substation .....	4- 7
	4.7.2 Thirtymile Substation .....	4- 7
4.8	Wildfire Management .....	4- 8
	4.8.1 Right-of-Way Extension to the Harry Allen Substation .....	4- 8
	4.8.2 Thirtymile Substation .....	4- 8
4.9	Earth Resources.....	4- 9
	4.9.1 Right-of-Way Extension to the Harry Allen Substation .....	4- 9
	4.9.2 Thirtymile Substation .....	4-10
4.10	Air Resources.....	4-10
	4.10.1 Right-of-Way Extension to the Harry Allen Substation .....	4-10
	4.10.2 Thirtymile Substation .....	4-11

Table of Contents (continued)

4.11	Hazardous Materials .....	4-11
	4.11.1 Right-of-Way Extension to the Harry Allen Substation .....	4-11
	4.11.2 Thirtymile Substation .....	4-11
4.12	Socioeconomics and Environmental Justice .....	4-11
	4.12.1 Right-of-Way Extension to the Harry Allen Substation .....	4-12
	4.12.2 Thirtymile Substation .....	4-12
4.13	Areas of Critical Environmental Concern.....	4-12
	4.13.1 Right-of-Way Extension to the Harry Allen Substation .....	4-12
	4.13.2 Thirtymile Substation .....	4-12
Section 5.0	Legislative Modifications for Coyote Springs Realignment	
5.1	Introduction.....	5- 1
5.2	Affected Environment .....	5- 1
	5.2.1 Biological Resources .....	5- 1
	5.2.2 Cultural Resources .....	5- 4
	5.2.3 Paleontological Resources .....	5- 6
	5.2.4 Land Use, Recreation, and Access .....	5- 6
	5.2.5 Visual Resources.....	5- 8
	5.2.6 Wildfire Management.....	5- 8
	5.2.7 Wilderness and Wild and Scenic Rivers.....	5- 9
	5.2.8 Prime and Unique Farmland.....	5- 9
	5.2.9 Earth Resources .....	5- 9
	5.2.10 Air Resources .....	5-10
	5.2.11 Hazardous Materials.....	5-11
	5.2.12 Socioeconomics and Environmental Justice .....	5-11
	5.2.13 Areas of Critical Environmental Concern.....	5-12
5.3	Environmental Consequences.....	5-12
	5.3.1 Biological Resources .....	5-13
	5.3.2 Cultural Resources .....	5-15
	5.3.3 Paleontological Resources .....	5-15
	5.3.4 Land Use, Recreation, and Access .....	5-15
	5.3.5 Visual Resources.....	5-16
	5.3.6 Wildfire Management.....	5-16
	5.3.7 Earth Resources .....	5-17
	5.3.8 Air Resources .....	5-18
	5.3.9 Hazardous Materials.....	5-18
	5.3.10 Socioeconomics and Environmental Justice .....	5-18
	5.3.11 Areas of Critical Environmental Concern.....	5-18
Section 6.0	Policy and Resource Updates	
6.1	Introduction.....	6- 1
6.2	Designated Critical Habitat for the Mojave Desert Tortoise.....	6- 1
	6.2.1 Affected Environment .....	6- 1
	6.2.2 Environmental Consequences.....	6- 2
6.3	Sage Grouse .....	6- 3
	6.3.1 Affected Environment .....	6- 3
	6.3.2 Environmental Consequences.....	6- 3

Table of Contents (continued)

6.4	Migratory Birds .....	6- 3
	6.4.1 Affected Environment .....	6- 3
	6.4.2 Environmental Consequences.....	6- 4
6.5	Noxious Weeds and Invasive Species .....	6- 4
	6.5.1 Affected Environment .....	6- 4
	6.5.2 Environmental Consequences.....	6- 5
6.6	Environmental Justice .....	6- 6
	6.6.1 Affected Environment and Environmental Consequences .....	6- 6
6.7	Visual Resource Management Classifications .....	6- 7
	6.7.1 Affected Environment .....	6- 7
	6.7.2 Environmental Consequences.....	6- 7
6.8	Cultural Resources .....	6- 7
6.9	Tribal Consultation .....	6- 7
6.10	Threatened and Endangered Species/Sensitive Species .....	6- 7
	6.10.1 Affected Environment .....	6- 7
	6.10.2 Environmental Consequences.....	6- 8
6.11	Clark County Ozone Non-Attainment .....	6- 8
	6.11.1 Affected Environment .....	6- 8
	6.11.2 Environmental Consequences.....	6- 8
Section 7.0	Cumulative Impacts Assessment	
7.1	Cumulative Impacts Assessment .....	7- 1
	7.1.1 Right-of-Way Extension to the Harry Allen Substation .....	7- 1
	7.1.2 Thirtymile Substation .....	7- 5
	7.1.3 Coyote Springs Realignment.....	7- 5
7.2	Existing and Planned Conditions.....	7- 5
	7.2.1 Right-of-Way Extension to the Harry Allen Substation .....	7- 5
	7.2.2 Thirtymile Substation .....	7- 5
	7.2.3 Coyote Springs Realignment.....	7- 8
7.3	Past, Present, and Reasonably Foreseeable Actions .....	7- 9
7.4	Analysis of the Cumulative Effects .....	7-10
	7.4.1 Biological Resources .....	7-10
	7.4.2 Cultural Resources .....	7-12
	7.4.3 Paleontological Resources .....	7-12
	7.4.4 Land Use, Recreation, and Access .....	7-13
	7.4.5 Visual Resources.....	7-14
	7.4.6 Wilderness and Wild and Scenic Rivers.....	7-15
	7.4.7 Wildfire Management.....	7-15
	7.4.8 Earth Resources .....	7-15
	7.4.9 Air Resources .....	7-16
	7.4.10 Hazardous Materials.....	7-16
	7.4.11 Socioeconomics and Environmental Justice .....	7-17
	7.4.12 Areas of Critical Environmental Concern.....	7-17
7.5	Summary .....	7-17
Section 8.0	List of Preparers and Contributors.....	8-1
References	.....	R-1

Table of Contents (continued)

Appendix A – Mitigation

Introduction .....	A-1
Generic Mitigation Measures Table .....	A-2
Selectively Committed Mitigation Measures Table.....	A-3

Appendix B – Biological Opinion

---

**LIST OF FIGURES**

---

1	Project Area Map .....	2- 2
2	Harry Allen Substation Area .....	2- 3
3	Dry Lake Substation Siting Area .....	2- 4
4	Typical 500kV Transmission Line Tower .....	2- 5
5	Thirtymile Substation Area .....	2- 6
6	Robinson Summit Substation Siting Area .....	2- 7
7	Preliminary Thirtymile Substation Layout.....	2- 9
8	Coyote Springs/Aerojet Corridor Area.....	2-10
9	Harry Allen Substation Area – Area of Potential Cumulative Effect .....	7- 2
10	Thirtymile Substation Area – Area of Potential Cumulative Effect .....	7- 3
11	Coyote Springs/Project Corridor Area – Area of Potential Cumulative Effect .....	7- 4

---

**LIST OF TABLES**

---

3-1	Cultural Resource Sites in the Thirtymile Substation and Interconnection Area .....	3- 6
3-2	Wildland-Urban Interface Communities of Thirtymile Substation .....	3-12
5-1	Cultural Resource Sites in the Coyote Springs Area .....	5- 4
6-1	Total Surface Area Disturbance in Desert Tortoise Habitat, Acres .....	6- 2
6-2	Noxious Weed Species Found within Project Corridor.....	6- 5
7-1	Existing Conditions and Reasonably Foreseeable Future Actions.....	7- 6



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Ely District Office

HC33 Box 33500 (702 N. Industrial Way)

Ely, Nevada 89301-9408

[http://www.blm.gov/nv/st/en/fo/ely\\_field\\_office.html](http://www.blm.gov/nv/st/en/fo/ely_field_office.html)



In Reply Refer to:  
2850 (NV-040)  
N-85210  
N-85211

Dear Reader:

Great Basin Transmission, LLC is seeking an amendment to existing right-of-way grants NVN-85210, and NVN-85211, for the Southwest Intertie Project (SWIP) to accommodate two minor modifications in Clark and White Pine Counties in Nevada. In 1994, a Record of Decision and Approved Land Use Plan Amendment (ROD/ALUPA) were issued by the U.S. Bureau of Land Management (BLM) for the SWIP (FR Doc. 94-30678, Filed 12-13-94), following the preparation and review of an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). The SWIP is a single-circuit, overhead, 500 kilovolt (kV) transmission line project. These two modifications include: (1) an extension of the right-of-way for approximately 4 miles from the originally approved southern terminus, which was to be at the Dry Lake 500kV Substation (which was never constructed), to the now existing Harry Allen 500 kV Substation in Clark County, and (2) a modification of the right-of-way grant in the Robinson Summit area northwest of Ely, which would shift the location of the Robinson Summit Substation from its currently approved location, to a site immediately adjacent to the approved SWIP corridor, approximately  $\frac{3}{4}$  mile to the northwest of the currently approved site (the relocated site is referred to as the Thirtymile Substation).

The BLM prepared the enclosed SWIP - Southern Portion Environmental Assessment (EA) to evaluate potential environmental impacts and identify mitigation measures associated with the proposed right-of-way grant amendments. The SWIP-Southern Portion EA that was made available to the public and agencies in August 2007 for review and comment.

Using information developed during the environmental assessment, the BLM has determined that the proposed amendment of the existing right-of-way grant will not result in significant impacts. Mitigation measures identified within the EA, in the Biological Assessment (BA) and in the Biological Opinion (BO), will be made conditions of the approval of the right-of-grant amendments,

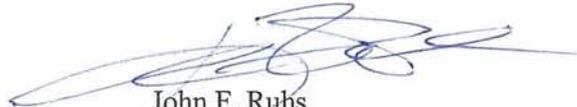
The SWIP - Southern Portion EA also assessed the impacts of the relocation of the SWIP right-of-way within the Aerojet Corridor/Coyote Spring Valley area. Relocation of the right-of-way in this area was mandated by Congress in the Lincoln County Conservation, Recreation and Development Act of 2004, and thus is not part of the Proposed Action. However, the BLM determined that assessment of the impacts of the relocated right-of-way in the EA would provide value in developing the terms and conditions that will be incorporated into the Construction, Operation and Maintenance Plan that will apply to the SWIP activities in the relocation area.

Lastly, the EA assessed policy and resource updates enacted or adopted after the issuance of the right-of-way grant in 1994 with implications for the SWIP.

The revised EA (#NV-040-07-048) is now available on our website and you can access it at [http://www.blm.gov/nv/st/en/fo/ely\\_field\\_office.html](http://www.blm.gov/nv/st/en/fo/ely_field_office.html). Hard copy and electronic versions are also available at the BLM offices in Ely, and Las Vegas.

If you have any questions; please contact Brenda Linnell, Realty Specialist, at (775) 289-1808.

Sincerely,

A handwritten signature in blue ink, appearing to read "John F. Ruhs", is written over the typed name.

John F. Ruhs  
District Manager  
Ely District Office

## BLM Mission Statement

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

# **SECTION 1.0**

## **INTRODUCTION AND PURPOSE AND NEED**

---

### **1.1 INTRODUCTION**

#### **1.1.1 Background**

In 1994, a Record of Decision and Approved Land Use Plan Amendment (ROD/ALUPA) were issued by the U.S. Bureau of Land Management (BLM) for the Southwest Intertie Project (SWIP) (FR Doc. 94-30678, Filed 12-13-94), following the preparation and review of an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). The SWIP is a single-circuit, overhead, 500 kilovolt (kV) transmission line project. The project proponents were the Idaho Power Company (IPC) and the Los Angeles Department of Water and Power (LADWP).

In conjunction with the ROD/ALUPA, the BLM issued Right-of-Way (ROW) Grants (with serial numbers: IDI-26446, NVN-49781, UTU-73363) for the project on December 8, 1994, pursuant to the Federal Land Policy and Management Act. The ROW Grants were issued to IPC in segments, including a north-south segment of the project (Midpoint-to-Dry Lake), and an east-west segment of the project (Ely-to-Delta) which was immediately assigned to the LADWP and subsequently expired. The term of the ROW Grant for the Midpoint-to-Dry Lake segment was extended by the BLM in December 1999, and again in August 2004.

At the time of the 1994 SWIP EIS the Midpoint-to-Dry Lake segment (the north-south segment) was located in the Elko, Ely, and Las Vegas BLM Districts in Nevada. The BLM land use plans that were amended by the ROD/ALUPA to accommodate the Midpoint-to-Dry Lake segment of the project included the Wells Resource Management Plan (RMP) in the Elko District of the BLM, the Egan RMP and Schell Management Framework Plan (MFP) in the Ely District of the BLM, and the Caliente Resource Area MFP and Clark County MFP in the Las Vegas District of the BLM. In 2008 the BLM reorganized into a three-tier organization. The BLM offices associated with the SWIP are now the Elko District Office (includes the Wells Field Office), the Ely District Office (includes the Egan Field Office, the Schell Field Office, and the Caliente Field Office), and the Southern Nevada District (instead of the Las Vegas District Office, includes the Las Vegas Field Office). The RMP and MFP titles remain the same.

The final permitting and construction of the SWIP was not undertaken by IPC. In 2005, IPC entered into an exclusive arrangement with White Pine Energy Associates, LLC (WPEA), to complete the permitting, development, engineering, and construction of the SWIP, and authorized the BLM to work directly with WPEA toward this end. WPEA subsequently assigned its rights to its affiliate, Great Basin Transmission, LLC (Great Basin). In May 2008, BLM approved an assignment by IPC to Great Basin of a portion of the SWIP ROW. The assigned portion of the ROW includes the portion covered in this Environmental Assessment (EA), which has been re-designated as ROW Grant NVN-85210.

Due to the size of the SWIP project (approximately 520 miles in length), and because different components of the SWIP have independent utility, Great Basin proposes to complete the permitting and construction of the project in phases. Consistent with this phased approach, in June 2007, Great Basin submitted an application to the Public Utilities Commission of Nevada for a Utility Environmental Protection Act (UEPA) permit for the first phase of the project, known

both as the Harry Allen-to-Thirtymile Project and as the SWIP – Southern Portion. In this EA it is referred to as the SWIP – Southern Portion. The UEPA application review is pending.

The SWIP – Southern Portion begins at the existing Harry Allen Substation, located in Dry Lake, Nevada, approximately 20 miles northeast of Las Vegas, Nevada, and runs north to the proposed Thirtymile Substation approximately 18 miles northwest of Ely, Nevada, where it will interconnect with Sierra Pacific Power Company's existing Falcon-to-Gonder 345kV transmission line. The SWIP – Southern Portion traverses approximately 230 miles through parts of White Pine, Nye, Lincoln, and Clark counties in Nevada, and will consist of self-supporting, steel-lattice and steel-pole H-frame structures, placed approximately 1,200 to 1,500 feet apart.

The second phase, referred to as the SWIP – Northern Portion runs from the proposed Thirtymile Substation to IPC's Midpoint Substation near Shoshone, Idaho. A third possible phase, an approximately 34 mile subsection of the SWIP – Northern Portion, located between the Thirtymile Substation and a point just west of the proposed White Pine Energy Station (WPES), could be permitted and constructed separately from the remainder of the SWIP – Northern Portion, depending on the timing and outcome of the WPES permitting process. The WPES is a coal fired power plant proposed by WPEA, which at full build out would be approximately 1600 megawatts. The timing of these phases may occur in any order.

This EA is being prepared with respect to a proposed ROW grant amendment related solely to the SWIP – Southern Portion.

### **1.1.2 ROW Amendment Application and Related NEPA Analysis**

In July 2007, IPC and Great Basin submitted an SF-299 seeking BLM approval of an amendment to ROW Grant NVN-49781 to accommodate two modifications for the SWIP – Southern Portion. In May 2008 IPC assigned its interest in this application to Great Basin and the BLM re-designated the applicable portion of the Grant specific to this project (NVN-85210). The two proposed modifications consist of (1) an extension of the ROW and 500kV transmission line for approximately 4 miles from the originally approved southern terminus, which was to be at the Dry Lake 500kV Substation (which was never constructed), to the now existing Harry Allen 500kV Substation in Clark County, and (2) a modification of the ROW Grant in the Robinson Summit area northwest of Ely in White Pine County, which would shift the location of the Robinson Summit Substation from its currently approved location, to a new site, referred to as Thirtymile Substation immediately to the west of the approved SWIP corridor, and approximately ¾ mile to the northwest of the currently approved site.

A Determination of NEPA Adequacy (DNA) was prepared by the BLM to evaluate the SWIP EIS with respect to these proposed modifications. The DNA also evaluated relocation of the ROW to the west side of U.S. Highway 93 in Coyote Spring Valley which had been mandated by Congress in the 2004 Lincoln County Conservation, Recreation, and Development Act (LCCRDA). The DNA determined that this EA should be prepared to assess the impacts of the proposed ROW modifications, the Coyote Springs Valley relocation, and also to address policy and resource updates associated with key environmental resources that may affect the project.

In summary, this EA includes analysis of:

- environmental impacts of Great Basin’s proposed amendment to the SWIP ROW grant that would (1) extend the ROW approximately 4 miles southwest to the Harry Allen Substation, and (2) change the approved location of the substation northwest of Ely
- environmental impacts of a congressionally mandated shift of the ROW to the west side of U.S. Highway 93 in the Coyote Springs Valley area
- policy and resource updates enacted or adopted after the issuance of the ROW grant in 1994 with potential implications for the SWIP

## **1.2 PURPOSE AND NEED**

The purpose of BLM’s action is to make a decision on the use of public land for electrical transmission facilities that are necessary to construct and operate the SWIP – Southern Portion, which requires amendment of the existing ROW grant. The need for BLM action arises from the Federal Land Policy and Management Act (FLPMA), which requires BLM to respond to applications for ROW grants and amendments. FLPMA establishes a multiple use framework for management of public land which includes use for energy transmission facilities. The Energy Policy Act of 2005 and the President’s Energy Policy also recognize the important role of the use of public land for electrical transmission facilities. In general, BLM’s management objective is to meet public needs for use of BLM-managed land while avoiding or minimizing adverse impacts to other resource values.

The ROW modifications evaluated in this EA are necessary for the construction and operation of the SWIP 500kV transmission line. The extension of the ROW at the southern terminus of the project is needed in order to allow the SWIP to interconnect with the existing transmission grid. The modification of the grant in the Robinson Summit area will provide engineering and environmental advantages and better accommodate the interconnection with, and the crossing of, the Falcon-to-Gonder 345kV line that now passes through this area.

The Proponent’s objective for the SWIP transmission line itself is to interconnect existing utility grids in northern and southern Nevada, increase regional transmission system reliability, and provide transmission service for generation facilities including renewable energy projects.

## **SECTION 2.0**

### **PROPOSED ACTION AND ALTERNATIVES**

---

#### **2.1 PROPOSED ACTION**

The Proposed Action is the amendment to the current SWIP ROW Grant. The amendment would provide for two ROW modifications: (1) the relocation of the southern terminus of the SWIP 500kV transmission line from the originally proposed Dry Lake Substation location to the existing Harry Allen Substation, and a corresponding extension of the transmission line ROW, and (2) a westward shift of the approved location for a substation in the Robinson Summit area to the new Thirtymile Substation site, and corresponding transmission interconnections with the SWIP – Southern Portion 500kV line and the now existing Falcon-to-Gonder 345kV line. The general location of these modifications is shown on Figure 1. BLM’s action would be to approve the ROW amendment application (SF-299) submitted by Great Basin requesting these modifications.

##### **2.1.1 Harry Allen Substation Area**

This modification includes a 3.8-mile extension of the SWIP 500kV transmission line ROW, from the originally approved terminus at the then-contemplated Dry Lake 500kV Substation to the existing Harry Allen 500kV Substation in Clark County (Figure 2). Since the completion of the SWIP EIS, the Harry Allen 500kV Substation has been constructed by Nevada Power Company and will serve as the southern interconnection point between the SWIP and the existing grid. The originally proposed Dry Lake Substation was never constructed. The same alignment that will be followed by the proposed extension was evaluated in the SWIP EIS but was not selected because the anticipated Dry Lake Substation was thought to be the most likely location for the southern terminus (Figure 3).

The proposed ROW Grant extension is 200 feet in width and approximately 3.8 miles in length. The 500kV alternating current transmission line within the extended ROW will consist of single-circuit, self-supporting, steel-lattice structures, ranging from approximately 90 to 175 feet in height (Figure 4) with tower-to-tower spans of approximately 1,200 to 1,500 feet. Construction will be completed as part of the SWIP – Southern Portion.

##### **2.1.2 Thirtymile Substation**

The proposed Thirtymile Substation is located approximately 18 miles northwest of Ely and approximately ½ mile south of U.S. Highway 50, immediately to the west of the SWIP alignment, approximately ¾ mile to the northwest of the Robinson Summit Substation site that was approved under the initial ROW Grant (Figure 5). The Thirtymile Substation is located within the Robinson Summit Substation siting area evaluated in the SWIP EIS, and the associated interconnections also fall within the corridor area(s) analyzed in the EIS (Figure 6). This 500/345kV substation will be constructed in lieu of the Robinson Summit Substation. This modified location (referred to as the Thirtymile Substation) will serve as an interconnection between the SWIP 500kV line and the existing Falcon-to-Gonder 345kV line (located

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

approximately ¼ mile south of the proposed substation site and just north of the Gonder-to-Machacek 230kV transmission line). When the SWIP ROW was granted in 1994, the Falcon-to-Gonder 345kV line did not exist, and the Robinson Summit Substation was intended to include an interconnection with the east-west (Ely-to-Delta) segment included as part of the original SWIP ROW Grant. Subsequent to the issuance of the ROW Grant, the Ely-to-Delta segment was dropped from consideration, and the Falcon-to-Gonder 345kV transmission line was built. An interconnection with the now-existing Falcon-to-Gonder line supersedes the originally contemplated interconnection with the Ely-to-Delta segment, which was never built.

The substation will occupy a site approximately 77 acres in size (see Figure 5). Typical equipment at this substation will include transmission line take-off structures, power circuit breakers, power transformers, switches, bus work, control house, communications equipment, and associated controls and instrumentation (Figure 7). The maximum height of these structures within the substation would be approximately 125 feet. In addition to the substation, transmission interconnections to the SWIP – Southern Portion 500kV line and the Falcon-to-Gonder 345kV line also will be constructed. Construction of the substation and transmission interconnections will be completed as part of the SWIP – Southern Portion.

## **2.2 COYOTE SPRINGS REALIGNMENT**

In addition to the Proposed Action, this EA also evaluates the relocation of the ROW within the Aerojet Corridor/Coyote Spring Valley. This relocation was mandated by Congress in Section 302(c) of the LCCRDA, enacted in 2004. The general location of this area is illustrated in Figure 1, and the adjustments to the original ROW Grant are described below.

The LCCRDA includes a provision (Section 302(c)) that directed the BLM to relocate a portion of the SWIP ROW Grant in the Coyote Spring Valley area from the east side to the west side of US Highway 93, for approximately 25 miles (Figure 8). Congress specified that the relocation “be conducted in a manner that . . . minimizes engineering design changes” and “maintains a gradual and smooth interconnection” with the SWIP designated utility corridor, which was also moved to the west side of the highway by LCCRDA. Due to the new location of the designated SWIP utility corridor (pursuant to Section 301(a) of LCCRDA) the new SWIP alignment on the west side of the Highway is approximately 1.5 miles longer than the pre-shift alignment on the east side of the Highway. The transmission line that will be constructed in this area will consist of facilities similar to those previously described for the extended transmission line in the Harry Allen Substation area (see Figure 4).

Because relocation of the SWIP ROW in the Coyote Springs area was directed by Congress under LCCRDA, BLM retains no discretionary authority for that action. However, BLM concluded that assessment of the impacts of the relocated ROW would be of value in determining the design and mitigation measures to be included in the Construction, Operation, and Maintenance Plan (COM Plan) for this part of the transmission line, and so included the realignment area in this EA.

FIGURE 7

FIGURE 8

## **2.3 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the proposed SWIP ROW amendment would not be approved, and the SWIP transmission line would not be constructed, due to the inability to interconnect with the existing grid at the southern terminus and the difficulty of interconnecting with the Falcon-to-Gonder 345kV line, which bisects the currently approved substation site.

## **2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED**

Transmission line alternatives in the Dry Lake-Harry Allen Substation area and alternative substation sites in the vicinity of the Thirtymile Substation were evaluated in the previous SWIP EIS, and have been eliminated from consideration in this EA. These alternatives are described below.

### **2.4.1 Transmission Line Alternatives**

In the SWIP EIS, four potential substation sites were considered for the location of the southern terminus of the SWIP transmission line, all within the Dry Lake Substation Siting Area. These included Site 18 (located in the northern part of the substation siting area), Site 19 (about 4 miles farther south, at the current site of the Harry Allen 500kV Substation), as well as Sites 17 and 20 (see Figure 3). The EIS noted that the actual location of a substation site and transmission line route in the Dry Lake area would depend upon the “routing decision for the future Marketplace-Allen Transmission Project (MAT) proposed by Nevada Power Company to connect from this area south to the area of the McCullough Substation.” All four sites in the Dry Lake Substation siting area and their associated transmission line routes were determined by the EIS to be environmentally acceptable.

The ROD approved the use of Sites 17, 18, or 20 because they were considered the most likely intersection points with the future MAT line. Site 19, which corresponds to the location of the Harry Allen Substation, was not specifically approved, although the EIS noted that Site 19 would be appropriate, if a route was chosen for the future MAT Project that extended south/southeast through the siting area, to the Sunrise Mountain and Henderson areas (which is the route of the Harry Allen-to-Mead transmission line that has recently been constructed, and which has effectively superseded the MAT Project).

Consistent with the ROD, the BLM granted the SWIP ROW with a southern termination point at Site 18. Since that time, the MAT Project has been replaced by the Harry Allen-to-Mead 500kV Transmission Line. As a result, the only practical interconnection point for the SWIP is now at Site 19, at the Harry Allen Substation, since the other alternatives would not meet the purpose and need for the SWIP.

### **2.4.2 Substation Alternatives**

The new substation location is within the Robinson Summit Substation Siting Area, including other options that were previously evaluated in the SWIP EIS (see Figure 6). As approved in the SWIP ROD and the ROW Grant, the substation in this area would be located just to the east of

the proposed 500kV transmission line, while the modified substation site that is now being proposed would be located just to the west.

The modified location (referred to as the Thirtymile Substation) will serve as an interconnection with the existing Falcon-to-Gonder 345kV transmission line. It could also serve as a point of interconnection for the future transmission lines associated with the proposed WPES and Ely Energy Center (EEC). The modified substation location presents significant engineering advantages over the previously approved (granted) site due to existing access, reductions in grading and ground disturbance, the ability to span the now existing Falcon-to-Gonder 345kV and Gonder-to-Machacek 230kV transmission lines, and facilitating the interconnection of future transmission lines to avoid multiple high-voltage crossings. In addition, the Falcon-to-Gonder 345kV line was built through the middle of the granted ROW area for the substation, making it difficult to design an acceptable substation to accommodate the required interconnections. For these reasons, the original location of the substation in this area has been eliminated from consideration in this EA. The Thirtymile location also is superior to the previously studied Site 9 due to proximity to the granted SWIP ROW (see Figure 6).



## SECTION 3.0 AFFECTED ENVIRONMENT FOR THE EXTENSION OF THE RIGHT-OF-WAY TO THE HARRY ALLEN SUBSTATION AND FOR THE THIRTYMILE SUBSTATION

---

### 3.1 INTRODUCTION

Section 3 of this EA presents information on the environment potentially affected by the construction, operation, and maintenance of the facilities associated with the two proposed modifications to the SWIP ROW Grant. The affected environment for the LLCRDA realignment is addressed in Section 5.

### 3.2 BIOLOGICAL RESOURCES

This portion of the EA documents the biological resources associated with the extension of the ROW to the Harry Allen Substation and relocation of the Robinson Summit Substation site to the Thirtymile Substation site. Information presented in this section has been gathered from the SWIP EIS, and updated based on current BLM RMPs, ongoing discussions with federal and state agencies, field review and surveys, and from information developed from the Biological Assessment (BA) and the Biological Opinion (BO) that have been prepared for the SWIP – Southern Portion.

#### 3.2.1 Vegetation

##### 3.2.1.1 Right-of-Way Extension to the Harry Allen Substation

Vegetation along the ROW extension to the Harry Allen Substation is generally low-growing, relatively sparse, and dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Other shrubby species present include white ratany (*Krameria grayi*), four-wing saltbush (*Atriplex canescens*), Anderson wolfberry (*Lycium andersonii*), bladder sage (*Salazaria mexicana*), spiny hopsage (*Grayia spinosa*), and Nevada ephedra (*Ephedra nevadensis*). Common forbs and grasses include devil's spineflower (*Chorizanthe rigida*), evening primrose (*Oenothera deltoides*), buckwheat (*Eriogonum* sp.), and big galleta grass (*Pleuraphis rigida*).

In addition to shrubs and smaller plants, the area includes several species of cactus and at least one species of yucca. Cacti include beavertail prickly pear (*Opuntia basalaris*), silver cholla (*O. echinocarpa*), diamond cholla (*O. ramosissima*), Mojave barrel (*Ferocactus cylindraceus*), hedgehog (*Echinocereus engelmannii*), and cottontop barrel (*Echinocactus polycephalus*). Mojave yucca (*Yucca schidigera*) is the most common yucca species in the area. All plants of the cactus family cactaceae and all plants of the genus yucca are protected under Nevada Revised Statute (NRS) 527.060-.120, which prohibits destruction without “written permission from the legal owner...specifying locality by legal description and number of plants to be removed or possessed” (NRS 527.100).

### 3.2.1.2 Thirtymile Substation

The Thirtymile Substation site is strongly dominated by big sagebrush (*Artemisia tridentata*), with occurrences of bitterbrush (*Purshia tridentata*), black sage (*Artemisia nova*), and Utah juniper (*Juniperus osteosperma*), which appears to be in the early stages of invading the substation site. Many of the junipers are relatively small (<2m in height), although there are areas where the plants have been established for longer periods of time.

### 3.2.2 Noxious Weeds and Invasive Species

Noxious weeds are invasive, non-native species that tend to spread rapidly and often displace native plant species or bring about changes in species composition, community structure, and ecological function. Noxious weeds may compete with native species for critical resources including water, nutrients, and space. Such competition may alter the dynamics of the native plant community, potentially leading to a monoculture of the noxious species. Noxious weeds also may alter soil chemistry in such a manner as to preclude germination or seedling establishment by native species. Moreover, noxious weeds tend to thrive in disturbed areas, such as at electrical transmission tower sites, laydown areas, storage yards, and pulling and tensioning sites. Noxious weeds are formally listed and managed by the Nevada Department of Agriculture.

The noxious weed inventory for the SWIP – Southern Portion included (1) the identification of weed species that are designated noxious, as defined by the Nevada Department of Agriculture, and which have the potential to occur within the area affected by the project and (2) the gathering of information to identify specific noxious weed populations in the project area, including preconstruction surveys along the project ROW. These surveys were conducted from April through June 2006 by Tri County Weed, as recommended by BLM, Ely District Office.

A complete listing of the noxious weeds identified through these surveys is presented in Table 6-2 (Section 6.5) of this EA. In addition, information on noxious weed occurrences within the ROW area, including the location and extent of infestations, was also gathered from the BLM, Ely District Office in the form of a GIS data layer. This inventory did not indicate any additional noxious weed species located within the project corridor, however, it is likely that populations of other noxious species that were not found within the survey area may occur in the vicinity, and these species could become established at disturbed areas on the ROW following construction.

Red brome (*Bromus rubens*), cheatgrass (*Bromus tectorum*), and Chilean chess (*Bromus trinitii*) have been identified by the BLM as invasive species of concern. In conjunction with the noxious weed and rare plant surveys conducted for the SWIP – Southern Portion, the identification of invasive species was generally noted, where evident. Based on the arid conditions that were encountered during these surveys, many of the anticipated invasive species may not have been identified.

Below is a description of noxious weeds and invasive species found within the areas of the extension of the ROW to the Harry Allen Substation and the Thirtymile Substation site.

### 3.2.2.1 Right-of-Way Extension to the Harry Allen Substation

Noxious weeds along the ROW extension included five locations of salt cedar within the Dry Lake Valley, however, no invasive species were identified in the area at that time.

### 3.2.2.2 Thirtymile Substation

No noxious weeds or invasive species were found at the Thirtymile Substation site.

## 3.2.3 Wildlife

### 3.2.3.1 Right-of-Way Extension to the Harry Allen Substation

The mammalian fauna of the project area is dominated by small, mostly nocturnal species of rodents and bats. Owing to the low-growing shrubs and lack of trees, large mammals such as Mule Deer (*Odocoileus hemionus*) are not present or are present only as transients. Mountain Lions (*Puma concolor*) are, like Mule Deer, uncommon and only occur as rare transients. The Coyote (*Canis latrans*) is the only larger mammal that could be common in the area.

In contrast, small mammals may be locally abundant. Some of the rodents present in the project area include White-tailed Antelope Squirrel (*Ammospermophilus leucurus*), Jackrabbits (*Lepus californicus*), Little Pocket Mouse (*Perognathus longimembris*), Long-tailed Pocket Mouse (*Chaetodipus formosus*), Merriam's Kangaroo Rat (*Dipodomys merriami*), Cactus Mouse (*Peromyscus eremicus*), Southern Grasshopper Mouse (*Onychomys torridus*), and possibly Desert Wood Rat (*Neotoma lepida*). Bats that could be present as permanent residents, transients, or summer visitors include several species of *Myotis*, Western Pipistrelle (*Pipistrellus hesperus*), Big Brown Bat (*Eptesicus fuscus*), Townsend's Big-eared Bat (*Corynorhinus townsendi*), Pallid Bat (*Antrozous pallidus*), and Mexican Free-tailed Bat (*Tadarida brasiliensis*).

The avifauna of Mojave desertscrub tends to be sparse and composed largely of species that also occur in the Sonoran and Great Basin deserts. Perhaps the most characteristic songbird of the project area is LeConte's Thrasher (*Toxostoma lecontei*). Other common species include the Red-tailed Hawk (*Buteo jamaicensis*), Ash-throated Flycatcher (*Myiarachus cinerascens*), Loggerhead Shrike (*Lanius ludovicianus*), Horned Lark (*Eremophila alpestris*), Cactus Wren (*Campylorhynchus brunneicapillus*), Gambel's Quail (*Callipepla gambelii*), Greater Roadrunner (*Geococcyx californianus*), and the Black-throated Sparrow (*Amphispiza bilineata*).

The Mojave Desert Tortoise (*Gopherus agassizii*) is known to inhabit the area of the project. Some of the species of lizards that are expected to occur in the area are: Desert Iguana (*Dipsosaurus dorsalis*), Zebra-tailed Lizard (*Callisaurus draconoides*), Great Basin Collared Lizard (*Crotaphytus bicinctores*), Desert Horned Lizard (*Phrynosoma platyrhinos*), Desert Night Lizard (*Xantusia vigilis*), Western Whiptail (*Cnemidophorus tigris*), and possibly the Banded Gila Monster (*Heloderma suspectum cinctum*). Snakes that are likely to be present include the Western Blind Snake (*Leptotyphlops humilis*), Coachwhip (*Masticophis flagellum*), Gopher Snake (*Pituophis catenifer*), Western Shovel-nosed Snake (*Chionactis occipitalis*), Sidewinder (*Crotalus cerastes*), Speckled Rattlesnake (*Crotalus mitchellii*), and the Mojave Rattlesnake (*Crotalus scutulatus*).

### 3.2.3.2 Thirtymile Substation

Large mammals that may be present at or near the Thirtymile Substation include Elk, Mule Deer, Mountain Lions, Coyotes, and Bobcats (*Lynx rufus*). Small, nocturnal species of rodents and bats make up the bulk of the mammalian fauna. Small rodents that occupy sagebrush habitats include the Dark Kangaroo Mouse (*Microdipodops megacephalus*), Great Basin Kangaroo Rat or Chisel-toothed Kangaroo Rat (*Dipodomys microps*), northern Grasshopper Mouse (*Onychomys leucogaster*), Desert Woodrat (*Neotoma lepida*), and Sagebrush Vole (*Lemmiscus curtatus*). Bats present include several members of the genus *Myotis*, the Big Brown Bat, Hoary Bat (*Lasiurus cinereus*), Western Big-eared Bat, and the Mexican Free-tailed Bat.

Birds that are characteristic of sagebrush-dominated communities include Sage Grouse (*Centrocercus urophasianus*), Sage Thrasher (*Oreoscoptes montanus*), and Sage Sparrow (*Amphispiza belli*). Other species that probably occur in the vicinity of the Thirtymile Substation include the Red-tailed Hawk, Gray Flycatcher (*Empidonax wrightii*), Common Raven (*Corvus corax*), Mountain Bluebird (*Sialia currucoides*), and the Brewer's Sparrow (*Spizella breweri*).

The amphibian and reptile fauna of sagebrush dominated habitats are most likely low in diversity. The Great Basin Spadefoot (*Spea intermontana*) is probably the most common amphibian near the Thirtymile Substation. Common lizards include such species as the Western Fence Lizard (*Sceloporus occidentalis*), Sagebrush Lizard (*S. graciosus*), Side-blotched Lizard (*Uta stansburiana*), and the Western Whiptail (*Cnemidophorus tigris*). Snake species include the Striped Whipsnake (*Masticophis taeniatus*), Gopher Snake (*Pituophis catenifer*), Western Terrestrial Garter Snake (*Thamnophis elegans*), Night Snake (*Hypsiglena torquata*), and the Western Rattlesnake (*Crotalus viridis*).

### 3.2.4 Migratory Birds

The Migratory Bird Treaty Act of 1918 (MBTA) is the domestic law that affirms and implements the United States' commitment to the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requires harvest to be limited to levels that prevent overuse. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, of any migratory bird, its eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11).

Virtually all of the bird species found within the SWIP transmission line ROW for the Harry Allen extension and at the Thirtymile Substation site are protected by the MBTA.

A BLM designated bird habitat area is located near the ROW extension, in Dry Lake Valley. The bird habitat consists of a fenced area containing mesquite trees and berms for collecting water.

### **3.2.5 Wild Horses and Burros**

Since 1971, the BLM has been managing free-roaming horses and burros on public lands in accordance with the Wild Free-Roaming Horse and Burro Act. This Act mandates that wild and free-roaming horses and burros be protected from unauthorized capture, branding, harassment, or death, and furthermore that these animals be considered as an integral part of the natural systems, based on their distribution.

In order to support the protection of these animals, the BLM has established Herd Management Areas (HMAs). The desired objective is to manage for sustainable population levels in areas of suitable habitat, while preserving a multiple use relationship with all other resources.

#### **3.2.5.1 Right-of-Way Extension to the Harry Allen Substation**

No HMAs have been established by the Southern Nevada District Office that are affected by the extension of the ROW in this area.

#### **3.2.5.2 Thirtymile Substation**

No HMAs have been identified in the Egan RMP or the Ely Proposed RMP (PRMP) that are affected by the Thirtymile Substation.

### **3.2.6 Threatened and Endangered Species/Special Status Species**

#### **3.2.6.1 Right-of-Way Extension to the Harry Allen Substation**

In the area of the extension of the ROW to the Harry Allen Substation the Mojave Desert Tortoise is the only federally listed wildlife species known to be present. A female tortoise carcass and an apparently active burrow were found in the extension area during surveys conducted in the Summer of 2006. The extension area is not located within U.S. Fish and Wildlife Service (USFWS) designated Critical Habitat for the Mojave Desert Tortoise, or any other listed species.

Rare plant surveys were conducted along the transmission line route in this area during Spring 2006. These surveys resulted in no detection of federally listed or sensitive species, with the exception of cacti and yuccas, which, as previously noted, are protected under Nevada law (NRS 527.060). However, these surveys were conducted during a very dry spring, and plants like the three-corner milkvetch, an annual, did not appear.

#### **3.2.6.2 Thirtymile Substation**

No federally listed wildlife or plant species, or designated Critical Habitat, were identified in the Thirtymile Substation area. Rare plant surveys conducted during Spring 2006 did not reveal the presence of any sensitive plant species.

### 3.3 CULTURAL RESOURCES

Two cultural resource studies were conducted covering the areas of the extension of the ROW to the Harry Allen Substation and at the Thirtymile Substation site (Crews et al. 2007; Deis 2007). A summary of the results of each of these studies is described below.

#### 3.3.1 Right-of-Way Extension to the Harry Allen Substation

Surveys conducted for the extension of the ROW to the Harry Allen Substation included the 200-foot-wide ROW (Crews et al., 2007) and associated new road access. For the purposes of this cultural study, the transmission line ROW and associated access is considered the area of potential effect (APE). No sites were identified within the APE of the ROW extension.

#### 3.3.2 Thirtymile Substation

Surveys conducted for the Thirtymile Substation included the substation, and interconnections to the SWIP 500kV line and the Falcon-to-Gonder 345kV line (Crews et al., 2007; Deis 2007). The APE considered for the substation included the 77-acre footprint of the substation and the APE considered for the transmission line interconnections included the 200-foot ROW for the SWIP – Southern Portion interconnection and two, 160-foot ROWs for the Falcon-to-Gonder 345kV line interconnections. A total of 18 sites were identified within the APEs of both the substation and the interconnections (Table 3-1). Of these, four are recommended as eligible for listing on the National Register of Historic Places (NRHP).

	<b>Site Number</b>	<b>7.5-minute Quad</b>	<b>Site Type</b>	<b>Eligibility</b>	<b>Location</b>	<b>BLM Report No.</b>	<b>Survey Organization</b>
1	26WP7576	Marking Corral Summit	Artifact Scatter	NRHP eligible	Substation	(8111) 2006-1593	EPG, Inc.
2	26WP7577	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Interconnection	(8111) 2006-1593	EPG, Inc.
3	26WP7578	Marking Corral Summit	Small Artifact Scatter (1 Pottery Sherd, 2 flakes)	NRHP ineligible	Interconnection	(8111) 2006-1593	EPG, Inc.
4	26WP7579	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Interconnection	(8111) 2006-1593	EPG, Inc.
5	26WP7161	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	BLM
6	26WP7149	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	EDAW
7	26WP7148	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	EDAW
8	26WP7145	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	EDAW

	<b>Site Number</b>	<b>7.5-minute Quad</b>	<b>Site Type</b>	<b>Eligibility</b>	<b>Location</b>	<b>BLM Report No.</b>	<b>Survey Organization</b>
9	26WP7146	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	EDAW
10	26WP7478	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	BLM
11	26WP7158	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	EDAW
12	26WP7477	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Substation	8111 (NV 040) 2004-1542	BLM
13	26WP7160	Marking Corral Summit	Lithic and Ceramic Scatter	NRHP eligible	Substation	8111 (NV 040) 2004-1542	EDAW
14	26WP5440	Marking Corral Summit	Lithic Scatter/ Historic Debris	Prehistoric: NRHP eligible/ historic: NRHP ineligible	Access	CR99-1309	Summit Envirosolutions
15	26WP5431	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Access	CR99-1309	Summit Envirosolutions
16	26WP5441	Marking Corral Summit	Lithic Scatter/ Historic Debris	NRHP ineligible	Interconnection	CR99-1309	Summit Envirosolutions
17	26WP5438	Marking Corral Summit	Large Lithic Scatter/ Historic Debris	NRHP eligible	Access	CR99-1309	Summit Envirosolutions
18	26WP5439	Marking Corral Summit	Lithic Scatter	NRHP ineligible	Access	CR99-1309	Summit Envirosolutions

### **3.4 PALEONTOLOGICAL RESOURCES**

The San Bernardino County Museum conducted a paleontological resource study covering the areas of the extension of the ROW to the Harry Allen Substation and at the Thirtymile Substation (San Bernardino County Museum 2006). This study included a records search and field review to identify paleontological sensitivity and is included in the COM Plan for the SWIP – Southern Portion. The conclusions of the study are summarized below.

#### **3.4.1 Right-of-Way Extension to the Harry Allen Substation**

The records search and field review concluded that the extension to the Harry Allen Substation is located in an area with low paleontological sensitivity and recommended that no further investigation is warranted for this area.

### **3.4.2 Thirtymile Substation**

Based on the records search and field review, the Thirtymile Substation site is located in an area with an undetermined paleontological sensitivity. The paleontological resource study recommended that an intensive pedestrian field inspection be conducted prior to construction.

## **3.5 LAND USE, RECREATION, AND ACCESS**

This section of the EA documents the existing and planned land use, recreation, and access in the areas where the two ROW modifications are proposed. Existing land use data were gathered using aerial photography and field reconnaissance, and through a review of land use plans. Planned land use was gathered using existing BLM RMPs, PRMPs, other BLM documents for projects located in the project areas, and specific development plans. A description of the project setting, ownership/jurisdiction, and existing and planned land use within the areas of the two ROW modifications follows.

### **3.5.1 Right-of-Way Extension to the Harry Allen Substation**

#### **3.5.1.1 Project Setting**

The extension of the ROW, from the previously identified terminus of the SWIP project to the existing Harry Allen Substation, is located in Dry Lake Valley, approximately 20 miles northwest of North Las Vegas. This area is part of the Basin and Range Physiographic Province, which is characterized by parallel mountain ranges running north to south, with closed desert basins or playas between the ranges, such as Dry Lake.

#### **3.5.1.2 Jurisdiction**

The extension of the ROW is on BLM land administered by the BLM Southern Nevada District Office, and managed under the Las Vegas RMP.

#### **3.5.1.3 Existing Land Use, Recreation, and Access**

Existing land use within the area of the ROW extension is primarily industrial, consisting of utility facilities such as the Harry Allen Generation Plant, the two Harry Allen Electrical Substations, 500kV, 345kV, and 230kV transmission lines and associated access roads, and the Kern River Natural Gas Pipeline and Metering Station. The Apex Industrial Park is located immediately to the south of U.S. Highway 93 and on both the east and west sides of Interstate 15.

The extension of the ROW is not located within any Recreation Management Units as identified by the Las Vegas BLM RMP; however, there are existing dispersed four-wheel-drive roads within the area. The Las Vegas RMP (Vol. II, Map # 2-10) designates Off-Highway Vehicle (OHV) use in the vicinity of the extension as “limited to existing roads, trails, and dry washes.”

#### **3.5.1.4 Planned Land Use**

The ROW extension is located entirely on BLM land, in an area identified in the RMP as having “high potential” for mineral material sale (Las Vegas RMP Vol. II, Map # 3-13). This identification is consistent with the existing and planned industrial uses within the area, although no mineral extraction sites are located along the ROW extension. Although Clark County has no jurisdiction over the management of BLM land, the Northeast Clark County Land Use Plan identifies uses within the area of the realignment, such as *Heavy Industrial* and *Open Land*. *Heavy Industrial* allows for intense industrial operations within close proximity to major transportation and public facilities. The *Open Land* designation allows for deterring development and may contain uses such as public services and facilities, grazing, and some recreational uses.

### **3.5.2 Thirtymile Substation**

#### **3.5.2.1 Project Setting**

The proposed Thirtymile Substation site is located in White Pine County, Nevada, approximately 18 miles northwest of Ely, and ½ mile south of Highway 50. The site is immediately west of the SWIP alignment, approximately ¾ mile northwest of the approved Robinson Summit Substation site. This area is part of the Basin and Range Physiographic Province, which is characterized by parallel mountain ranges running north to south with closed desert basins between the ranges. The specific location of the substation is within the foothills of the western side of the Egan Mountain Range.

#### **3.5.2.2 Jurisdiction**

The Thirtymile Substation site is located entirely on BLM land administered by the Ely District and adjacent to the SWIP and Falcon-to-Gonder designated BLM utility corridors. This area is currently managed under BLM’s 1984 Egan RMP, but will be managed under the Ely RMP. The Ely RMP, which will replace the Egan RMP, was proposed by the BLM in November 2007 (Ely Proposed Resource Management Plan/Final Environmental Impact Statement, BLM 2007) and is expected to be finalized in mid-2008. Accordingly, the analysis in this EA takes into account both plans, as appropriate.

#### **3.5.2.3 Existing Land Use, Recreation, and Access**

The primary land use within the proposed substation site area is range land, and the proposed site is included in the Thirty Mile Spring allotment. The Moorman Ranch, Badger Spring, Copper Flat, and Tom Plain/Uvanda allotments are all within relatively close proximity.

There are no active recreation areas within the vicinity of the Thirtymile Substation; however, the substation is located within the Loneliest Highway Special Recreation Management Area (SRMA). As described in the Ely PRMP, this SRMA (675,123 acres in size) includes all BLM lands extending approximately 4 miles to either side of U.S. Highway 50, and provides access to some of the most popular destinations in the planning area including Illipah Reservoir, Cold Creek Reservoir, Garnett Hills Rock Hounding Area and the Pony Express Trail. The management objectives of this area are to provide recreational opportunities to the public that

would otherwise not be available, reduce conflicts among users, minimize damage to resources, and reduce visitor health and safety issues.

Two other transmission lines are located adjacent to the proposed substation site: the Falcon-to-Gonder 345kV transmission line and the Gonder-to-Machacek 230kV transmission line. Both transmission lines are located approximately ¼ mile south of the proposed substation site, within the Falcon-to-Gonder BLM utility corridor. Within close proximity of the proposed substation site are several dirt roads, including Jakes Wash Road which provides access to U.S. Highway 50, which is located approximately ½ mile north of the proposed site. Dirt roads within the area provide access to dispersed recreational activities on BLM land.

#### **3.5.2.4 Planned Land Use**

There are no known development plans for the proposed substation site. The site is adjacent to the designated ½-mile-wide SWIP utility corridor and the Falcon-to-Gonder corridor, allowing for future utility development.

### **3.6 VISUAL RESOURCES**

This portion of the EA focuses on the existing visual conditions as they relate to the proposed ROW modification areas, including scenic quality (scenery), sensitive viewers (residential, recreation, travel ways), agency management objectives (Visual Resource Management or VRM), and cultural modifications. The visual resource inventory is described below.

#### **3.6.1 Right-of-Way Extension to the Harry Allen Substation**

The landscape in which the ROW extension would be located is characterized by moderately flat topography, with low vegetative diversity creating little visual interest; therefore, the scenic quality is Class C (landscapes with minimal diversity or interest). "Sensitive viewers" of the extended ROW area would be travelers on U.S. Highway 93 and Interstate 15. The Las Vegas BLM RMP designated the Harry Allen Substation area as a Class IV VRM objective; however, this classification has been updated to a Class III VRM objective. Class IV VRM objective allows activities involving major modifications of the landscape's existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers. A Class III VRM objective prescribes partial retention of the existing character of the landscape and allows for actions which may alter the existing landscape, but not to the extent that they attract or focus the attention of the casual viewer. Cultural modifications adjacent to the project include transmission lines and substations, with other energy-related facilities (power plants) in the vicinity.

#### **3.6.2 Thirtymile Substation**

The landscape in the vicinity of the proposed Thirtymile Substation site is characterized by rolling foothills. The vegetation found in this landscape is relatively low in species diversity and irregular in form, and the terrain in this area consists of rolling foothills; therefore, the scenic quality for this landscape type is Class B (landscapes with common diversity or interest).

Sensitive viewers identified as having potential views of the substation include travelers on U.S. Highway 50 and Jakes Wash Road. Existing visual modifications near the site include a highway, dirt road, and two transmission lines. The general area of the Thirtymile Substation is a Class III VRM objective. The SWIP designated utility corridor ( $\frac{3}{4}$  mile wide) which overlaps with the substation site has been classified as Class IV VRM objective in the Ely PRMP. Existing modifications in the vicinity of the substation site include the Falcon-to-Gonder 345kV transmission line and the Gonder-to-Machacek 230kV transmission line located approximately  $\frac{1}{4}$  mile to the south. These facilities are also located in a  $\frac{1}{2}$ -mile-wide designated utility corridor with a Class IV VRM objective, as identified in the Ely PRMP.

### **3.7 WILDFIRE MANAGEMENT**

#### **3.7.1 Right-of-Way Extension to the Harry Allen Substation**

The extension of the ROW to the Harry Allen Substation is located in Clark County, on BLM land administered by the Southern Nevada District Office. The Southern Nevada District Office has a fire management plan (Fire Management Action Plan) that outlines the fire management practices within the project area. This plan, along with the Las Vegas RMP, was reviewed to identify potential impacts from the transmission line. Potential impacts from the ROW extension would be influenced by additional access road construction, the type of vegetation located within the project area, and the guidelines for fire suppression.

The ROW extension is located within Mojave desertscrub vegetation that is dominated by creosote bush and white bursage and is habitat for Desert Tortoises. Dry Lake Valley includes a *Tortoise Moderate Density Fire Management Unit (FMU)* that has an annual target goal for acres burned of 15 acres or less for 90 percent of the burn time. It also has a decadal goal of less than 500 acres affected, with no prescribed burns within the FMU. The *Las Vegas Valley Apex FMU* has an annual target burn goal of 1 acre or less for 90 percent of the time. The decadal goal is less than 100 acres affected, with only salt cedar or landscape debris piles as prescribed burns (Marfill 2006). The area includes sparse vegetation along the ROW extension; therefore, fuel for potential wildfires is minimal.

#### **3.7.2 Thirtymile Substation**

The Thirtymile Substation is located in White Pine County, on BLM land administered by the Ely BLM District. The Ely BLM District Office has an Ely Fire Management Plan (BLM 2004a) that incorporates the Ely District Managed Natural and Prescribed Fire Plan, which outlines fire management practices within the project area. This plan has been reviewed to identify potential impacts from the substation. Potential impacts from the substation would be influenced by improvements of an existing road, the type of vegetation located within the project area, and the guidelines for allowable acres burned or level of fire suppression within the project area.

The Ely PRMP identifies vegetation types within the district and the typical fire behavior associated with each type. The substation is located within a sagebrush-dominated vegetation community with scattered juniper, and has fuel loads that vary substantially, depending on site conditions and history. Typical fire behavior is characterized as quickly spreading where grasses are present. In juniper areas, events are either single tree, low intensity or wind driven, high intensity events. Where fuel continuity is absent, winds are needed to spread the fire. As

presented in the Ely PRMP, the substation is located on the edge of the Northern Benches and Northern Mountains FMUs, and is identified as a full suppression fire management area. The nearest wildland-urban interface community identified in the Ely PRMP is the Town of Ruth, located approximately 12 miles southwest of the substation.

For the purposes of this analysis, communities within 50 miles of the Thirtymile Substation project area have been identified and listed in Table 3-2. In the event of a fire that could affect one of these communities, the fire management staff of the BLM Ely District Office would evaluate current fire conditions and available resources to determine the tactics for fighting the fire.

<b>TABLE 3-2 WILDLAND-URBAN INTERFACE COMMUNITIES OF THIRTYMILE SUBSTATION</b>	
<b>Communities within 50 Miles of Thirtymile Substation</b>	<b>Approximate Distance to Substation (miles)</b>
Cherry Creek	36
Duckwater	46
Ely	19
Lund	40
McGill	20
Preston	35
Ruth	12

### **3.8 WILDERNESS AND WILD AND SCENIC RIVERS**

There are no Wilderness or Wild and Scenic River designations within the extension of the ROW to the Harry Allen Substation or the Thirtymile Substation site.

### **3.9 PRIME AND UNIQUE FARMLANDS**

There is no prime and unique farmland located within the extension of the ROW to the Harry Allen Substation or the Thirtymile Substation site.

### **3.10 EARTH RESOURCES**

This section describes the geology, soils, and water resources in the areas affected by the two proposed ROW modifications. Information presented in this section is based on studies conducted for the SWIP EIS, information obtained from various federal and state agencies, and a general in-field review.

### **3.10.1 Right-of-Way Extension to the Harry Allen Substation**

#### **3.10.1.1 Geology**

The geology of the Dry Lake Valley is generally comprised of three major geologic units: alluvium, Tertiary valley-fill deposits, and Paleozoic carbonate rocks. Alluvium occurs over the valley floor and consists of interbedded gravels, sand, silt, and clay.

#### **3.10.1.2 Soils**

Soils in the Dry Lake are typical desert soils (entisols and aridisols), which are susceptible to erosion by wind and water. The potential for erosion is generally slight, except where the soils have been disturbed or along the banks of washes.

#### **3.10.1.3 Water Resources**

Surface water within the Dry Lake Valley occurs as ephemeral flow in streambeds that drain the upland areas or in temporary ponding of runoff in the Dry Lake playa (the dry bottom of an undrained desert basin). Frequent floods of longer duration are to be expected within the Dry Lake Valley, causing ponding that may be present for periods of several months or more.

The ROW extension is located within the Garnet Valley (Dry Lake Valley) Groundwater Basin, in the Colorado River Basin Hydrographic Region. Groundwater under Dry Lake Valley is situated in the California Wash Flow System and occurs at depths ranging from 230 to 285 feet and is derived from two sources: recharge over the basin and subsurface inflow on the west from Hidden Valley. Water from this system ultimately reaches the Colorado River.

#### **Floodplains**

The northern 2.4 miles of the ROW extension are located within the Dry Lake playa 100-year floodplain, as designated by the Federal Emergency Management Agency (FEMA).

### **3.10.2 Thirtymile Substation**

#### **3.10.2.1 Geology**

The land surrounding the substation site is composed of alluvial deposits washed down from surrounding mountains and hills associated with the Egan Mountain Range.

#### **3.10.2.2 Soils**

The alluvial soils within the proximity of the substation site are prone to water and wind erosion. Soils in this area are of mixed type, generally composed of silty loamy soils mixed with clay and skeletal rock.

### **3.10.2.3 Water Resources**

Several small intermittent drainages descend from the foothills into this area, and an unnamed streambed is located along the southwest corner of the substation site. No riparian areas or wetlands are associated with the substation site. The substation site is located within the Central Hydrographic Region of Nevada in the Jakes Valley Groundwater Basin. Review of the USGS SIR 2007-5089 Appendix A, land elevation altitude to groundwater elevation (i.e., depth to water table) indicates ranges from 100 feet in the southern part of the basin to 350 feet in the center of the basin.

#### Floodplains

FEMA has not mapped floodplains within the substation site area, and field review did not result in the identification of any active floodplains.

## **3.11 AIR RESOURCES**

Air resources within the project area are regulated at the federal, state, and local levels as described below:

### **3.11.1 Federal**

The U. S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards for certain pollutants. The attainment status for the proposed project area was examined in consideration of Federal designations contained in 40 CFR §81.329. The hydrographic areas and the associated pollutants for which they are designated as attainment or nonattainment are described below.

### **3.11.2 State**

The Nevada Department of Environmental Protection's Bureau of Air Pollution Control (BAPC) administers the surface area disturbance permitting for White Pine County, Nevada. The BAPC issues a Class II Air Quality Operating Permit for Stand-Alone Surface Area Disturbance for any land disturbance that will equal or exceed five acres of total disturbance. If the total disturbance is equal to or exceeds 20 total acres then in addition to the preparation of the surface area disturbance (SAD) permit application, a dust control plan must also be prepared and submitted with the application (Air Sciences Inc. 2007).

### **3.11.3 Local**

The Clark County Department of Air Quality and Environmental Management administers the surface area disturbance permitting for Clark County through the issuance of a Dust Control Permit. A Dust Control Permit is required for projects that are greater than or equal to 0.25 acre; require trenches equal to or greater than 100 feet in length; or include the mechanical demolishing of any structure larger than or equal to 1,000 square feet (Air Sciences Inc. 2007).

The specific air quality regulations and requirements for the ROW extension and the Thirtymile Substation are described below.

#### **3.11.4 Right-of-Way Extension to the Harry Allen Substation**

The ROW extension is located within Clark County in Hydrographic Basin 216. This basin has a federal designation of nonattainment status for the 8-hour ozone standard. The Clark County Department of Air Quality and Environmental Management manages dust control and emissions within the extension area as described above (Air Sciences Inc. 2007).

#### **3.11.5 Thirtymile Substation**

Thirtymile Substation is located within White Pine County. The county has a federal designation of attainment status of all pollutants. The BAPC manages dust control within the county through a Class II Air Quality Operating Permit as described above (Air Sciences Inc. 2007).

### **3.12 HAZARDOUS MATERIALS**

#### **3.12.1 Right-of-Way Extension to the Harry Allen Substation**

The extension of the ROW to the Harry Allen Substation occurs on BLM land administered by the Southern Nevada District Office. The Las Vegas RMP requires that “all non-interior groups whose activities are on BLM-managed land and facilities will be held responsible for compliance with federal, state, interstate, and local waste management requirements. There are no known hazardous material sites in the ROW extension area.

#### **3.12.2 Thirtymile Substation**

The Thirtymile Substation would be located on BLM land administered by the Ely District Office. As previously stated, the BLM has an obligation to abide by the existing federal and state statutes and regulations regarding hazardous materials and to require that leasees and ROW grantees also abide by such regulations as part of the lease or grant terms and conditions. There are no known hazardous material sites in the substation area.

### **3.13 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

This section describes the social characteristics of the modification areas, including a discussion on socioeconomics and environmental justice. The current status and trends for population and economic factors have been considered for the extension of the ROW to the Harry Allen Substation and at the Thirtymile Substation, as described below.

### **3.13.1 Right-of-Way Extension to the Harry Allen Substation**

#### **3.13.1.1 Socioeconomics**

Population data reviewed were produced by the Bureau of the Census, U.S. Department of Commerce. The extension of the ROW is located in unpopulated/uninhabited land, in open desert scrub range. The nearest concentrated population to the extension of the ROW occurs approximately 17 miles southeast of the siting area.

Clark County's population according to the 2000 census was 1,375,765, and the county had a population percent change of 24.3 percent calculated between April 1, 2000 and July 1, 2005. The population estimate of Clark County for 2005 is 1,710,551. Employment in 2000 totaled 637,339, with 4.2 percent of the work force unemployed. The estimated household income for Clark County in 2004 was \$50,463.

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

All federal actions must identify and address, 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 criterion 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 project area of influence.

The extension is located in an unpopulated area with no occurrences of disproportionately high percentages of minority or low-income populations. The closest major population to the ROW extension occurs approximately 17 miles southeast of the siting area, and this extension does not cross the Moapa Indian Reservation.

### **3.13.2 Thirtymile Substation**

#### **3.13.2.1 Socioeconomics**

Population data reviewed were produced by the Bureau of the Census, U.S. Department of Commerce. The substation site is located in unpopulated/uninhabited, open range land. The nearest concentrated populations to the Thirtymile Substation occur in Ely (approximately 18 miles southeast) and in the Town of Ruth (approximately 12 miles southwest of the siting area), both of which have low-population densities.

White Pine County's population according to the 2000 census was 9,181, and the county had a population percent change of -2.0 percent calculated between April 1, 2000 and July 1, 2005. The population estimate of White Pine County for 2005 is 8,994. Employment in 2000 totaled 3,321, with 3.8 percent of the work force unemployed. The estimated household income for White Pine County in 1999 was \$44,616.

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

The project is associated with an unpopulated area with no occurrences of disproportionately high percentages of minority or low-income populations. The nearest populations to the Thirtymile Substation occur in Ely (approximately 18 miles southeast of the siting area) and in the Town of Ruth (approximately 12 miles southwest of the siting area).

## **3.14 AREAS OF CRITICAL ENVIRONMENTAL CONCERN**

### **3.14.1 Right-of-Way Extension to the Harry Allen Substation**

The extension of the ROW is not located within a designated BLM Area of Critical Environmental Concern (ACEC). The Coyote Springs ACEC is located approximately 2.5 miles to the northwest in the Arrow Canyon Range and Hidden Valley.

### **3.14.2 Thirtymile Substation**

The substation site is not located within a designated BLM ACEC.

## **SECTION 4.0**

# **ENVIRONMENTAL CONSEQUENCES FOR THE EXTENSION OF THE RIGHT-OF-WAY TO THE HARRY ALLEN SUBSTATION AND FOR THE THIRTYMILE SUBSTATION**

---

### **4.1 INTRODUCTION**

This section addresses the environmental consequences (effects) associated with the No Action Alternative, and the Proposed Action (i.e., amendments to the ROW Grant for the extension to the Harry Allen Substation and locating the Thirtymile Substation site). Environmental consequences associated with the LCCRDA realignment are addressed in Section 5. Mitigation measures to reduce potential effects to the environment are also described with respect to each affected resource presented in this section, where appropriate. Many of the mitigation measures presented in this EA are included in the original SWIP EIS, ROD, and ROW Grant(s). Additional mitigation measures have been proposed by Great Basin or requested or required by the BLM, USFWS and other resource agencies, in connection with the preparation of this EA and the BA, BO, and COM Plan. All of the mitigation measures from these various sources have been incorporated in the COM Plan, and compliance with that plan would be included as an enforceable stipulation in the amended ROW grant, just as it is in the original SWIP ROW grant.

### **4.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the SWIP ROW would not be amended as proposed, and the SWIP transmission line would not be constructed due to the inability to interconnect with the existing grid at the southern terminus and the difficulty of interconnecting with the Falcon-to-Gonder 345kV line, which bisects the currently approved substation site. The environmental resources associated with these specific locations would not be affected.

### **4.3 BIOLOGICAL RESOURCES**

Impacts to biological resources include consideration of the effects to vegetation, noxious weeds and invasive species, wildlife, and threatened and endangered species. Following is a discussion of impacts associated with the extension of the ROW to the Harry Allen Substation, and at the Thirtymile Substation, including proposed mitigation measures.

#### **4.3.1 Vegetation**

##### **4.3.1.1 Right-of-Way Extension to the Harry Allen Substation**

Approximately 36 acres of land will be disturbed during construction of the 3.8 mile transmission line extension in this area, including 25 acres of temporary disturbance at tower sites, spur roads, and tensioning and pulling sites, and permanent disturbance of approximately 11 acres (primarily associated with access roads). Vegetation that will be affected is primarily creosote bush and white bursage, with scattered individual Mojave yucca populations and several species of cacti. It is anticipated that salvageable cacti and yucca will be safely stored in temporary plant storage sites. Plant salvage from areas of permanent disturbance will only be

moved once, and replanted as described in the Restoration Plan contained in the COM Plan. In areas of temporary disturbance, salvaged plants will be replanted in temporary storage sites using the procedures identified in the Restoration Plan. Location of these plant storage sites shall be provided by the Construction Contractor on a site-specific basis. These areas shall provide ease of care and maintenance for the plant material as well as provide protection from construction activities. Additionally, as identified in the COM Plan, all activities pertaining to the disturbance of cacti and yucca will be coordinated with the authorized Forestry Officer at the BLM Southern Nevada District Office, including transportation permits, tags, etc. Areas of temporary disturbance will be restored in accordance with the COM Plan.

#### **4.3.1.2 Thirtymile Substation**

Construction of the Thirtymile Substation will affect approximately 77 acres. Construction of the transmission interconnections will affect an estimated 23 acres of land, including 19 acres of short-term disturbance and approximately 4 acres of permanent disturbance. The proposed site of the substation is strongly dominated by big sage, with additional occurrences of bitterbrush, black sage, and Utah juniper. Scattered Utah juniper will be selectively cleared during construction in areas of temporary disturbance and areas not permanently displaced by the substation, and long-term access will be restored in accordance with the COM Plan.

#### **4.3.2 Noxious Weeds and Invasive Species**

The introduction and spread of invasive and nonnative plant species (including noxious weeds) can contribute to the loss of rangeland productivity, increased soil erosion, reduced species and structural diversity, loss of wildlife habitat, and, in some instances, may pose a threat to human health and welfare. The Carlsen-Foley Act (Public Law 90-583) and the Federal Noxious Weed Act, Public Law 93-629 (7 U.S.C. 2801 et seq.: 88Stat. 2148), enacted January 3, 1975, established a federal program to control the spread of noxious weeds. Executive Order 13112 issued February 3, 1999 further defines the responsibilities of federal agencies to prevent the introduction of invasive species and provide for their control by minimizing the economic, ecological and human health impacts that invasive species cause. Executive Order 13112, Invasive Species, was authorized to prevent the introduction of invasive species, provide for their control, and to minimize the impacts caused by these species. NRS 555, Control of Insects, Pests, and Noxious Weeds, provides information regarding the designation and eradication of, and inspection for, noxious weeds within the State of Nevada (Ely PRMP/EIS).

##### **4.3.2.1 Right-of-Way Extension to the Harry Allen Substation**

Construction of the extension to the Harry Allen Substation will require the construction of new access roads, and result in disturbance at tower pad sites and pulling and tensioning areas. Berms created by access road construction can represent disturbed soils, which may provide suitable habitat for noxious weeds, including salt cedar and other invasive species in this area. Construction activity around tower pads and in pulling and tensioning areas, including movement of heavy equipment and light trucks may also disturb soil and provide weed habitat. Seeds of noxious weeds and invasive species also may be present in the seed bank and soil disturbance can have the effect of “releasing” these seeds, possibly leading to local infestations.

There also is the potential for weeds to be introduced into the project area by construction vehicles.

A comprehensive Noxious Weed Management Plan (part of the COM Plan) has been developed with the goal of keeping the ROW free of noxious weeds. Adherence to the specific weed control mitigation measures in this plan, including measures as identified in the BLM Las Vegas Noxious Weed Plan will minimize the introduction and spread of noxious weeds during and following construction. Early detection and rapid response have been important considerations in the development of this plan which includes (1) identification of problem areas, (2) preventative measures that will be implemented to prevent the spread of noxious weeds during construction, (3) treatment methods during construction and post-construction, and (4) reclamation and post-construction monitoring. Included in this plan are specific measures that address the eradication of existing noxious weed populations, measures to minimize the potential for the spread of noxious weeds through off-site power washing of equipment/vehicles and on-site cleaning of equipment/vehicles with compressed air, and the use of weed free materials during restoration (e.g., hay or straw).

In addition, as a part of the ROW Preparation, Rehabilitation, and Restoration Plan (included in the COM Plan), reseeding practices and seeding mixtures to be used in areas of temporary disturbance will be coordinated with a BLM specialist (e.g., botanist, range management specialist, or soil scientist designated by the BLM Authorized Officer) in order to determine the source type and quantity of seed mixtures and seeding locations. In this regard, mixtures that discourage the establishment of invasive and noxious weeds will be considered, as appropriate.

#### **4.3.2.2 Thirtymile Substation**

Acreages of land affected by construction of the Thirtymile Substation are discussed in Section 4.3.1.2. Most of the land will be permanently committed to substation structures and any other cleared ground within the substation fence will be covered with gravel. While no noxious weeds were found at the proposed substation site during weed surveys, exposed, disturbed soils associated with the substation and transmission interconnections may provide suitable habitat for noxious weeds. Construction activity within, and around, the substation site, including movement of heavy equipment and light trucks may disturb soil and provide weed habitat. Seeds of noxious weeds may be present in the seed bank and soil disturbance can have the effect of “releasing” these seeds possibly leading to local infestations. There also is the potential for noxious and invasive weeds to be introduced into the project area by construction vehicles.

As previously described for the extension to Harry Allen, a comprehensive Noxious Weed Management Plan and ROW Preparation, Rehabilitation, and Restoration Plan (part of the COM Plan) have been developed with the goal of keeping the area of affect weed free. Adherence to the specific weed control mitigation measures in this plan, including measures as identified in the BLM Las Vegas Noxious Weed Plan and restoration practices will minimize the introduction and spread of noxious and invasive weeds during, and following, construction of the Thirtymile Substation.

### **4.3.3 Wildlife**

#### **4.3.3.1 Right-of-Way Extension to the Harry Allen Substation**

There will be some mortality of small vertebrate species and some degradation of general wildlife habitat quality from the construction of the transmission line. Ground-disturbing activities, such as vehicle movement along access roads, and at tower locations, laydown areas, and pulling and tensioning sites, will alter the quality of wildlife habitat in the short-term. Some individuals of small, fossorial species, such as Pocket Mice and Kangaroo Rats, will likely be crushed in their burrows by heavy equipment. Similarly, snakes, lizards, and other diurnal forms may be hit by vehicles on access roads or killed by road building equipment. Potential impacts from the operation of the transmission line may include an increase in hunting perches for avian predators. Mitigation measures, including limiting access to areas previously determined and clearly flagged, controlling speed limits on the ROW, and restoration practices, will assist in reducing impacts to wildlife.

#### **4.3.3.2 Thirtymile Substation**

The clearing of the Thirtymile Substation site during construction will result in some mortality of small vertebrate species and the removal of any wildlife habitat on the site. Wildlife occupying the site prior to construction will be displaced, since the existing habitat will be replaced with the substation facilities. Within the transmission line interconnection ROWs to the SWIP – Southern Portion and Falcon-to-Gonder transmission lines, ground-disturbing activities, such as vehicle movement along access roads, and at tower locations and laydown areas, also may result in some mortality and degradation of general wildlife habitat quality. Similar to the ROW extension at the Harry Allen Substation, individuals of small, fossorial species will likely be crushed in their burrows by heavy equipment, and snakes, lizards and other diurnal forms may be hit by vehicles on access roads or killed by construction equipment. Potential impacts from the operation of the substation and transmission line interconnections may include an increase in hunting perches for avian predators. Mitigation measures, including the use of improved existing access into the substation site, clearly flagging areas of disturbance, and restoration practices, will assist in reducing impacts to wildlife.

### **4.3.4 Migratory Bird Treaty Act**

#### **4.3.4.1 Right-of-Way Extension to the Harry Allen Substation**

Construction of the extension to Harry Allen Substation could potentially result in the loss of bird nests, eggs, or young, and there is a small area of bird habitat located immediately east of the transmission line in the area of the Dry Lake Playa. Adult birds are normally able to avoid construction equipment, however, eggs or young in nests cannot. As stipulated in the COM Plan, mitigation measures to address compliance with the MBTA will include the presence of a biological monitor during the migratory bird-nesting season to minimize the risk that all active nests along the line will not be disturbed. During construction, active nests that could be affected will be identified, and a buffer zone around each nest will be flagged to keep personnel and equipment away from sensitive areas until nests become dormant.

#### **4.3.4.2 Thirtymile Substation**

Adult birds are normally able to avoid construction equipment, however, eggs or young in nests cannot. As stipulated in the COM Plan, mitigation measures, including the presence of a biological monitor during the migratory bird-nesting season, will reduce these impacts. During construction, active nests that could be affected will be identified, and a buffer zone around each nest will be flagged to keep personnel and equipment away from sensitive areas.

#### **4.3.5 Threatened and Endangered Species/Special Status Species**

##### **4.3.5.1 Right-of-Way Extension to the Harry Allen Substation**

The Mojave Desert Tortoise is the only federally listed species that is present along the extension of the ROW to the Harry Allen Substation. Tortoise surveys that were conducted in the area during early Summer 2006 revealed a female tortoise carcass and an apparently active burrow. The ROW extension area does not contain designated Critical Habitat for the tortoise.

During construction, tortoises could be crushed in their burrows by heavy equipment. They could also be run over on access roads, especially small juveniles and hatchlings, which are very difficult to see even from a slow-moving vehicle. Mitigation and compensation measures, including limiting access to pre-determined and clearly flagged areas, controlling the speed of vehicles on the ROW, and the presence of tortoise biologists, will help to reduce impacts. While the ROW extension is not located in designated Critical Habitat, tortoise biologists will be present for all construction activities in this area as specified in the BA, BO, and COM Plan. It will be their responsibility to move any tortoises out of the way, to remove tortoises from burrows in construction areas, and to educate all construction personnel regarding the protocol for working in Mojave Desert Tortoise habitat areas.

In addition to the federally listed Mojave Desert Tortoise, there is a limited possibility of impact to the three-corner milkvetch (*Astragalus geyeri* var. *triquetris*), which could potentially be present along the Harry Allen extension. Rare plant surveys conducted along the transmission line route in this area during Spring 2006 resulted in the detection of no sensitive species, with the exception of cacti and yuccas (see Section 4.3.1.1). However, these surveys were conducted during a very dry spring, and plants like the three-corner milkvetch, an annual, did not appear. Prior to ground-disturbing activities, any additional or updated surveys deemed necessary by the BLM, including rare plant surveys would be conducted prior to the initiation of the potentially harmful activities in the area of concern. In the event of a new discovery they will flag off the area and establish a construction restriction buffer.

##### **4.3.5.2 Thirtymile Substation**

There are no federally listed threatened or endangered species likely to be affected by construction at the Thirtymile Substation, and rare plant surveys during Spring 2006 did not reveal the presence of any sensitive plants that would be affected by the proposed substation.

#### **4.4 CULTURAL RESOURCES**

##### **4.4.1 Right-of-Way Extension to the Harry Allen Substation**

No cultural resource sites were identified within the APE of the ROW extension, therefore impacts are not anticipated.

##### **4.4.2 Thirtymile Substation**

Of the 18 cultural resources identified within the APE (see Table 3-1), four are eligible for listing on the NRHP. Once the engineering plans are finalized, a determination as to which sites will be directly affected by the proposed project will be made. To mitigate both direct and indirect impacts to these cultural resources, a Historic Properties Treatment Plan (HPTP) is being developed and will be implemented prior to construction of the substation. These measures will minimize impacts and ensure compliance with Section 106 of the National Historic Preservation Act (NHPA).

#### **4.5 PALEONTOLOGICAL RESOURCES**

##### **4.5.1 Right-of-Way Extension to the Harry Allen Substation**

Minimal impacts are expected to any paleontological resources from the construction of the proposed project due to the low paleontological sensitivity within the ROW extension area.

##### **4.5.2 Thirtymile Substation**

A paleontological resources treatment plan has been prepared for the proposed project (San Bernardino County Museum 2006) and includes mitigation measures that would address potential impacts to paleontological specimens identified in the intensive pedestrian field inspection which would be conducted prior to construction of the proposed project. These measures include monitoring for paleontological specimens during construction and implementation of appropriate measures (if resources are identified) in order to minimize impacts. The treatment plan is included in the COM Plan for the SWIP – Southern Portion.

#### **4.6 LAND USE, RECREATION, AND ACCESS**

This section evaluates the impacts of the two ROW modifications on existing and planned land use, recreational activities, and access. Following is a description of potential land use impacts that could result from the construction and operation of the proposed facilities.

##### **4.6.1 Right-of-Way Extension to the Harry Allen Substation**

The ROW extension to the Harry Allen Substation would be constructed on vacant BLM land and does not conflict with any existing or planned facilities. The extension would be compatible with the Northeast Clark County Land Use Plan, which designates this area as *Heavy Industrial*

and *Open Land*. The BLM bird habitat adjacent to the proposed transmission line would be avoided, and mitigation measures identified to address migratory birds (see Section 4.3.4.1) will reduce any proximity impacts to this small management area. There are no active recreation areas in the immediate vicinity, and additional long-term access will generally be limited to the transmission ROW.

#### **4.6.2 Thirtymile Substation**

The Thirtymile Substation and transmission line interconnections would be constructed on vacant BLM land and would permanently displace approximately 81 acres of the 178,716 acre Thirty Mile Spring BLM grazing allotment. While located within the Loneliest Mountain SRMA, there are no existing or planned recreation sites within close proximity to the Thirtymile Substation. Impacts to existing and planned land use and public recreation opportunities from the construction and operation of the Thirtymile Substation would be limited to temporary disruption to traffic and access along Jakes Wash Road and U.S. Highway 50 during construction (see Figure 4). Mitigation measures identified in the COM Plan regarding the use of signage that notifies the public of the timing for construction activities will help reduce any potential conflicts with users, and additional practices outlined during construction and restoration will help minimize damages to resources in this area and provide for public safety.

### **4.7 VISUAL RESOURCES**

The visual assessment focuses on characterizing the impacts resulting from the amount of visual contrast or landscape change that would occur from the introduction of new facilities, as perceived by sensitive viewers, and the consistency of these changes with BLM VRM objectives. The methods used to perform this assessment are consistent with the BLM VRM Handbook-8410.

#### **4.7.1 Right-of-Way Extension to the Harry Allen Substation**

The transmission line extension to the Harry Allen Substation in Dry Lake Valley is within a visual setting that has been significantly modified due to numerous existing transmission lines and substation facilities. Views of this area from Interstate 15 and U.S. Highway 93 range from approximately 1.5 miles and beyond, and the SWIP transmission line will be seen primarily in a back-dropped condition, most often in context with these other facilities. As a result, the new transmission line will cause minimal contrast. Key mitigation measures include the use of dulled steel lattice towers, and non-specular conductors. Based on the contrast analysis, minimal change is expected from the addition of the new transmission line. This change would be consistent with the VRM Class III objective for this area, which requires that the character of the area be partially retained.

#### **4.7.2 Thirtymile Substation**

The Thirtymile Substation site and transmission line interconnections are located in proximity to the Falcon-to-Gonder 345kV transmission line and the Gonder-to-Machacek 230kV transmission line. Impacts to sensitive viewers are expected to be minimal. Views from U.S.

Route 50 will be primarily from eastbound traffic, at distances ranging from ½-mile away and farther, in a setting where the facilities should be partially to fully screened by intervening terrain, back-dropped by the Egan Mountains, and viewed in context with the existing 345kV and 230kV lines. Key mitigation measures include the use of non-specular conductors; dulled metal finishes on transmission towers, equipment, and facilities associated with the substation site; and the selective clearing of vegetation associated with temporary use areas, where possible. The substation will be located generally within a BLM Class III area and is immediately adjacent to, and overlapping with, two designated utility corridors that are considered VRM Class IV in the Ely PRMP. The substation will be in conformance with the VRM objectives requiring partial retention of the character of this area while allowing major modification associated with the corridors.

## **4.8 WILDFIRE MANAGEMENT**

This section of the EA evaluates potential effects of the proposed project to wildfire management. Impacts were assessed based on construction activities, including additional access road construction, clearing of vegetation, the type of vegetation located within the affected areas, and the Southern Nevada and Ely BLM District Office guidelines for fire suppression.

### **4.8.1 Right-of-Way Extension to the Harry Allen Substation**

The majority of the proposed ROW crosses vacant land with sparse vegetation; therefore, a minimal amount of vegetation removal will be required. A new access road would be constructed primarily within the transmission line ROW. While little fuel exists within the area, increases in traffic during construction activities could potentially increase the chance of a human-caused, accidental fire. Long-term or operational impacts to fire management from improved access to the existing road could include human-caused, accidental ignitions from periodic ground maintenance and inspections of the transmission line, or recreational users along the access road. The improved access road could have the potential for use as fire-break lines and help minimize the need to build new breaks in the event of a fire (Ely PRMP, pg. 3.20-8). Mitigation measures and protocols identified in the COM Plan, including fire prevention measures (e.g., restrictions on smoking, no open fires, restrictions on welding and use of spark arresting devices), will reduce the potential for fires during construction. In addition, construction personnel will be trained in fire suppression, and selective vehicles will be equipped with fire suppression tools.

### **4.8.2 Thirtymile Substation**

An existing dirt road will be improved for major access to the area for construction of the Thirtymile Substation and transmission line interconnections. Approximately 77 acres of vegetation will be cleared for the footprint of the substation and approximately 4 acres of additional ground will be permanently disturbed during construction of the substation and transmission line interconnections to the SWIP – Southern Portion and the Falcon-to-Gonder transmission lines. Short-term construction impacts to fire management include an increase in traffic during the construction of the substation, and the use of equipment, which could potentially increase the frequency of human-caused accidental ignitions along the access road

and near the siting area. Long-term or operational impacts and mitigation measures are similar to those previously described for the extension of the ROW to the Harry Allen Substation.

## **4.9 EARTH RESOURCES**

This section evaluates potential impacts from the construction and operation of the proposed extension of the ROW to the Harry Allen Substation and at the Thirtymile Substation to geology, soils, and water resources.

### **4.9.1 Right-of-Way Extension to the Harry Allen Substation**

#### **4.9.1.1 Geology**

No unique or special geological features were identified and no impacts are anticipated.

#### **4.9.1.2 Soils**

Soil resources in the area of the ROW to the Harry Allen Substation that may be impacted by the construction of the transmission line are associated primarily with the Dry Lake Playa. While the proposed transmission line crosses only a small portion of the western edge of this playa, the soils in the general vicinity tend to be sandy/silty in composition. Impacts to soils will occur during construction at tower sites, pulling and tensioning sites, and in access development. Curtailing construction during periods of rain, and the use of erosion control mitigation measures, including limiting the areas of disturbance (as possible), and restoration practices described in the COM Plan, would be implemented to minimize the potential for short and long-term impacts to soils.

#### **4.9.1.3 Water Resources**

Impacts to ephemeral drainages and washes in this area are expected to be minimal due to the selective location of towers (spanning of drainages), limiting the area of disturbance, and erosion control measures presented in the COM Plan, and effects to groundwater are not anticipated.

#### **Floodplains**

Construction and operation of the transmission line in this area will not affect the floodplain. In areas along approximately 2.4 miles of the ROW extension which fall within the 100-year floodplain, transmission structures will be designed to withstand flooding events, and span drainages.

## **4.9.2 Thirtymile Substation**

### **4.9.2.1 Geology**

No unique or special geological features were identified and no impacts are anticipated.

### **4.9.2.2 Soils**

No unique or special soil resources have been identified on the Thirtymile Substation site or the transmission line interconnections. During construction there could be potential erosion from soil runoff into nearby small ephemeral drainages; however, erosion control mitigation measures described in the COM Plan would be implemented as part of the construction, in order to minimize the potential for short-term impacts. The final design and grading of the substation site will be completed in a manner that insures that surface drainage from the substation site will not result in additional erosion or degradation to down-slope areas, and groundwater should remain unaffected.

### **4.9.2.3 Water Resources**

The Thirtymile Substation will be constructed to comply with all local and federal requirements for safety and protection of groundwater. Features such as erosion control and spill prevention mechanisms (e.g., secondary containment basins) will help to prevent or minimize impacts to groundwater. The streambed located along the southwest corner of the substation site will be avoided.

### **Floodplains**

As there are no identified floodplains within the immediate vicinity of the substation site, construction and operation of the substation in this area will not have an affect on any floodplains.

## **4.10 AIR RESOURCES**

Impacts to air quality would primarily be short-term as a result of the construction of the proposed facilities, and operation and maintenance activities associated with the extension of the transmission line to the Harry Allen Substation, and at the Thirtymile Substation site are expected to be minimal. The construction of the facilities would produce two types of air pollution: fugitive dust from soil disturbance and exhaust emissions from construction vehicles and equipment.

### **4.10.1 Right-of-Way Extension to the Harry Allen Substation**

A construction plan, including a schedule and the number and type of vehicles to be used during construction of the transmission line, is included in the COM Plan. Emissions from construction vehicles are not expected to exceed the air quality standards. Construction/maintenance

activities will comply with the policies identified by Clark County (e.g., Dust Control Permit). Dust and emission-control mitigation measures (including watering roads), mitigation measures limiting disturbance, and restoration and monitoring practices described in the COM Plan will further assist in reducing impacts to air quality along this portion of the alignment.

#### **4.10.2 Thirtymile Substation**

Construction/maintenance activities for the Thirtymile Substation and the transmission line interconnections will comply with the policies identified by the BLM and the BAPC. Similar to the ROW extension, dust and emission-control mitigation measures, mitigation limiting disturbance, and restoration and monitoring practices described in the COM Plan will further assist in reducing impacts to air quality during construction at the substation site.

### **4.11 HAZARDOUS MATERIALS**

This section evaluates the potential for impacts related to hazardous materials associated with the construction of proposed facilities, including the transportation of hazardous materials, and vehicle leaks or spills during construction.

#### **4.11.1 Right-of-Way Extension to the Harry Allen Substation**

No hazardous materials would be stored along the ROW extension to the Harry Allen Substation, and therefore the potential for impacts from hazardous materials exists primarily during construction. A spill prevention plan and reference to hazardous material regulations are documented in the COM Plan. During construction of the transmission line, mitigation measures outlined in the COM Plan would be followed to ensure that vehicles will be kept in good working condition and impacts from hazardous materials are minimized.

#### **4.11.2 Thirtymile Substation**

While the transformers at the substation will contain oil, it is anticipated that no other hazardous material will be stored on the substation site, and therefore the potential for impacts from hazardous materials exists primarily during construction. The containment would be per federal or local requirements and if applicable the containment would be designed to the Institute of Electrical Electronics Engineers standards (i.e., concrete lined berms around transformer). As described for the extension to the Harry Allen Substation, a spill prevention plan and reference to hazardous material regulations are documented in the COM Plan and similar mitigation measures will be implemented during construction at the substation site.

### **4.12 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

This section evaluates the potential impacts to socioeconomics and environmental justice from the construction and operation of the proposed project. Both the extension of the ROW to the Harry Allen Substation and the Thirtymile Substation are located in unpopulated areas and no occurrences of disproportionately high percentages of minority or low-income populations exist.

Therefore, no environmental justice impacts would occur from the construction or operation of the transmission line or Thirtymile Substation.

#### **4.12.1 Right-of-Way Extension to the Harry Allen Substation**

During construction of the ROW extension, short-term beneficial impacts, such as increased revenue, could result from construction workers' use of local restaurants and hotels in the North Las Vegas area. The transmission line extension to the Harry Allen Substation will be an unmanned facility, located in an undeveloped area of Clark County, and as such, operation of the transmission line will have minimal effects on Clark County employment, income, or social services.

#### **4.12.2 Thirtymile Substation**

During construction of the substation, short-term beneficial impacts, such as increased revenue, could result from construction workers' use of local restaurants and hotels in Ely. The Thirtymile Substation will be an unmanned facility, located in an undeveloped rural area of White Pine County, and as such, operation of the substation will have minimal effects on White Pine County or Ely employment, income, or social services.

### **4.13 AREAS OF CRITICAL ENVIRONMENTAL CONCERN**

#### **4.13.1 Right-of-Way Extension to the Harry Allen Substation**

No ACECs were identified within the BLM Southern Nevada District that would be affected by the extension of the ROW.

#### **4.13.2 Thirtymile Substation**

No ACECs were identified within the BLM Ely District that would be affected by the proposed substation.

## SECTION 5.0 LEGISLATIVE MODIFICATIONS FOR COYOTE SPRINGS REALIGNMENT

---

### 5.1 INTRODUCTION

This section of the EA considers impacts and mitigation associated with the SWIP ROW realignment in the Coyote Springs area that was mandated by Congress in the 2004 LCCRDA legislation.

### 5.2 AFFECTED ENVIRONMENT

Information on the environment potentially affected by the construction, operation, and maintenance of facilities associated with the realigned portion of the SWIP ROW through the Coyote Spring Valley is discussed in this section. This discussion is organized according to specific resource topics, and is followed by Section 5.3, Environmental Consequences.

#### 5.2.1 Biological Resources

The biological resources along the Coyote Springs Realignment are described below. Information presented in this section was gathered from the previous SWIP EIS, and updated based on current BLM RMPs, PRMPs, ongoing discussions with federal and state agencies, field review and surveys, and from information developed from the BA and the BO that has been prepared for the SWIP – Southern Portion.

##### 5.2.1.1 Vegetation

The vegetation along the entire length of the realignment consists of low shrubs and no trees. The dominant plant association is creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Other shrubby species include bladder sage (*Salazaria mexicana*), indigo bush (*Psoralea fremontii*), range ratany (*Krameria parvifolia*), Nevada ephedra (*Ephedra nevadensis*), and winterfat (*Krascheninnikovia lanata*). Also present, but less common are spiny menodora (*Menodora spinescens*) and goldenhead (*Acamptopappus shockleyi*). The most common yucca along the realignment is the Mojave yucca (*Yucca schidigera*), with occasional individuals of Joshua tree (*Y. brevifolia*) and banana yucca (*Y. baccata*). Cacti include beavertail cactus (*Opuntia basilaris*), buckhorn cholla (*O. acanthocarpa*), silver cholla (*O. echinocarpa*), barrel cactus (*Ferocactus cylindraceus*), and Engelmann hedgehog (*Echinocereus engelmannii*). This area also supports a diverse annual flora that appears in the spring, following wet winters.

All plants of the cactus family cactaceae and all plants of the genus yucca are protected under NRS 527.060-.120, which prohibits destruction without “written permission from the legal owner...specifying locality by legal description and number of plants to be removed or possessed” (NRS 527.100).

### 5.2.1.2 Noxious Weeds and Invasive Species

Noxious weeds are invasive, non-native species that tend to spread rapidly and often displace native plant species or bring about changes in species composition, community structure, and ecological function. Noxious weeds may compete with native species for critical resources including water, nutrients, and space. Such competition may alter the dynamics of the native plant community, potentially leading to a monoculture of the noxious species. Noxious weeds also may alter soil chemistry in such a manner as to preclude germination or seedling establishment by native species. Moreover, noxious weeds tend to thrive in disturbed areas, such as at electrical transmission tower sites, laydown areas, storage yards, and pulling and tensioning sites. Noxious weeds are formerly listed and managed by the Nevada Department of Agriculture.

The noxious weed inventory for the SWIP – Southern Portion included (1) the identification of weed species that are designated noxious, as defined by the Nevada Department of Agriculture, and which have the potential to occur within the area affected by the project and (2) the gathering of information to identify specific noxious weed populations in the project area, including pre-construction surveys along the project ROW. These surveys were conducted from April through June 2006 by Tri County Weed, as recommended by BLM, Ely District Office.

A complete listing of the noxious weeds identified through these surveys is presented in Table 6-2 (Section 6.5) of this EA. One occurrence of Sahara mustard was documented in the area of the Coyote Springs realignment. In addition, information on noxious weed occurrences within the ROW area, including the location and extent of infestations, was also gathered from the BLM, Ely District in the form of a GIS data layer. This inventory did not indicate any additional noxious weed species located within the project corridor, however, it is likely that populations of other noxious species that were not found within the survey area may occur in the vicinity, and these species could become established at disturbed areas on the ROW following construction.

Red brome (*Bromus rubens*), cheatgrass (*Bromus tectorum*), and Chilean chess (*Bromus trini*) have been identified by the BLM as invasive species of concern. In conjunction with the noxious weed and rare plant surveys conducted for the SWIP – Southern Portion, the identification of invasive species was generally noted, where evident. Based on the arid conditions that were encountered during these surveys, many of the anticipated invasive species may not have been identified.

### 5.2.1.3 Wildlife

Wildlife within the realignment area includes mammals, birds, amphibians, and reptiles that are characteristic of warm, arid, creosote bush-dominated landscapes. Small, nocturnal rodent and bat species are most common in the project area. Large mammals such as the Mule Deer (*Odocoileus hemionus*) and Mountain Lion (*Puma concolor*) are unlikely to be regular residents of the area. Other small mammals that may be locally abundant within the Coyote Springs Realignment area include White-tailed Antelope Squirrel (*Ammospermophilus leucurus*), and Jackrabbits (*Lepus californicus*). Small rodent populations are probably dominated by Heteromyids, a group that is highly adapted to living in hot, dry climates. Kangaroo Rats likely to be present include Merriam's Kangaroo Rat (*Dipodomys merriami*) and Desert Kangaroo Rat (*D. deserti*). Pocket Mice likely to be present include the Desert Pocket Mouse (*Chaetodipus*

*penicillatus*), Little Pocket Mouse (*Perognathus longimembris*), and Longtail Pocket Mouse (*Chaetodipus formosus*).

Other small rodents likely to be present include the Cactus Mouse (*Peromyscus eremicus*), Western Harvest Mouse (*Reithrodontomys megalotis*), and Desert Woodrat (*Neotoma lepida*). Several species of bats of the genus *Myotis* probably occupy the area as permanent residents, summer visitors, winter visitors, or transients. Other bats present include the Pallid Bat (*Antrozous pallidus*), Big Brown Bat (*Eptesicus fuscus*), Western Pipistrelle (*Pipistrellus hesperus*), and Western Big-eared Bat (*Corynorhinus townsendii*).

Creosote bush-dominated landscapes are typically depauperate in bird species compared with most other vegetative communities. Birds likely to be found and/or nest within the realignment area include, the Gambel's Quail (*Callipepla gambelii*), Red-tailed Hawk (*Buteo jamaicensis*), Mourning Dove (*Zenaida macroura*), Greater Roadrunner (*Geococcyx californianus*), Lesser Nighthawk (*Chordeiles acutipennis*), Ash-throated Flycatcher (*Myiarchus cinerascens*), and Black-throated Sparrow (*Amphispiza bilineata*).

The Great Basin Spadefoot (*Spea intermontanus*) is the only amphibian likely to be found in the realignment area and, then, only after periods of heavy summer rainfall. Approximately 17 species of lizards could potentially occur in this area, depending on substrates available. For example, in rugged, rocky areas the Common Chuckwalla (*Sauromalus ater*) could occur. Areas with relatively fine, sandy soil may be frequented by the Desert Iguana (*Dipsosaurus dorsalis*), while the Banded Gila Monster (*Heloderma suspectum cinctum*) shares similar habitats to those of the Mojave Desert Tortoise. Habitat generalists such as the Side-blotched Lizard (*Uta stansburiana*) and Western Whiptail (*Cnemidophorus tigris*) are likely to be found on a variety of substrates.

Snake species within the realignment area could total approximately 15, depending on available substrates. The Western Shovel-nosed Snake (*Chionactis occipitalis*), for example, is only likely to be present in areas with fine, sandy soil while the Lyre Snake (*Trimorphodon biscutatus*) and Speckled Rattlesnake (*Crotalus mitchellii*) are most likely to be found on rocky slopes. Other common species could include, but are not limited to, the Gopher Snake (*Pituophis catenifer*), Coachwhip (*Masticophis flagellum*), Glossy Snake (*Arizona elegans*), Night Snake (*Hypsiglena torquata*), and Mojave Rattlesnake (*Crotalus scutulatus*).

#### **5.2.1.4 Migratory Birds**

The MBTA is the domestic law that affirms and implements the United States' commitment to the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requires harvest to be limited to levels that prevent overuse. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, of any migratory bird, its eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11).

Virtually all of the bird species in the realignment area previously described are protected by the Act.

### 5.2.1.5 Wild Horses and Burros

Since 1971, the BLM has been managing free-roaming horses and burros on public lands in accordance with the Wild Free-Roaming Horse and Burro Act. This Act mandates that wild and free-roaming horses and burros be protected from unauthorized capture, branding, harassment, or death, and furthermore that these animals be considered as an integral part of the natural systems based on their distribution.

In order to support the protection of these animals, the BLM has established Herd Management Areas (HMAs). The desired objective is to manage for sustainable population levels in areas of suitable habitat, while preserving a multiple use relationship with all other resources.

No HMAs have been established by the Ely or Southern Nevada District Offices that are affected by the Coyote Springs Realignment.

### 5.2.1.6 Threatened and Endangered Species/Special Status Species

The Mojave Desert Tortoise is the only federally listed wildlife species known to be present in the realignment area. Tortoise surveys that were conducted in the area during early Summer 2006, revealed the presence of tortoises along the realignment. Approximately 16 miles of the realignment cross USFWS designated Critical Habitat. Rare plant surveys conducted in the project area during the spring of 2006 did not reveal the presence of any state or federally listed plant species, although the year was exceptionally dry, and some annuals, such as the three-corner milkvetch (*Astragalus geyeri* var. *triquetris*), only occur after heavy rainfall. This species has not previously been recorded along the realignment but could potentially be present after a wet season.

### 5.2.2 Cultural Resources

Cultural Resource surveys conducted for the Coyote Springs Realignment included the 200 foot wide ROW and proposed access roads (Crews et al., 2007). For the purposes of this cultural study, the transmission line ROW and the associated access roads are considered the APE. These studies identified a total of 58 sites that are located within the APE of the realignment. Of these, 12 are recommended as eligible for listing on the NRHP and for 4 the eligibility for NRHP listing is unknown at this time, and further investigations are necessary to determine their eligibility. These sites are summarized in Table 5-1.

	<b>Smithsonian Number</b>	<b>7.5-minute Quad</b>	<b>Site Type</b>	<b>NRHP Eligibility Recommendation</b>
1	26LN5019	Wildcat Wash NW	lithic scatter with feature	not eligible
2	26LN5020	Wildcat Wash NW	lithic scatter with features	eligible
3	26LN5021	Wildcat Wash NW	artifact scatter with features	eligible
4	26LN5022	Wildcat Wash NW	lithic scatter with feature	unknown, more information needed
5	26LN5023	Wildcat Wash NW	lithic scatter with feature	eligible
6	26LN5024	Wildcat Wash NW	lithic scatter with tools	not eligible

**TABLE 5-1  
CULTURAL RESOURCE SITES IN THE COYOTE SPRINGS AREA**

	<b>Smithsonian Number</b>	<b>7.5-minute Quad</b>	<b>Site Type</b>	<b>NRHP Eligibility Recommendation</b>
7	26LN5025	Wildcat Wash NW	lithic scatter with features	unknown, more information needed
8	26LN5026	Wildcat Wash NW	lithic scatter with tool/ historic trash scatter	not eligible
9	26LN5027	Wildcat Wash NW	artifact scatter	eligible
10	26LN5028	Wildcat Wash NW	lithic scatter	not eligible
11	26LN5029	Wildcat Wash NW	artifact scatter with features and historic trash	eligible
12	26LN5030	Wildcat Wash NW	lithic scatter with tools	not eligible
13	26LN5032	Lower Pahranaagat Lake SE	lithic scatter with tools	not eligible
14	26LN5036	Lower Pahranaagat Lake SE	lithic scatter	not eligible
15	26LN5037	Lower Pahranaagat Lake SE	lithic scatter	not eligible
16	26LN5038	Lower Pahranaagat Lake SE	lithic scatter	not eligible
17	26LN5039	Lower Pahranaagat Lake SE	lithic scatter	not eligible
18	26LN5040	Lower Pahranaagat Lake SE	lithic scatter	not eligible
19	26LN5041	Lower Pahranaagat Lake SE	lithic scatter	not eligible
20	26LN5042	Lower Pahranaagat Lake SE	small artifact scatter with rock alignments	unknown, more information needed
21	26LN5043	Lower Pahranaagat Lake SE	lithic scatter with tools	not eligible
22	26LN5044	Lower Pahranaagat Lake SE	lithic scatter	not eligible
23	26LN5045	Lower Pahranaagat Lake SE	lithic scatter with tool	not eligible
24	26LN5046	Lower Pahranaagat Lake SE	lithic scatter	not eligible
25	26LN5047	Lower Pahranaagat Lake SE	lithic scatter	not eligible
26	26LN5048	Lower Pahranaagat Lake SE	lithic scatter	not eligible
27	26LN5049	Lower Pahranaagat Lake SE	lithic scatter	not eligible
28	26LN5050	Delamar 3 SW	lithic scatter with rock alignments	eligible
29	26LN5051	Delamar 3 SW	lithic scatter	not eligible
30	26LN5052	Delamar 3 SW	lithic scatter	not eligible
31	26LN5053	Delamar 3 SW	lithic scatter	not eligible
32	26LN5054	Delamar 3 SW	lithic scatter	not eligible
33	26LN5055	Delamar 3 SW	lithic scatter	not eligible
34	26LN5056	Delamar 3 SW	lithic scatter	not eligible
35	26LN5057	Lower Pahranaagat Lake SW	lithic scatter	not eligible
36	26LN5058	Delamar 3 SW	lithic scatter	not eligible
37	26LN5075	Wildcat Wash NW	artifact scatter with features	eligible
38	26LN5076	Wildcat Wash NW	lithic scatter with features	eligible
39	26LN5077	Wildcat Wash NW	lithic scatter with features	eligible
40	26LN5078	Wildcat Wash NW	lithic scatter with tools	eligible
41	26LN5079	Wildcat Wash NW	lithic scatter with tools	not eligible
42	26LN5080	Wildcat Wash NW	artifact scatter with features	eligible
43	26LN5081	Wildcat Wash NW	artifact scatter with feature	eligible
44	26LN5082	Delamar 3 SW	lithic scatter with tools	not eligible
45	26LN5083	Delamar 3 SW	lithic scatter with tools	not eligible
46	26LN5084	Delamar 3 SW	lithic scatter with tool	not eligible
47	26LN5085	Delamar 3 SW	lithic scatter with historic/modern rock cairn of unknown function	not eligible
48	26LN5090	Wildcat Wash NW	lithic scatter	not eligible
49	26LN5091	Wildcat Wash NW	lithic scatter	not eligible
50	26LN5092	Wildcat Wash NW	lithic scatter	not eligible
51	26LN5347	Wildcat Wash NW	lithic scatter	not eligible

**TABLE 5-1  
CULTURAL RESOURCE SITES IN THE COYOTE SPRINGS AREA**

	<b>Smithsonian Number</b>	<b>7.5-minute Quad</b>	<b>Site Type</b>	<b>NRHP Eligibility Recommendation</b>
52	26LN5348	Wildcat Wash NW	lithic scatter	not eligible
53	26LN5349	Wildcat Wash NW	lithic scatter	not eligible
54	26LN5350	Wildcat Wash NW	lithic scatter	not eligible
55	26LN5351	Wildcat Wash NW	lithic scatter with tools	unknown, more information needed
56	26LN5352	Wildcat Wash NW	lithic scatter with tools	not eligible
57	26LN5353	Wildcat Wash NW	prehistoric rock alignment	not eligible
58	26LN5378	Wildcat Wash NW	historic trash scatter	not eligible

**5.2.3 Paleontological Resources**

The San Bernardino County Museum conducted a paleontological resource study covering the alignment in the Coyote Springs Realignment area (San Bernardino County Museum 2006). This study included a records search and field review to identify paleontological sensitivity and is included in the COM Plan for the SWIP Project. The Museum concluded that this portion of the project is located in an area with an undetermined paleontological sensitivity, and recommended that an intensive pedestrian field inspection be conducted prior to construction.

**5.2.4 Land Use, Recreation, and Access**

This section of the EA documents the existing and planned land use, recreation, and access for the Coyote Springs Realignment. Existing land use data was gathered using aerial photography and field reconnaissance, and through review of land use plans. Planned land use was gathered using existing BLM resource management plans, other BLM documents for projects located in the project areas, and specific development plans. A description of the project setting, ownership/jurisdiction and land use within the corridor area follows.

**5.2.4.1 Project Setting**

The Coyote Springs Realignment begins approximately 50 miles north of Las Vegas and continues north for approximately 25 miles. The realignment is located in Coyote Spring Valley, west of U.S. Highway 93 and east of the Desert National Wildlife Range (DNWR) in Lincoln and Clark Counties. The realigned transmission line would be located in the utility corridor that was mandated by Congress in the 2004 LCCRDA. This area of the eastern Mojave Desert is generally defined by rolling bajadas that transition into the Sheep Range to the west.

**5.2.4.2 Jurisdiction**

The extension of the ROW is on BLM land administered by the Southern Nevada District Office in Clark County and by the BLM Ely District in Lincoln County. In Clark County this area is managed under the Las Vegas RMP. The area of the realignment in Lincoln County, while currently managed under the Caliente MFP, will be managed in the future under the Ely RMP. Smaller privately held parcels are found east of the realignment.

### 5.2.4.3 Existing Land Use

The study area is located predominately on undeveloped desert land (see Figure 8). The DNWR is located to the west of the transmission line and was established for the purpose of perpetuating the Desert Bighorn Sheep and is important habitat for the Mojave Desert Tortoise and other sensitive plants and animals. The DNWR is the largest wildlife refuge within the lower 48 states and, although it is not currently designated wilderness, it is proposed for wilderness designation and is being managed as wilderness (USFWS 2006).

For the length of the Coyote Springs Realignment, U.S. Highway 93 runs parallel to and just east of the realigned ROW, at a distance of up to approximately 0.9 mile away. In the southern portion of the study area, the realignment crosses U.S. Highway 93 before continuing south in the ROW originally granted for the SWIP.

In the central portion of the Coyote Springs Realignment area, immediately east of the transmission line alignment and Highway 93, the Coyote Springs master-planned community development is under construction. This development will include single and multi-family residential areas, commercial and light industrial areas, multiple golf courses, hotels and resorts, open space, and a resource management area. As presently planned, approximately 21,454 acres would be developed over the course of 40 years, including 7,548 acres that will be dedicated as the Coyote Springs Resource Management Area.

The Western Elite Landfill is located on a private in-holding in the central portion of this area, on the west side of U.S. Highway 93, between the highway and the SWIP realignment. A quarry operation and residence also are located on the site. A dirt road on the western side of the property is used as a runway for small aircraft. This runway parallels the transmission line realignment.

An existing Lincoln County Power District 69kV transmission line parallels the west side of U.S. Highway 93 throughout the study area. This 69kV line is crossed by the SWIP realignment in the southern portion of the study area (at the U.S. Highway 93 crossing) and roughly parallels the realignment north through the study area, at distances up to approximately 0.9 mile away.

### 5.2.4.4 Planned Land Use

The Coyote Springs Realignment is located within the SWIP designated utility corridor. The BLM authorizes ROWs on public lands for a variety of uses, including roads, electrical transmission lines, telephone lines, sewer lines, potable water lines, natural gas pipelines, communication sites, electrical power plants and substations, and related power distribution lines (Las Vegas RMP, pg. 3-57). In addition, Coyote Springs has submitted an application to the BLM for future detention basins within the utility corridor area. Authorizations for the use of designated ROWs are processed on a case-by-case basis.

Although Clark County has no jurisdiction over the management of BLM land, the Northeast Clark County Land Use Plan identifies uses within the area of the realignment as *Open Land* and *Major Development Project*. *Open Land* allows for deterring development and may contain uses such as public services and facilities, grazing, and some recreational uses. The Coyote Springs master-planned community is designated as a *Major Development Project*. Zoning

within Coyote Springs master-planned community development will consist of Rural Open Land, Medium Density Residential and General Commercial.

#### **5.2.4.5 Recreation**

The Delamar Mountain Wilderness is located east of the Coyote Springs Realignment and east of Highway 93 and provides recreational opportunities such as hiking, rock scrambling, climbing, hunting, and horseback riding. The Wilderness (see Figure 8) is located approximately 0.75 to 2.0 miles from the realigned transmission line and is accessible by U.S. Highway 93 and Kane Springs Road (U.S. Department of the Interior 2006).

As previously noted, the primary purpose of the DNWR, which is located on the west side of U.S. Highway 93 and the Coyote Springs Realignment, is to perpetuate the Desert Bighorn Sheep, and other sensitive wildlife and plants, other recreational opportunities such as camping, hiking, backpacking, horseback riding, hunting and bird watching are available. This refuge is accessible from U.S. Highway 93 via Sawmill Road, located approximately 1 mile south of the realignment area (USFWS 2006).

#### **5.2.5 Visual Resources**

The landscape in this area is moderately flat to slightly undulating, with relatively low vegetation diversity, creating little visual interest or variation in the valley area crossed by the transmission line (Class C scenery, landscapes with minimal diversity or interest). The DNWR (located to the west) exhibits greater variety in terrain and topographic relief. Sensitive viewers in this area include residences (a single existing residence on the Western Elite Landfill property and future residents associated with the Coyote Springs Development); travelway viewers (U.S. Highway 93, Highway 168, and Kane Springs and Saw Mill roads); and recreational users (historic rest area and potentially dispersed users of the DNWR and Delamar Wilderness). In the Southern Nevada District area the transmission line is in the SWIP designated utility corridor within an area that has been classified as VRM Class III (partial retention of the existing character of the landscape). In the Ely District area (Caliente MFP), the transmission line is also in the SWIP designated utility corridor, within a VRM Class IV area (allowing for major modification). Several existing modifications also occur in this area, including U.S. Highway 93, electrical transmission (69kV) and fiber optic facilities, the Western Elite Landfill, and ongoing disturbance associated with the planned Coyote Springs development.

#### **5.2.6 Wildfire Management**

The Coyote Springs Realignment is located in Lincoln and Clark counties, Nevada. Both the Ely and Southern Nevada BLM District Offices have fire management plans (*Ely District Managed Natural and Prescribed Fire Plan* and *Las Vegas Fire Management Action Plan*, respectively). The District Office resource management plans and fire management plans were reviewed to identify potential impacts from the Coyote Springs realignment. Potential impacts from the realignment would be influenced by additional access road construction, the type of vegetation located within the project area, and the guidelines for fire suppression within the project area.

Within the Ely District area, the realignment is located within a salt desert shrub vegetation community and generally has low fuel loads. Typical fire behavior is characterized by winds needed to carry fire in sparsely vegetated areas, natural barriers tending to inhibit fire sizes, and the rapid spread of fire generally requiring wind. The realignment is located in the Mojave FMU (Ely PRMP) and currently is managed as a full fire suppression area. The nearest wildland-urban interface community identified in the Ely PRMP is Alamo, located approximately 13 miles northwest of the realignment . However, the proposed Coyote Springs development is located east of U.S. Highway 93 and the proposed transmission line realignment.

The southern portion of the realignment is associated with four separate FMUs identified in the *Fire Management Action Plan* of the BLM. These consist of the *Desert Low Elevation Shrub*, *Tortoise ACEC North*, *Tortoise Moderate Density*, and *Virgin-Muddy-Meadow* FMUs. The *Desert Low Elevation Shrub* is located on the DNWR, west of the realignment. The *Tortoise ACEC North* has an annual target goal of less than 10 acres burned for 90 percent of the burn time. The decadal goal is 250 acres or less, with no prescribed fires within this FMU. The *Tortoise Moderate Density* has an annual target goal of less than 15 acres burned for 90 percent of the burn time, and the decadal goal for this FMU is 500 acres or less, with no prescribed fires. The *Virgin-Muddy-Meadow* has an annual target goal of less than 25 acres for 90 percent of the burn time, and the decadal goal is 250 acres or less, with only salt cedar as prescribed burns (Marfil 2006).

### **5.2.7 Wilderness and Wild and Scenic Rivers**

The Delamar Mountain Wilderness is located east of the realignment and U.S. Highway 93 and provides recreational opportunities such as hiking, rock scrambling, climbing, hunting, and horseback riding. The Wilderness is located approximately 0.75 to 2.0 miles from the realignment and is accessible by Highway 93 and Kane Springs Road (U.S. Department of the Interior 2006). There are no wild and scenic rivers within the project area. The DNWR, located to the west of the realignment, includes portions that are proposed for Wilderness designation and are currently being managed as Wilderness.

### **5.2.8 Prime and Unique Farmland**

There is no Prime and Unique Farmland located within the realignment area.

### **5.2.9 Earth Resources**

This section of the EA includes a description of the geology, soils and water resources associated with the realignment. Information presented in this section is based on previous studies conducted for the SWIP EIS, in association with information from various federal and state agencies and general field review.

#### **5.2.9.1 Geology**

The realignment is located in Coyote Spring Valley, generally located between the Sheep Range to the west and the Meadow Valley Range in the east. The general geology of Coyote

Spring Valley comprises four major geologic units: alluvium, Tertiary valley-fill deposits, Tertiary volcanics, and Paleozoic carbonate rocks. The alluvium occurs over the valley floor and comprises interbedded gravels, sand, silt and clay. The maximum thickness of alluvium is not known, but thicknesses of 600 to 850 feet have been penetrated by U.S. Geological Survey and U.S. Air Force test wells.

### **5.2.9.2 Soils**

Soils within the Coyote Springs Realignment are typical desert soils (Entisols and Aridisols). These soils are susceptible to erosion by wind and water. The potential for erosion is generally slight, except where the soils have been disturbed or along the banks of washes. There is also a potential for localized landslides on the steep slopes of the upland areas.

### **5.2.9.3 Water Resources**

There are no perennial surface water bodies or streams within Coyote Spring Valley. Surface water occurs as ephemeral flow in streambeds that drain the upland areas or as temporary ponding of runoff areas. The realignment is located within the Coyote Spring Valley Groundwater Basin in the Lower Colorado River Basin Hydrographic Region.

#### Floodplains

FEMA has not identified any 100-year floodplains within Clark County that would be crossed by the realignment, and does not have floodplain information available for Lincoln County. Flooding, however, is a recurrent problem over most of the valley floor (both sides of Highway 93), and severe flash floods do occur infrequently in both the Pahrangat Wash and Kane Springs Wash areas.

### **5.2.10 Air Resources**

Air resources within the project area are regulated at the federal, state, and local levels as described below:

#### **5.2.10.1 Federal**

The EPA has established National Ambient Air Quality Standards for certain pollutants. The attainment status for the proposed project area was examined in consideration of federal designations contained in 40 CFR §81.329. The hydrographic areas and the associated pollutants for which they are designated attainment or nonattainment are described below.

#### **5.2.10.2 State**

The Nevada Department of Environmental Protection's BAPC administers the surface area disturbance permitting for Lincoln County, Nevada. The BAPC issues a Class II Air Quality

Operating Permit for Stand-Alone Surface Area Disturbance for any land disturbance that will equal or exceed five acres of total disturbance. If the total disturbance is equal to, or exceeds 20 total acres, then in addition to the preparation of the SAD permit application, a dust control plan must also be prepared and submitted with the application (Air Sciences Inc. 2007).

### **5.2.10.3 Local**

The Clark County Department of Air Quality and Environmental Management administers the surface area disturbance permitting for Clark County through the issuance of a Dust Control Permit. A Dust Control Permit is required for projects that are greater than or equal to 0.25 acres; require trenches equal to or greater than 100 feet in length; or include the mechanical demolishing of any structure larger than or equal to 1,000 square feet (Air Sciences Inc. 2007).

The air quality status, regulations and requirements specific to the Coyote Springs realignment are as follows. The realignment is located within Clark and Lincoln Counties in Hydrographic Basin 210. The portion of this basin located in Clark County has a federal designation of attainment status for all pollutants. The Clark County Department of Air Quality and Environmental Management manages dust control and emissions within the Clark County portion of the realignment through issuance of a dust permit. The portion of the basin located within Lincoln County has a federal designation of attainment status for all pollutants. The BAPC manages dust control within Lincoln County through a Class II Air Quality Operating Permit.

### **5.2.11 Hazardous Materials**

The proposed Coyote Springs Realignment would occur on BLM land administered by the Southern Nevada and Ely District Offices. Information regarding hazardous materials was obtained from each of the respective office RMPs/PRMPs in characterizing the realignment area.

As a part of the regulated community, the BLM has an obligation to abide by the existing federal and state statutes and regulations regarding hazardous materials and to require that leasees and ROW grantees also abide by such regulation as part of the lease or grant terms and conditions. The Las Vegas RMP specifically requires that “all non-interior groups whose activities are on BLM managed lands and facilities will be held responsible for compliance with federal, state, interstate, and local waste management requirements.” No hazardous material sites in the realignment area have been identified.

### **5.2.12 Socioeconomics and Environmental Justice**

This section describes the social characteristics of the study area. The current status and trends for population and economic factors were evaluated and are the basis for socioeconomic environmental consequences for the realignment in the Coyote Springs area as described below.

### **5.2.12.1 Socioeconomics**

The ROW realignment occurs in Clark and Lincoln counties. Clark County's population in the 2000 census was 1,375,765, and the County had a population percent change of 24.3 percent calculated between April 1, 2000 and July 1, 2005. The population estimate of Clark County for 2005 is 1,710,551. Total employment in 2000 totaled 637,339, with 4.2 percent of the work force unemployed. The estimated median household income for Clark County in 2004 was \$50,463. Lincoln County's population in the 2000 census was 4,165. Total employment in 2000 was 1,538 and the median household income was \$31,979.

The Coyote Springs master-planned community development is under construction and is expected to be approximately 21,454 acres (developed over 40 years). This development will include single and multi-family residential areas, commercial and light industrial areas, multiple golf courses, hotels and resorts, open space and a resource management area.

### **5.2.12.2 Environmental Justice**

As described in Section 3.13, 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 realignment is in an area that is relatively unpopulated at this time (with the exception of the existing private residence in association with the Western Elite Landfill), and plans for the area (Coyote Springs Development) do not suggest the future presence of a high number of low-income groups.

### **5.2.13 Areas of Critical Environmental Concern**

The ROW realignment crosses approximately 1 mile of the Coyote Springs ACEC (see Figure 8), which is designated for the protection of the Mojave Desert Tortoise. The realignment also crosses approximately 16 miles of USFWS designated Critical Desert Tortoise Habitat.

## **5.3 ENVIRONMENTAL CONSEQUENCES**

Section 5.3 addresses the environmental consequences (effects) associated with the realignment in Coyote Spring Valley. Many of the mitigation measures presented in this EA are included in the original SWIP EIS, ROD, and ROW Grants. Additional mitigation measures have been proposed by Great Basin or requested or required by the BLM, USFWS and other resource agencies, in connection with the preparation of this EA and the BA, BO, and COM Plan. All of the mitigation measures from these various sources have been incorporated in the COM Plan, and compliance with that plan would be included as an enforceable stipulation in the amended ROW grant, just as it is in the original SWIP ROW grant.

### **5.3.1 Biological Resources**

Impacts to biological resources included consideration of the effects to vegetation, wildlife, and threatened and endangered species. Following is a discussion of impacts associated with the realignment, including proposed mitigation measures.

#### **5.3.1.1 Vegetation**

Approximately 237 acres will be disturbed by the construction of the SWIP in the realignment area. Approximately 134 acres of the total disturbance area will be temporary, including batch plants, tower construction areas, and pulling and tensioning sites. The remaining 103 acres of permanent disturbance are primarily associated with access roads. The vegetation that will be affected is primarily creosote bush and white bursage, with scattered individual Mojave yucca populations and several species of cacti. As identified in the COM Plan, cacti and yucca will be salvaged and replanted off of impact areas (access roads, tower pad sites, etc.), for later replacement in the ROW area and near tower sites, and areas of temporary disturbance will be restored in accordance with the COM Plan.

#### **5.3.1.2 Noxious Weeds and Invasive Species**

The introduction and spread of invasive and nonnative plant species (including noxious weeds) can contribute to the loss of rangeland productivity, increased soil erosion, reduced species and structural diversity, loss of wildlife habitat, and, in some instances, may pose a threat to human health and welfare. The Carlson-Foley Act (Public Law 90-583) and the Federal Noxious Weed Act (Public Law 93-629) direct weed control on public land. Executive Order 13112, Invasive Species, was authorized to prevent the introduction of invasive species, provide for their control, and to minimize the impacts caused by these species. NRS 555, Control of Insects, Pests, and Noxious Weeds, provides information regarding the designation and eradication of, and inspection for, noxious weeds within the state of Nevada (Ely PRMP).

Construction of the Coyote Springs Realignment will require the construction of new access roads, and result in disturbance at tower pad sites and pulling and tensioning areas. Berms created by access road construction can represent disturbed soils, which may provide suitable habitat for noxious weeds including Sahara mustard and salt cedar and invasive species. Construction activity around tower pads and in pulling and tensioning areas, including movement of heavy equipment and light trucks may also disturb soil and provide habitat for noxious weeds and invasive species. Seeds of noxious weeds and invasive species also may be present in the seed bank and soil disturbance can have the effect of “releasing” these seeds possibly leading to local infestations. There also is the potential for weeds to be introduced into the project area by construction vehicles.

A comprehensive Noxious Weed Management Plan (part of the COM Plan) has been developed with the goal of keeping the ROW noxious weed free. Adherence to the specific weed control mitigation measures in this plan, including measures as identified in the BLM Las Vegas Noxious Weed Plan will minimize the introduction and spread of noxious weeds during and following construction. Early detection and rapid response have been important considerations in the development of this plan which includes (1) identification of problem areas, (2) preventative measures that will be implemented to prevent the spread of these and other

noxious weeds during construction, (3) treatment methods during construction and post-construction, and (4) reclamation and post-construction monitoring. Included in this plan are specific measures that address the eradication of existing noxious weed populations, measures to minimize the potential for the spread of noxious weeds and invasive species through off-site power washing of equipment/vehicles and on-site cleaning of equipment/vehicles with compressed air, and the use of weed free materials during restoration (e.g., hay or straw).

In addition, as a part of the ROW Preparation, Rehabilitation, and Restoration Plan (included in the COM Plan), reseeding practices and seeding mixtures to be used in areas of temporary disturbance will be coordinated with a BLM specialist (e.g., botanist, range management specialist, or soil scientist designated by the BLM Authorized Officer) in order to determine the source type and quantity of seed mixtures and seeding locations. In this regard, mixtures that discourage the establishment of invasive and noxious weeds will be considered, as appropriate.

### **5.3.1.3 Wildlife**

There will be some mortality of small vertebrate species, and general wildlife habitat quality will be degraded. Ground-disturbing activities will alter the quality of wildlife habitat in the short-term. Some individuals of small, fossorial species such as Pocket Mice and Kangaroo Rats will likely be crushed in their burrows by heavy equipment. Similarly, snakes, lizards, and other diurnal forms may be hit on access roads or killed by road building equipment. Potential impacts from the operation of the transmission line may include an increase in hunting perches for avian predators. Mitigation measures, including limiting access to areas previously identified and clearly flagged, restoration practices, and speed limit restrictions on the ROW, will assist in reducing impacts to wildlife.

### **5.3.1.4 Migratory Bird Treaty Act**

Construction along the Coyote Springs Realignment could potentially result in the loss of bird nests, eggs, or young. Adult birds are normally able to avoid construction equipment, however, eggs or young in nests cannot. As stipulated in the COM Plan, to address compliance with the MBTA mitigation measures will include the presence of a biological monitor during the migratory bird-nesting season, assuring that all active nests along the line will not be disturbed. During construction, active nests that could be affected will be identified, and a buffer zone around each nest will be flagged to keep personnel and equipment away from sensitive areas until nests become dormant.

### **5.3.1.5 Threatened and Endangered Species/Special Status Species**

The Mojave Desert Tortoise is the only federally listed species that is present along the realignment in Coyote Spring Valley. During construction, tortoises could be crushed in their burrows by heavy equipment. They also could be run over on access roads, especially small juveniles and hatchlings, which are very difficult to see even from a slow-moving vehicle. Mitigation and compensation measures identified in the BA, BO, and the COM Plan, including limiting access to pre-determined and clearly flagged areas, controlling the speed of vehicles on the ROW, and the presence of tortoise biologists, will help to reduce impacts. Tortoise biologists will be present for all construction activities in this area. It will be their responsibility to move

tortoises out of the way, to remove tortoises from burrows in construction areas, and to educate all construction personnel regarding the protocol for working in Mojave Desert Tortoise habitat areas.

In addition to the federally listed Desert Tortoise, as previously mentioned, there is a limited possibility of impact to the three-corner milkvetch (*Astragalus geyeri* var. *triquetris*) and the Las Vegas buckwheat (*Eriogonum Corymbosum* var. *nilesii*), which could potentially be present along the realignment, although recent surveys did not identify any populations.

Prior to ground-disturbing activities, in areas specified by the BLM project manager, a biological monitor will survey and inspect the area for rare plants. In the event of a new discovery they will flag off the area and establish a construction restriction buffer.

### **5.3.2 Cultural Resources**

Of the 58 cultural resources identified within the APE (see Table 5-1), 12 are eligible for NRHP listing. Once the engineering plans are finalized, a determination as to which sites will be directly affected by the proposed project will be made. To mitigate both direct and indirect impacts to these cultural resources, a HPTP is being developed and will be implemented prior to construction of the transmission line in this area.

### **5.3.3 Paleontological Resources**

A paleontological resources treatment plan has been prepared for the proposed project (San Bernardino County Museum 2006) and includes mitigation measures that would address potential impacts to paleontological specimens prior to, and during construction of the proposed project, such as monitoring for paleontological specimens. If resources are identified in the intensive pedestrian field inspection, which would be conducted prior to construction, appropriate measures would be implemented in order to minimize impacts. The treatment plan will be included as an appendix to the COM Plan.

### **5.3.4 Land Use, Recreation, and Access**

The shift of the SWIP alignment in the Coyote Springs area was mandated by Congress in the LCCRDA in order to avoid and minimize potential conflicts with the development of private land on the east side of U.S. Highway 93. This land had previously been transferred by the BLM into private ownership, subject to a reservation of the BLM utility corridor. Following is a description of potential impacts to existing and planned land use, recreational activities, and access that could result from the construction and operation of the transmission line in the realigned location.

The transmission line would be constructed within an approved designated corridor on BLM lands. Approximately 103 acres of land would be permanently displaced by access roads and structure locations. The transmission line has been located to avoid private land, and areas crossed by the transmission line are undeveloped, therefore no direct land use impacts are anticipated.

Planned land use impacts are expected to be minimal, because the transmission line would be located within the SWIP designated utility corridor. The planned Coyote Springs detention basins are being designed to accommodate existing and planned utilities within the designated utility corridor. The transmission line does not conflict with any recreation areas, however, there is a potential for increased off-road and dispersed access to the DNWR from the construction of new access and maintenance roads. Potential increased off-road access will be limited by closing and reclaiming construction roads not needed for maintenance in key locations, and through the use of locking gates or other barriers, to the extent practicable, as described in the COM Plan. No increase in access to the Delamar Mountain Wilderness is expected from construction of new access for the SWIP – Southern Portion in this area because the Wilderness is located east of U.S. Highway 93, on the opposite side of the highway from the transmission facilities.

### **5.3.5 Visual Resources**

The realignment is within a congressionally designated utility corridor and generally parallels an existing 69kV transmission line located to the east of the proposed project, which is visible primarily in the foreground from U.S. Highway 93. In this area the proposed transmission line will be located to the west of, and behind, the 69kV line, and will be partially to fully back-dropped from the majority of transportation, recreation, and residential views with the exception of the crossing of US Highway 93 north of Saw Mill Road. Key mitigation measures include the use of dulled steel lattice structures and non-specular conductors. The current BLM VRM designations for this area are Class III (partially retain the existing character of the landscape) in Clark County, and Class IV (allowing for major modifications) in Lincoln County. In the future, portions of the alignment in Lincoln County will continue to be located in Class IV (allowing for major modifications) as designated in the Ely PRMP. Based on the modified setting (e.g., existing utilities, landfill), the local viewing conditions, and the implementation of the proposed mitigation measures as specified in the COM Plan, the new location of the transmission line (within a designated utility corridor) will be in conformance with these objectives.

### **5.3.6 Wildfire Management**

This section of the EA evaluates the effects of the realignment to wildfire management. Impacts were assessed based on construction activities, the type of vegetation located within the affected areas, the potential for fires associated with future use in this area, and the Southern Nevada and Ely BLM District respective guidelines, for fire suppression.

Approximately 36 miles of access roads will be constructed as part of the realignment, including the construction of spur roads from existing access roads and U.S. Highway 93 to tower locations, and construction of access along the proposed realignment. Short-term construction impacts to fire management include an increase in traffic during the construction of the proposed transmission line, which could potentially increase the frequency of human-caused accidental ignitions along the access road and the ROW. Long-term or operational impacts from new access could occur from human-caused, accidental ignitions from periodic ground maintenance and inspections of the transmission line, or recreational users along the access roads.

Mitigation measures and protocols identified in the COM Plan, including fire prevention measures as outlined in Section 4.8 of this EA, will reduce the potential for fires during construction. In addition, public access to new roads along the realignment will be controlled by closing and reclaiming construction roads not needed for operation and maintenance as approved by BLM in consultation with the Project Proponent, and through the use of locking gates or other barriers, to the extent practicable, as also prescribed in the COM Plan. Low fuel loads along the realignment also decrease the potential for accidental ignitions in this area. Although the realignment is located to the west of the proposed Coyote Springs development, these low fuel loads and separation of the development and transmission line by U.S. Highway 93 minimize the potential for the spread of wildfire to this area, unless wind is present.

### **5.3.7 Earth Resources**

This section evaluates potential impacts from the construction and operation of the transmission line in the realigned location based on geology, soils, and water resources.

#### **5.3.7.1 Geology**

There are no unique or special geological features in the area of the realignment and no impacts were anticipated.

#### **5.3.7.2 Soils**

There are no unique or special soil resources in the area of the realignment. Impacts to soils may occur as erosion into drainages during construction at tower sites, pulling and tensioning sites, and in access development. Curtailing construction during periods of rain, and the use of erosion control mitigation measures including limiting the areas of disturbance, and restoration practices as described in the COM Plan would be implemented to minimize the potential for short- and long-term impacts to soils.

#### **5.3.7.3 Water Resources**

Impacts to ephemeral drainages and washes in this area are expected to be reduced based on the selective location of towers (spanning of drainages), limiting the area of disturbance, and erosion control and reclamation measures presented in the COM Plan. Impacts to groundwater are not anticipated.

#### **Floodplains**

Although there are no designated floodplains along the realignment, tower structures will be placed to span ephemeral washes/drainages to avoid damage to towers from potential flooding events that may occur in this area.

### **5.3.8 Air Resources**

Impacts to air quality would primarily be short-term as a result of the construction of the proposed facilities and operation and maintenance activities associated with the realignment are expected to be minimal. The construction of the facilities would produce two types of air pollution: fugitive dust from soil disturbance and exhaust emissions from construction vehicles and equipment.

A construction plan, including a schedule and the number and type of vehicles to be used during construction of the transmission line, is included in the COM Plan. Emissions from construction vehicles are not expected to exceed the air quality standards. Construction/maintenance activities will comply with the policies identified by Clark County (e.g., Dust Control Permit), the BLM and the BAPC. Dust and emission-control mitigation measures (including watering roads), mitigation measures limiting disturbance, and restoration and monitoring practices described in the COM Plan will further assist in reducing impacts to air quality along this portion of the alignment.

### **5.3.9 Hazardous Materials**

No hazardous materials would be stored along the ROW in this area, and therefore the potential for impacts from hazardous materials exists primarily during construction. A spill prevention plan and reference to hazardous material regulations are documented in the COM Plan for the SWIP – Southern Portion. During construction of the transmission line, mitigation measures outlined in the COM Plan would be followed to ensure that vehicles will be kept in good working condition, and impacts from hazardous materials are minimized.

### **5.3.10 Socioeconomics and Environmental Justice**

During construction of the transmission line, short-term beneficial impacts, such as increased revenue, could result from the use of local restaurants and hotels in the North Las Vegas area and the Town of Alamo by construction workers. The transmission line will be an unmanned facility located in Clark and Lincoln counties, and operation of the facilities will have minimal effects to Clark and Lincoln County employment, income, or social services. The area of the realignment is relatively unpopulated at this time and plans for the area (Coyote Springs Development) do not suggest the future presence of a high number of low-income groups, therefore, no environmental justice impacts would occur from the construction or operation of the transmission line in this location.

### **5.3.11 Areas of Environmental Concern**

The Coyote Springs Realignment is located within a BLM and congressionally designated utility corridor that crosses a small portion of the Coyote Springs ACEC (designated to protect Mojave Desert Tortoises). However, the mitigation and compensation measures identified under the discussion of Threatened and Endangered Species in Section 5.3.1.5 of this EA and as presented in the BO will help to avoid and reduce potential impacts to the Mojave Desert Tortoise.

## **SECTION 6.0 POLICY AND RESOURCE UPDATES**

---

### **6.1 INTRODUCTION**

This section of the EA contains updates on the environmental setting of the SWIP – Southern Portion. These updates are based on key policy and/or resource changes that have occurred following the approval of the SWIP Final EIS, the ROD, and ROW Grant(s), including information associated with the following topics:

- Designated Critical Habitat for the Mojave Desert Tortoise
- Sage Grouse
- Migratory Birds
- Noxious and Invasive Weeds
- Environmental Justice
- VRM Classifications
- Cultural Resources
- Tribal Consultation
- Threatened and Endangered Species, Sensitive Species
- Clark County Ozone Non-Attainment

Following is an overview of the affected environment and environmental consequences regarding each of these topics (as appropriate). Additional information in support of this discussion may also be found in the SWIP – Southern Portion BA, BO and COM Plan.

### **6.2 DESIGNATED CRITICAL HABITAT FOR THE MOJAVE DESERT TORTOISE**

#### **6.2.1 Affected Environment**

The USFWS designated Critical Habitat for the Mojave Desert Tortoise on February 8, 1994, including specific areas in California, Arizona, and Nevada, which are crucial to the recovery of the species. The final rule for the designation identified four units totaling 1.2 million acres in Nevada, where the majority of the Mojave Desert Tortoise habitat is managed by the BLM, under the Clark County MFP. The designation of Critical Habitat occurred shortly before approval of the SWIP ROD and ROW Grant, and biological opinions were prepared that evaluated the project's effect both on tortoises and their Critical Habitat. An updated BA was submitted to the USFWS in July 2007 and a BO, including an Incidental Take Statement, was issued by USFWS on December 20, 2007. The BO concluded that the SWIP is not likely to jeopardize the continued existence of the threatened desert tortoise (Mojave population). Within areas crossed by the transmission line, Critical Habitat is present in Clark County along both sides of U.S. Highway 93, extending from just north of Dry Lake to the Pahranaagat Wash, in Lincoln County.

The BLM in the Southern Nevada District has prepared an RMP designating ACECs for Desert Tortoises, and, under the protection of the ACEC, certain activities are restricted in those areas. Along the transmission line ROW, the BLM has designated the Coyote Springs ACEC.

In July 2006, updated surveys were completed along the ROW, from the Harry Allen Substation, to a point just south of Delamar Lake, a distance of approximately 65 miles. Using a triangular transect method a total of 43.5 miles of transects were walked. Tortoises or sign thereof were found on nine of the transects. Two live tortoises were encountered, both on the same transect and both were in burrows. Otherwise, a total of 32 other observations of sign were tallied in this area.

### 6.2.2 Environmental Consequences

Direct impacts to designated Mojave Desert Tortoise habitat would result primarily from ground-disturbing construction activities. Impacts will be either temporary (short-term) or permanent (long-term) and they will occur within approximately 37.5 miles of USFWS Critical Habitat, and approximately 19.4 miles of the Coyote Springs ACEC that are crossed by the transmission line. The permanent and short-term disturbances would result in loss of vegetation, and therefore reduce the amount of forage available to tortoises. Table 6-1 includes disturbance areas for USFWS Critical Habitat and BLM ACECs. The disturbance is associated with access roads, tower sites, lay down sites, and pulling and tensioning stations. Permanent disturbances are largely associated with access roads.

<b>Disturbance Type</b>	<b>USFWS Designated Critical Habitat</b>	<b>BLM ACECs</b>
		<b>Coyote Springs</b>
Temporary	238	126
Permanent	122	57
Total Disturbance	360	220

Activities associated with project construction could potentially injure or kill tortoises, and vehicles that stray from construction areas and roads may crush Mojave Desert Tortoises above ground or in their burrows. Tortoises also may be affected by removal from construction areas. In addition, they may be killed or injured by vehicles resulting from increased accessibility of the area during and after construction of the transmission line. Other potential impacts from the operation of the transmission line include the increase in accessibility from new access road construction, resulting in increased illegal collection of tortoises found along or near the roadways. The presence of transmission structures may allow for increased avian predation of Mojave Desert Tortoises by providing perches and nesting sites.

Mitigation measures designed specifically to avoid and reduce impacts to the Mojave Desert Tortoise have been developed as a part of the formal Endangered Species Act consultation and are reflected in the BO. Many of the measures duplicate those developed in the 1992 Draft EIS and previous BA/BO; however, other measures have been designed specifically to reduce or eliminate incidental take of tortoises. Examples include the use of steel, H-frame structures with perch deterrents at selective locations south of State Route 168 in the Coyote Springs ACEC, per agreement with BLM, habitat conservation, educational programs, guidelines for handling, holding, or relocating tortoises, assigning speed limits to construction sites, and monitoring towers for active nest sites, as well as numerous other measures identified in the SWIP – Southern Portion BA, BO and COM Plan. Compensation for the loss of Desert Tortoise habitat is required by applicable endangered species laws, regulations, and agency policies, including the BLM Desert Tortoise protection policies, and will be applied to the SWIP – Southern Portion. The decision regarding the distribution and appropriate use of mitigation remuneration for the

disturbance of Desert Tortoise habitat has been determined through consultations between the USFWS and BLM and is reflected in the stipulations and the terms and conditions contained in the BO. The BO is presented in Appendix B of the EA.

## **6.3 SAGE GROUSE**

### **6.3.1 Affected Environment**

Greater Sage Grouse leks are known to be present at several locations along the route of the SWIP – Southern Portion. Updated Sage Grouse surveys were conducted for the SWIP – Southern Portion and for the proposed ROW modifications during the spring of 2006. During the surveys, 69 males were observed in the Butte/Buck/White Pine Population Management Unit, including 16 males in the White River Valley Complex, and 53 males in the West Schell Complex. Two known active leks were located within 2 miles of the SWIP – Southern Portion.

### **6.3.2 Environmental Consequences**

Impacts to the Greater Sage Grouse from the construction of the transmission line could include the potential loss of nests with eggs or young, loss of nesting habitat, loss of forage and insect prey, and increased potential for colonization by invasive plant species, resulting from ground-disturbing activities associated with clearing of vegetation for construction of access and spur roads, and tower sites. Potential impacts from the operation of the transmission line include new access roads, which could increase public access to areas that support Sage Grouse. Access roads, spurs and towers would be placed in wintering grounds, and towers could provide additional hunting perches for Sage Grouse predators, particularly Golden Eagles.

Mitigation measures that have been identified to reduce the potential effects to Sage Grouse include the modification of the location of the transmission line and the use of steel H-frame structures (including perch deterrents) in selective locations as agreed upon with the BLM and Nevada Department of Wildlife. Additional measures to mitigate impacts during construction include limiting long and short-term access, seasonal timing of construction, and the presence of Biological Monitors during construction activities. These measures are described in greater detail in the SWIP – Southern Portion COM Plan.

## **6.4 MIGRATORY BIRDS**

### **6.4.1 Affected Environment**

The MBTA is the domestic law that affirms or implements, the United States' commitment to the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over-utilization. The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any migratory bird, its eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11).

Virtually all of the bird species found within the SWIP transmission line ROW are protected by the MBTA.

## **6.4.2 Environmental Consequences**

Potential impacts to migratory birds from the construction and operation of the transmission line are primarily associated with the potential for clearing and ground disturbance during critical breeding and nesting periods, which could result in the loss of bird nests, eggs, or young. Adult birds are normally able to avoid construction equipment, however, eggs or young in nests cannot. Other impacts to migratory birds include the potential for collision with transmission conductors or, more likely, the fiber optic shield wire (particularly along waterways, while limited, that may serve as migration corridors).

As stipulated in the COM Plan, mitigation measures, including the presence of a biological monitor during the migratory bird nesting season, will reduce these impacts. During construction, active nests that could potentially be affected will be identified, and a buffer zone around each nest will be flagged to keep personnel and equipment away from sensitive areas. In order to reduce the potential for collisions with migratory birds and, in particular with waterfowl and raptors, flight deterrent devices will be employed in key areas, as specified in the COM Plan.

## **6.5 NOXIOUS WEEDS AND INVASIVE SPECIES**

### **6.5.1 Affected Environment**

Noxious weeds are invasive, non-native species that tend to spread rapidly and often displace native plant species or bring about changes in species composition, community structure, and ecological function. Noxious weeds may compete with native species for critical resources including water, nutrients, and space. Such competition may alter the dynamics of the native plant community, potentially leading to a monoculture of the noxious species. Noxious weeds also may alter soil chemistry in such a manner as to preclude germination or seedling establishment by native species. Moreover, noxious weeds tend to thrive in disturbed areas, such as at electrical transmission tower sites, laydown areas, storage yards, and pulling and tensioning sites. Noxious weeds are formerly listed and managed by the Nevada Department of Agriculture.

The noxious weed inventory for the SWIP – Southern Portion included (1) the identification of weed species that are designated noxious, as defined by the Nevada Department of Agriculture, and which have the potential to occur within the area affected by the project; and (2) the gathering of information to identify specific noxious weed populations in the project area, including preconstruction surveys along the project ROW. These surveys were conducted from April through June 2006 by Tri County Weed, as recommended by the BLM, Ely District Office.

A complete listing of the noxious weeds identified through these surveys is presented in Table 6-2. In addition, information on noxious weed occurrences within the ROW area, including the location and extent of infestations, was also gathered from the BLM, Ely District Office in the form of a GIS data layer. This inventory did not indicate any additional noxious weed species located within the project corridor, however, it is likely that populations of other noxious species

that were not found within the survey area may occur in the vicinity, and these species could become established in disturbed areas on the ROW following construction.

<b>Species</b>	<b>Common Name</b>	<b>Number of Locations</b>
<i>Acroptilon repens</i>	Russian knapweed	1
<i>Brassica tournefortii</i>	Sahara mustard	1
<i>Cirsium vulgare</i>	Bull thistle	4
<i>Tamarix ssp.</i>	Salt cedar	5

Red brome (*Bromus rubens*), cheatgrass (*Bromus testorum*), and Chilean chess (*Bromus trinitii*) have been identified by the BLM as invasive species of concern. In conjunction with the noxious weed and rare plant surveys conducted for the SWIP – Southern Portion, the identification of invasive species in addition to the noxious weeds identified in Table 6-2 was generally noted. These were often located in association with existing access roads and other previously disturbed areas in the vicinity of the transmission line where evident. Based on the arid conditions that were encountered during these surveys, many of the anticipated invasive species may not have been identified.

### **6.5.2 Environmental Consequences**

The introduction and spread of invasive and nonnative plant species (including noxious weeds) contributes to the loss of rangeland productivity, increased soil erosion, reduced species and structural diversity, loss of wildlife habitat, and, in some instances, may pose a threat to human health and welfare. The Carlson-Foley Act (Public Law 90-583) and the Federal Noxious Weed Act (Public Law 93-629) direct weed control on public land. Executive Order 13112, Invasive Species, was authorized to prevent the introduction of invasive species, provide for their control, and to minimize the impacts caused by these species. NRS 555, Control of Insects, Pests, and Noxious Weeds, provides information regarding the designation and eradication of, and inspection for, noxious weeds within the state of Nevada (Ely PRMP/EIS).

Construction of the transmission line and substation will require new access roads resulting in disturbance at the substation site, tower pad sites and pulling and tensioning areas. Berms created by access road construction can represent disturbed soils, which may provide suitable habitat for noxious weeds including those listed in Table 6-2 and other invasive species previously described. Construction activity, including movement of heavy equipment and light trucks, also may disturb soil and provide weed habitat. Seeds of noxious weeds and invasive species also may be present in the seed bank and soil disturbance can have the effect of “releasing” these seeds possibly leading to local infestations. There also is the potential for weeds to be introduced into the project area by construction vehicles.

Based on the results of the noxious weed survey, and from information provided by the BLM, a noxious weed risk assessment was completed for the project indicating that the construction of the SWIP – Southern Portion represents a low to moderate level of risk (BLM Noxious Weed Risk Assessment, 2-8-07). Under a “moderate” designation control measures are important to prevent the spread of noxious weeds on disturbed sites, preventative management measures are required to reduce the risk of introduction or spread of noxious weeds into the area, and monitoring is required for up to three consecutive years to provide for control of newly

established populations of noxious weeds and follow-up treatments for previously treated infestations.

A comprehensive Noxious Weed Management Plan (part of the COM Plan) has been developed with the goal of keeping the ROW free from noxious weeds. Adherence to the specific weed control mitigation measures in this plan, including measures identified in the Las Vegas BLM Noxious Weed Plan, will minimize the introduction and spread of noxious and invasive weeds during and following construction of the SWIP – Southern Portion. Early detection and rapid response have been important considerations in the development of this plan which includes (1) identification of problem areas, (2) preventative measures that will be implemented to prevent the spread of these and other noxious weeds during construction, (3) treatment methods during construction and post-construction, and (4) reclamation and post-construction monitoring. Included in this plan are specific measures that address the eradication of existing noxious weed populations, measures to minimize the potential for the spread of noxious weeds through off-site power washing of equipment/vehicles and on-site cleaning of equipment/vehicles with compressed air, and the use of weed free materials during restoration (e.g., hay or straw). The application and use of pesticides for the control of noxious weeds is also addressed in this plan, including daily reporting requirements. Pesticide use reports shall include details such as treatment rate, approximate acreage treated, target species, and weather conditions on the day of the treatment.

In addition, as a part of the ROW Preparation, Rehabilitation, and Restoration Plan (included in the COM Plan), reseeding practices and seeding mixtures to be used in areas of temporary disturbance will be coordinated with a BLM Botanist in order to determine the source type and quantity of seed mixtures and seeding locations. In this regard, mixtures that discourage the establishment of invasive and noxious weeds will be considered, as appropriate.

Follow-up long-term monitoring is an important measure to prevent the further spread of any populations of noxious weeds in the project ROW. Weed monitoring will be conducted per the monitoring schedule, and as prescribed in the Noxious Weed Management Plan as approved by BLM.

The construction contractor and/or owner will implement noxious weed controls measures in accordance with existing regulations, BLM requirements, and as specified in the Noxious Weed Management Plan.

## **6.6 ENVIRONMENTAL JUSTICE**

### **6.6.1 Affected Environment and Environmental Consequences**

As designated by Executive Order 12898 of February 11, 1997, 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 criterion 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.

The SWIP – Southern Portion is located within a sparsely to unpopulated area, and the Coyote Springs development is expected to be a master-planned community; therefore there are no

current or expected occurrences of disproportionately high percentages of low-income populations who might be impacted from the proposed project.

## **6.7 VISUAL RESOURCE MANAGEMENT CLASSIFICATIONS**

### **6.7.1 Affected Environment**

Revisions to the VRM designations within the Southern Nevada District Office have occurred since the approval of the SWIP Final EIS and ROD (1994), including portions of the Coyote Spring Valley and Harry Allen Substation areas that have been modified from a VRM Class IV (allowing for major modification) to a Class III (partial retention).

### **6.7.2 Environmental Consequences**

The effects of the revisions to the VRM designations within the Southern Nevada District are described in Section 3.6.1 and consistency with the revised designation is assessed in Section 4.7.1 for the ROW Extension to the Harry Allen Substation, and in Sections 5.2.5 and 5.3.5 for the Coyote Springs Realignment. In these and other areas in the Southern Nevada District, mitigation measures, including the use of dulled metal steel structures and non-specular conductors, will reduce visual impacts and allow for conformance with these VRM objectives.

## **6.8 CULTURAL RESOURCES**

Cultural resource surveys have been conducted for the length of the SWIP – Southern Portion and are being documented in a cultural inventory survey report. An HPTP is also being prepared for the project. These documents will be submitted to the SHPO and BLM, and appropriate mitigation measures will be included in the COM Plan.

## **6.9 TRIBAL CONSULTATION**

While the transmission line does not cross any Native American Reservations, the BLM has, and will continue to address NHPA Section 106 Consultation, including consultation with potentially affected Native American Tribes, per the Executive Order on Tribal Consultation. This consultation will include consideration for the extension to Harry Allen, Coyote Springs Realignment, and the Thirtymile Substation Realignment.

## **6.10 THREATENED AND ENDANGERED SPECIES/SENSITIVE SPECIES**

### **6.10.1 Affected Environment**

As described in the SWIP BA and BO, federally designated threatened and endangered species that could be affected by the project include the Bald Eagle, the Southwest Willow Flycatcher, and the Mojave Desert Tortoise (as previously described). In addition, there are several special status species that possess a level of protection or concern in the State of Nevada that could potentially be found in the project area. Both the threatened and endangered species and

sensitive species are discussed in detail in the SWIP BA (T&E Species), and the appendix to the BA (Non-Listed Sensitive Species).

### **6.10.2 Environmental Consequences**

Direct and indirect effects identified for the threatened and endangered species, exclusive of the Desert Tortoise, are anticipated to range from minimal to non-existent. Concerns associated with effects to other sensitive species would primarily be related to vegetation clearing and ground disturbance during the construction of project facilities. The locations of sensitive species (e.g., Las Vegas Valley buckwheat and three-cornered milkvetch) are presented in the COM Plan. Mitigation measures including selective tower placement, the use of alternative tower types, seasonal timing of construction, limiting ground disturbance and permanent access, and compliance with the Flagging, Fencing, and Signage Plan (incorporated as part of the COM Plan), will help reduce potential impacts to sensitive species, as described in the SWIP – Southern Portion BA, BO and COM Plan.

## **6.11 CLARK COUNTY OZONE NON-ATTAINMENT**

### **6.11.1 Affected Environment**

The EPA has established National Ambient Air Quality Standards for certain pollutants. The attainment status for the proposed project area was examined in consideration of federal designations contained in 40 CFR §81.329. The SWIP – Southern Portion crosses two hydrologic basins in Clark County which the EPA has classified as non-attainment for the eight-hour ozone standard. These include basin number 216 (Garnet Valley [Dry Lake]) and basin number 217 (Hidden Valley [North]).

The Clark County Department of Air Quality and Environmental Management administers the surface area disturbance permitting for Clark County through the issuance of a Dust Control Permit. A Dust Control Permit is required for projects that are greater than or equal to 0.25 acres; require trenches equal to or greater than 100 feet in length; or include the mechanical demolition of any structure larger than or equal to 1,000 square feet (Air Sciences Inc., 2007).

### **6.11.2 Environmental Consequences**

Impacts to air quality would primarily be short-term as a result of the construction and operation and maintenance activities of the transmission line. The construction of the facilities would produce two types of air pollution: fugitive dust from soil disturbance and exhaust emissions from construction vehicles and equipment. No impacts to ozone levels in the non-attainment areas are expected as there will be insignificant quantities of volatile organic compounds and oxides of nitrogen (the precursors to ozone) emitted from construction vehicles and equipment.

A construction plan, including a schedule and the number and type of vehicles to be used during construction of the transmission line, is included in the COM Plan. Emissions from construction vehicles are not expected to exceed air quality standards. Construction/maintenance activities will comply with the policies identified by Clark County (e.g., Dust Control Permit), the BAPC, and the BLM. Dust and emission control mitigation measures (including watering roads),

mitigation measures limiting disturbance, and restoration and monitoring practices described in the COM Plan will further assist in reducing impacts to air quality.

## **SECTION 7.0 CUMULATIVE IMPACTS ASSESSMENT**

---

### **7.1 CUMULATIVE IMPACTS ASSESSMENT**

This section addresses the cumulative impacts associated with the ROW modifications considered in this EA. Cumulative impacts result, “from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

The ROW modifications addressed in this section include the Proposed Action (extension of the ROW to the Harry Allen Substation in Dry Lake Valley and the shifting of the granted Robinson Summit Substation northwest to the Thirtymile Substation site), and the realignment of the transmission line ROW in Coyote Spring Valley under LCCRDA from the east to the west side of U.S. Highway 93.

The methodology used to analyze the potential cumulative impacts included identification of the affected environment and environmental consequences associated with each modification individually (presented in Sections 3.0, 4.0, and 5.0 of this EA), and the cumulative effects associated with past, present and future conditions relevant to these modifications when considered collectively.

The following sections provide (1) a summary description of the general existing and planned conditions associated with each of the modified areas, (2) a description of the specific past, present, and future actions most relevant to each modification, and (3) the cumulative effects anticipated for these modifications.

The area of cumulative impact directly reflects each modification, the resources affected (e.g., visual resources, biological resources) and the setting. For the purposes of this cumulative assessment a general area of affect has been identified for each modification to assist in the discussion of impacts. These areas have been defined by topography and the presence of other existing and planned facilities that most directly effect and/or contribute to the cumulative effects associated with each modification. Each area is described below and illustrated on Figures 9 through 11.

#### **7.1.1 Right-of-Way Extension to the Harry Allen Substation**

The general area of cumulative effect identified for the extension of the ROW to the Harry Allen Substation is defined on the west by the Arrow Canyon Range, on the east by the Union Pacific Railroad (UPRR) and Dry Lake Range, on the north by the Moapa Indian Reservation and the Crystal Substation, and to the south by the Apex Industrial Park.

**Figure 9**

**Figure 10**

**Figure 11**

### **7.1.2 Thirtymile Substation**

The general area of cumulative effect identified for the Thirtymile Substation has been defined by the foothills of the Egan Range and Butte Mountains that enclose the substation site, including the previously approved Robinson Summit Substation site and portions of U.S. Highway 50, Jakes Wash Road, and Thirtymile Road.

### **7.1.3 Coyote Springs Realignment**

The general area of cumulative effect identified for the Coyote Springs Realignment includes Coyote Spring Valley and is defined on the west by the Sheep Range and Desert National Wildlife Range and on the east by the Delamar Mountains, Meadow Valley Mountains, and the Arrow Canyon Range. To the north, the area is defined by the upper reaches of the Pahranaagat Wash, and to the south in the general vicinity of Sawmill Road.

## **7.2 EXISTING AND PLANNED CONDITIONS**

### **7.2.1 Right-of-Way Extension to the Harry Allen Substation**

This proposed modification consists of a 3.8 mile extension of the previously approved ROW, which is necessary to interconnect at the Harry Allen Substation. Approximately 36 acres of land will be disturbed during the construction of the 15 additional transmission structures required for the extension. Of this amount, approximately 11 acres will be permanently displaced for access roads and tower locations in comparison to the approximate 80 acres that would have been required if the Dry Lake Substation would have been constructed. The remaining 25 acres will be restored as specified in the COM Plan. Improved access associated with the construction will not cross over the Arrow Canyon Range and into Hidden Valley. The extension is located in an area north of Las Vegas in the Dry Lake Valley that has been, and continues to be, highly modified by the presence of energy-related facilities, including numerous transmission lines into existing substations, several generation facilities, and gas transmission pipelines as listed in Table 7-1. In particular, in-and-around the Apex Industrial Park, a total of 21 energy, transportation, and/or industrial facilities have altered the setting of the local area of cumulative effect. These modifications, virtually all of which underwent NEPA review, are generally illustrated in Figure 9.

### **7.2.2 Thirtymile Substation**

Construction of the Thirtymile Substation and the related transmission interconnections will result in approximately 19 acres of temporary and 81 acres of permanent disturbance which is approximately the same amount of disturbance that would be associated with the currently approved substation site. With approval of this substation site the previously approved substation would not be built. This disturbance will be within, and immediately adjacent to the SWIP and Falcon-to-Gonder designated utility corridors in a rural area in the western foothills of the Egan Range characterized by Great Basin sage scrub. Short and long-term access to the substation will be via an existing road resulting in negligible change to the environment. The Gonder-to-Machacek 230kV and the Falcon-to-Gonder 345kV transmission lines pass approximately ¼ mile south of the Thirtymile Substation site and U.S. Highway 50 passes

approximately ½ mile to the north, as illustrated in Figure 10. Other planned, major projects in this area are presented in Table 7-1. As illustrated in this table, and addressed in other NEPA documents up to an additional four 500kV transmission lines may be developed within the SWIP designated utility corridor in this area including future lines associated with the WPES and other transmission lines currently proposed by Nevada Power Company/Sierra Pacific and TransCanada.

<b>TABLE 7-1 EXISTING CONDITIONS AND REASONABLY FORESEEABLE FUTURE ACTIONS</b>			
<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status*</b>
<b>ROW Extension to the Harry Allen Substation</b>			
Southwest Intertie Project 500kV Transmission Line and Substations	Midpoint, Idaho to Dry Lake Valley, Nevada	500kV transmission line with interconnections into Midpoint, Robinson Summit and Dry Lake Substations	P
Harry Allen 230kV and 500kV Substations/Switchyards	Apex Industrial Park	Two substations are located in this area in the vicinity of the Harry Allen Generation Station	P
Crystal Substation	Dry Lake Valley, north of Harry Allen Substations	500kV – 230kV substation	P
Kern River Natural Gas Pipeline	West of Interstate 15	Natural gas pipeline and compressor station	P
Harry Allen-to-Mead 500kV Transmission Line – First Circuit	Between Mead Substation, located south of Lake Mead and the Harry Allen Substation, northeast of Las Vegas	500kV transmission line	P
Harry Allen-to-Mead 500kV Transmission Line – Second Circuit	Parallel to First Circuit, and in some areas sharing towers with First Circuit	500kV transmission line	F
Harry Allen-to-Northwest and Harry Allen-to-Crystal 500kV Transmission Lines	Between Harry Allen, Chuck Lenzie Power Plant and the existing Northwest and Crystal Substations	Two 500kV transmission lines	P
Harry Allen-to-Apex and Silverhawk 500kV Transmission Lines	Between Harry Allen and the Apex and Silverhawk Generating Stations	500kV transmission line	P
Harry Allen-to-Pecos, Harry Allen-to-Northwest, and Harry Allen-to-Reid Gardner Transmission Lines	Between Harry Allen Substation, Pecos, and Reid Gardner Substations	230kV transmission lines	P
Harry Allen-to-Red Butte Transmission Line	Between Harry Allen Substation and Red Butte Substations	345kV transmission line	P
Georgia Pacific Las Vegas Plant, Gypsum Division	Apex Industrial Park	Gypsum wallboard manufacturing facility, approximately 100 acres	P
Nevada Cogen #1 Chevron and Northern Star Generating	Apex Industrial Park	An 85 MW natural gas plant that provides electrical power to Nevada Power and thermal heat to Georgia Pacific, for gypsum board production	P
Apex Generating Station, LS Power	Apex Industrial Park	A 550 MW natural gas, combined cycle power plant; approximately 200 acres	P
Harry Allen Generation Station, NPC	Highway 93 and Interstate 15	A 150 MW natural gas, simple cycle peaking power plant; planned expansion includes a 500 MW natural gas, combined cycle unit	P, F

**TABLE 7-1  
EXISTING CONDITIONS AND  
REASONABLY FORESEEABLE FUTURE ACTIONS**

<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status*</b>
Chuck Lenzie Generating Station, NPC	Apex Industrial Park	A 1,200 MW natural gas, combined cycle power plant	P
Silverhawk Power Station, NPC/Southern Nevada Water Authority (SNWA)	Apex Industrial Park	A 570 MW natural gas, combined cycle power plant	P
Reid Gardner Power Plant Nevada Power	Near the Town of Moapa, off of the Moapa Paiute Reservation	A 605 MW coal-fired power plant	P
Apex Regional Landfill, Republic Services	Apex Industrial Park	Municipal landfill permitted for 1,100 acres, currently using about 250 acres	P
Apex Landfill Pit Las Vegas Paving	Apex Industrial Park	Sand and gravel operations covering about 300 acres	P
Apex Quarry and Plant, Chemical Lime Company and Granite Construction	Apex Industrial Park	Limestone mining, milling, and processing operations by Chemical Lime, granite crushes overburden; approximately 1,500 acres	P
Interstate 15	Diagonally through the southeast portion of Nevada	Four-lane interstate highway and easement	P
UPRR	Generally parallels Interstate 15 through Dry Lake Valley	Mainline railroad track, access road, and future addition of a second track	P, F
U.S. Highway 93	Approximately 1 mile south	US Highway	P
<b>Coyote Springs Realignment</b>			
Southwest Intertie Project 500kV Transmission Line and Substations	Midpoint, Idaho to Dry Lake Valley, Nevada	500kV transmission line with interconnections into Midpoint, Robinson Summit and Dry Lake Substations	P
MCI Fiber Optic Line	Lincoln and Clark counties (located within BLM utility corridor)	Fiber optic line	P
Lincoln County Power District 69kV transmission line	Lincoln and Clark counties (located within BLM utility corridor)	69kV transmission line	P
SNWA Water Pipeline	White Pine, Lincoln, and Clark counties (located within BLM utility corridor)	Water pipeline system	F
SNWA 230kV Transmission Line	White Pine, Lincoln, and Clark counties (located within BLM utility corridor)	230kV transmission line	F
Lincoln County Power District 2x138kV Transmission Line	Lincoln and Clark counties (Located within BLM utility corridor)	2x138kV transmission line, single - circuit, or 1x138 transmission line double-circuit	F
SPPC/NPC 500kV Transmission Line (1 of 2)	White Pine, Lincoln, and Clark counties (located within BLM utility corridor)	500kV transmission line	F
SPPC/NPC 500kV Transmission Line (2 of 2)	White Pine, Lincoln, and Clark counties (located within BLM utility corridor)	500kV transmission line	F
TransCanada (Northern Lights) 500kV Transmission Line	Eastern Montana to Las Vegas, Nevada (located within BLM utility corridor)	500kV DC transmission line	F
TransCanada (Northern Lights) 500kV Transmission Line	Wyoming to Las Vegas, Nevada (located within BLM utility corridor)	500kV DC transmission line	F

**TABLE 7-1  
EXISTING CONDITIONS AND  
REASONABLY FORESEEABLE FUTURE ACTIONS**

<b>Project</b>	<b>Location</b>	<b>Description</b>	<b>Status*</b>
Coyote Springs/ Pardee Homes Development	State Road 168 and Highway 93	Housing and golf development	F
BLM Utility Corridor	Coyote Spring Valley	Corridor established through LCCRDA for linear/utility facilities	P
Coyote Spring Valley Well and Moapa Transmission Project	Coyote Spring Valley	Groundwater test well and pipeline	P
U.S. Highway 93	North-South corridor through eastern side of Nevada	Two-lane U.S. highway	P
Western Elite Landfill and Quarry	West of Highway 93 in Lincoln County	Landfill and quarry operation	P
<b>Thirtymile Substation</b>			
Southwest Intertie Project 500kV Transmission Line and Substations	Midpoint, Idaho to Dry Lake Valley, Nevada	500kV transmission line with interconnections into Midpoint, Robinson Summit and Dry Lake Substations	P
WPEA/GBT 500kV Transmission Line	White Pine County (located within BLM utility corridor)	500kV transmission line	F
SPPC/NPC 500kV Transmission Line (1 of 2)	White Pine, Lincoln, and Clark counties (located within BLM utility corridor)	500kV transmission line	F
SPPC/NPC 500kV Transmission Line (2 of 2)	White Pine, Lincoln, and Clark counties (located within BLM utility corridor)	500kV transmission line	F
TransCanada (Northern Lights) 500kV Transmission Line	Eastern Montana to Las Vegas, Nevada (located within BLM utility corridor)	500kV DC transmission line	F
TransCanada (Northern Lights) 500kV Transmission Line	Dillon, Montana to Las Vegas, Nevada (located within BLM utility corridor)	500kV DC transmission line	F
BLM Utility Corridor	Follows the SWIP ROW Grant	Multiple interstate high voltage electric transmission lines, substations, and gas pipelines; future addition of new lines	P, F
Gonder-to-Machacek 230kV Transmission line	Approximately ¼ mile south of the proposed Thirtymile Substation site	230kV transmission line	P
Falcon-to-Gonder 345kV Transmission line	Approximately ¼ mile south of the proposed Thirtymile Substation site	345kV transmission line	P
U.S. Highway 50	Approximately ½ mile north of the proposed Thirtymile Substation site	Two-lane U.S. highway	P
<b>*P = Past or Present, F = Future</b>			

### 7.2.3 Coyote Springs Realignment

In addition to the Proposed Action, this EA also evaluated the realignment of approximately 25 miles of the transmission line ROW in Coyote Spring Valley. The LCCRDA of 2004 mandated relocation of the existing SWIP designated utility corridor from the east to the west side of U.S. Highway 93 in the Coyote Springs area, and realignment of the SWIP ROW to be within the relocated utility corridor. LCCRDA also specified that a proposed SNWA/Lincoln County Water

District water pipeline be sited in the relocated utility corridor. A primary purpose of designated utility corridors is to reduce the level of cumulative impacts through the consolidation of ROWs. Approximately 237 acres of land will be disturbed during construction of the realigned portion of the SWIP transmission line. Of this amount, approximately 103 acres may be permanently displaced for access roads and at tower sites. The remaining 134 acres would be restored as specified in the COM Plan. As presently proposed by other utilities, up to a total of six additional transmission lines (or circuits) are to be located within the SWIP designated utility corridor in this area, as well as a proposed water pipeline as presented in Table 7-1.

As illustrated in Figure 11, in addition to the existing and planned utilities in this area, the Western Elite Landfill and Quarry (industrial area) is located to the west of U.S. Highway 93, and to the east side of the highway in this area is the Coyote Springs Planned Development. Components of this proposed development include single and multi-family residential areas (up to 111,000 residential dwelling units), commercial and light industrial areas, multiple golf courses, hotels and resorts, open space and a resource management area. A DEIS was completed for this project in November 2007. Under the preferred alternative, approximately 21,454 acres would be developed over the course of 40 years, including 7,548 acres that will be dedicated as the Coyote Springs Resource Management Area. This planned development also includes the construction of flood detention basins totaling approximately 3,331 acres. Of these, eight detention basins with trash racks and sediment storage for off-site storm flows could be built west of U.S. Highway 93 within the BLM utility corridor (up to 244 acres).

### **7.3 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS**

Table 7-1 contains a list of past, present and reasonably foreseeable future actions in the region which, due to general proximity, could potentially have cumulative impacts with each of the SWIP ROW modifications considered in this EA. Following this table is a description of other projects or planning actions that are known to have included the SWIP Project in the documentation of cumulative effects in their respective NEPA documents.

In addition to the analysis completed in the SWIP EIS, several other NEPA documents have been completed which include the SWIP in their cumulative analyses, including the following:

- Harry Allen-to-Crystal 500kV Transmission Line - EA
- Harry Allen 500kV Substation - EA
- Harry Allen-to-Northwest 500kV Transmission Line - EA
- Chuck Lenzie (formally Duke) Natural Gas Generating Station - EA
- Silverhawk Generating Station - EA
- Harry Allen-to-Lenzie 500kV Transmission Line - EA
- Harry Allen-to-Mead 500kV Transmission Line - EA
- Harry Allen-to-Harvey Well Water Pipeline - EA
- Kern River II Natural Gas Pipeline - EIS
- Falcon-to-Gonder 345kV Transmission Line - EIS
- Ely BLM PRMP - EIS
- White Pine Energy Station - DEIS

With respect to the WPES, the power plant proposed by Great Basin's affiliate WPEA, the WPES DEIS evaluates the SWIP as both a cumulative action and a connected action. This is because full build-out of the proposed WPES (i.e., to approximately 1600 MW) is unlikely to

occur without construction of all or a portion the SWIP or a similar transmission project (see WPES DEIS at pg. 2-39). On the other hand, the SWIP is not dependent on the WPES because, as previously noted, the SWIP would serve other independent functions (e.g., interconnect existing utility grids in northern and southern Nevada, increase regional transmission system reliability, provide transmission service for other generation including proposed or potential renewable energy projects) and may be constructed by Great Basin, in whole or in part, in the absence of the WPES.

## **7.4 ANALYSIS OF THE CUMULATIVE EFFECTS**

The following sections provide a description of the potential cumulative effects when considering the modifications collectively with respect to specific environmental resources, followed by a summary of overall cumulative environmental effects. In particular, the potential effects associated with multiple transmission lines and other linear facilities currently planned within the designated BLM utility corridor are addressed.

### **7.4.1 Biological Resources**

Cumulative effects to biological resources are generally additive and would be proportional to the amount of ground disturbance within specific project areas. In particular, the cumulative effect of several projects constructed in the same area such as the BLM utility corridor (i.e., SWIP, NPPC/SPPC and TransCanada 500kV transmission lines) at the local level is likely to produce impacts that will vary to some extent depending upon proximity of additional lines. Increasing numbers of transmission lines, roads and development (e.g., Coyote Springs) in areas of wildlife habitat are an important consideration. Such impacts can be minimized through the concentration of linear projects (transmission lines, pipelines, etc.) into designated corridors with the goal of reducing habitat fragmentation. Following is a description of these effects associated with each of the modifications.

While it is assumed that the effects of multiple transmission lines would “multiply” to some extent the native habitat acreage disturbed or lost, access roads developed in association with the extension of the transmission line to Harry Allen Substation and the Coyote Springs Realignment may serve more than one transmission line project and would therefore minimize the requirements for new access in certain areas resulting in reduced ground disturbance. Construction of the facilities associated with the ROW extension to Harry Allen Substation will result in a total of approximately 25 acres of temporary disturbance and 11 acres of permanent disturbance and the Coyote Springs Realignment will result in a total of approximately 134 acres of temporary disturbance, and approximately 103 acres of permanent disturbance. In these modified locations, areas not permanently displaced by project facilities and long-term access will be restored and/or closed in accordance with direction from the BLM as presented in the COM Plan, and in the specific areas of the extension of the ROW to Harry Allen, and the realignment in Coyote Springs, cacti and yucca will be salvaged and replanted off of impact areas for later replacement. It is expected that the development of future facilities in the area will include similar restoration requirements to help minimize the cumulative effects associated with the loss of vegetation and habitat in these two areas of modification. This most recently includes plans such as those proposed for the Coyote Springs Planned Development which include the dedication of 7,548 acres as a resource management area.

Ground disturbance associated with the ROW extension to Harry Allen Substation and the Coyote Springs Realignment could also increase the potential for the spread of noxious and invasive weeds, as could other projects in the immediate area including future transmission lines (see Table 7-1) and the Coyote Springs Development. Adherence to the specific weed control measures identified in the Noxious Weed Management Plan and the ROW Preparation, Rehabilitation and Restoration Plan (part of the COM Plan, and discussed in Section 6.5 of this EA), including measures identified by the BLM will minimize the introduction and spread of noxious and invasive weeds during, and following, construction. The adherence of future projects in the area to similar standards will help minimize cumulative effects with respect to the introduction and spread of noxious weeds.

The Mojave Desert Tortoise is known to be present along the ROW extension to the Harry Allen Substation, and in the area of the Coyote Springs Realignment where the transmission line would be located in some areas designated as Critical Habitat. The Clark County Department of Comprehensive Planning and USFWS have addressed cumulative effects to biological resources from development and construction activities on a county-wide basis, and the Final Multi-Species Habitat Conservation Plan (prepared by Clark County; the Cities of Las Vegas, North Las Vegas, Boulder City, Mesquite, and Henderson; and the Nevada Department of Transportation) address sensitive and protected biological resources and require mitigation for the effects to Desert Tortoise (as described in Section 6.2 of this EA). Section 7 Consultation with USFWS has been completed for the SWIP – Southern Portion, and the BA and BO address direct and indirect impacts to the Desert Tortoise in these locations, and also prescribe mitigation measures including compensation and other measures (use of H-frames in the Coyote Springs ACEC) that are included in the COM Plan. Because plans and mitigation requirements have been, and will continue to be, developed to address potential impacts to the Desert Tortoise, and because consultation and detailed mitigation planning will occur on other future projects including the Coyote Springs Planned Development, cumulative effects associated with other future development should be minimized.

Impacts to other sensitive species including the Las Vegas Valley buckwheat that could be affected by the physical loss of habitat associated with successive projects in the areas of modification associated with the extension to the Harry Allen Substation and the realignment in Coyote Springs will also be minimized through careful siting, construction sequencing, and monitoring. Effects to migratory birds will be mitigated by the use of biological monitors during construction in the migratory bird season and by the avoidance of sensitive nesting areas until nests become dormant. It is expected that development of future facilities in the area will employ similar mitigation measures and practices to minimize cumulative impacts.

No threatened or endangered species, or designated Critical Habitat, were identified in the Thirtymile Substation area. Rare plant surveys conducted during Spring 2006 also did not reveal the presence of any sensitive plant species at this location. The substation will not affect populations of Sage Grouse in locations well to the north (Butte Valley) and south (Jakes Valley). Similar to the other modifications, mitigation measures, construction sequencing and monitoring as prescribed in the COM Plan for the SWIP – Southern Portion, as well as mitigation measures associated with other future projects within the designated corridor in this area will minimize cumulative effects to biological resources including potential effects to habitat and migratory birds.

#### **7.4.2 Cultural Resources**

No cultural resource sites were identified in association with the ROW extension to the Harry Allen Substation, therefore, this modification should not contribute cumulatively to effects to cultural resources in this area.

The potential exists for cumulative impacts to archaeological and historic sites and TCPs as a result of the Thirtymile Substation and Coyote Springs Realignment, as a total of 76 cultural sites were identified within the APEs associated with the Thirtymile Substation and the Coyote Springs Realignment. Of this total, 16 are recommended as eligible for listing on the NRHP. However, because of mitigation measures, it is anticipated that any potential direct impacts from project construction of these modifications would be fully mitigated through commonly employed practices such as data recovery and construction monitoring, as would be the case with other potential future transmission lines and facilities planned for the SWIP corridor. Important resources that would be affected by construction activities would be avoided, or if this is not possible, recovered for their scientific value. The impact on cultural resources from future utility projects cannot currently be determined but the cumulative effects of all of the transmission lines planned within the corridor being in-place is not expected to be measurably different than the additive impacts of each single project, but again, the impacts of direct disturbance to sites would be mitigated.

The construction of new access associated with the utility corridor could also result in additional indirect cumulative impacts to cultural resources through incidental destruction, or vandalism by the public. However, as presented in the COM Plan, mitigation measures, including the closure of new access roads not required for maintenance, as deemed practicable and identified by the BLM and the Project Proponent, would limit new or improved accessibility.

Projects in the vicinity of the SWIP such as the Coyote Springs Planned Development may also contribute cumulatively to cultural resource impacts. At the time of the completion of the DEIS for the Coyote Springs Planned Development, a total of 31 archaeological sites had been identified. Of these a total of 26 are considered to be potentially eligible for listing on the NHRP, however, consultation with the Nevada SHPO would require the development of mitigation actions that would reduce or compensate for damages to, or the loss of, any NHRP eligible resource.

#### **7.4.3 Paleontological Resources**

The potential exists for cumulative impacts to paleontological resources as a result of future development including additional planned transmission lines in the immediate vicinity of the proposed modification areas and in association with the SWIP corridor. The level of potential cumulative impacts is dependent on the sensitivity and potential of disturbed areas to contain fossils. A paleontological resources treatment plan has been prepared for the SWIP – Southern Portion (San Bernardino County Museum, 2006) and includes mitigation measures that would address potential impacts to paleontological specimens prior to construction and during construction of the proposed project, such as monitoring for paleontological specimens during construction. If resources are identified during the intensive pedestrian field inspection which would be conducted prior to construction, appropriate measures would be implemented in order to minimize impacts. The treatment plan will be included as an appendix to the COM Plan.

In the area of the ROW extension to the Harry Allen Substation, investigations concluded that this area was of low sensitivity would not add to cumulative impacts to paleontological resources and no further investigations would be required. The Thirtymile Substation and the Coyote Springs Realignment are both located in areas of an undetermined paleontological sensitivity that will undergo intensive pedestrian field inspection prior to construction. It is anticipated that future projects located in or near the SWIP corridor in these areas would require the same level of study as that conducted in the areas of modification. Similar to cultural resources, it is anticipated that significant resources that would be affected by construction activities would be avoided, or if this is not possible, recovered for their scientific value. In addition, mitigation measures established in the respective COM Plans associated with these projects would also be implemented thereby avoiding or reducing the cumulative effects to paleontological resources.

#### **7.4.4 Land Use, Recreation, and Access**

Existing and planned land use within the area of the ROW extension, and Harry Allen Substation (see Table 7-1 and Figure 9) is primarily industrial in a heavily modified setting, consisting of numerous utility facilities such as the Harry Allen Generation Plant, the two Harry Allen Substations, 500kV, 345kV and 230kV transmission lines and associated access roads, and the Kern River Natural Gas Pipeline and Metering Station. The ROW extension would be constructed on vacant, non-grazing BLM land and is consistent with the Northeast Clark County Land Use Plan, which designates this area as *Heavy Industrial* and *Open Land*. There are no active recreation areas in the immediate vicinity, and the Las Vegas RMP designates OHV use in the vicinity of the extension as “limited to existing roads, trails, and dry washes.” In this regard additional long-term access associated with the extension to Harry Allen will generally be limited to the transmission ROW and, while resulting in additional access, the cumulative effects will be reduced through mitigation measures including the closure of new access roads not required for maintenance as deemed practicable and identified by the BLM in coordination with the Project Proponent that would limit new or improved accessibility.

The ROW relocation in the area of the Coyote Springs Realignment occurs within a vacant area designated as a BLM utility corridor (non-grazing lands) in which numerous electric transmission lines and one pipeline currently exist or are proposed for the future (See Table 7-1). In addition, the Coyote Springs Development (approximately 21,454 acres) includes proposed detention basins within the utility corridor in Coyote Spring Valley north of State Route 168. The location of the SWIP alignment in the designated utility corridor and near these basins has been specifically designed to optimize the location for the addition of future ROWs and linear facilities, while minimizing potential cumulative impacts to multiple resources. The addition of new access into this area west of U.S. 93 may increase the potential for OHV use associated with residents of the Coyote Springs Development near the Desert National Wildlife Range. However, again, mitigation measures including the closure of new access roads not required for maintenance, as deemed practicable and identified by the BLM in strategic locations, would limit new or improved accessibility, and access established by the SWIP may reduce the amount of overall new access associated with additional transmission lines and other linear facilities in this area

At the Thirtymile Substation cumulative impacts to existing and planned land use and recreation are anticipated to be minimal. While the Thirtymile Substation and interconnections will displace a small amount of potential grazing land (81 acres of the 178,716-acre Thirty Mile Spring BLM grazing allotment), the substation is located on vacant land in association with the designated

Falcon-to-Gonder and SWIP utility corridors, and as such will accommodate and consolidate existing and future interconnections in an area that is readily accessible from U.S. Highway 50. No new additional roads will be required to access the site and there are no existing or planned active recreational areas in the immediate vicinity of the substation site.

#### **7.4.5 Visual Resources**

Increased modifications to the landscape due to the addition of transmission towers (resulting in more contrast of form, line color, and texture) within a multi-line corridor, typically cause an increase in the visibility at longer distances because of the cumulative physical contrast with the natural landscape. Usually, the first transmission line or substation located within a corridor will cause the greatest incremental change, and then each additional line will add cumulatively, but often increasingly less, to the visual impact.

The transmission line extension to the Harry Allen Substation would add cumulatively to the visual impacts in the Dry Lake Valley area because it would be located there in addition to the multiple lines associated with the Harry Allen 230kV and 500kV substation (see Figure 9), and the Crystal Substation and associated lines to the north, east and south. Visual impacts in this area are primarily associated with viewers on I-15 and U.S. Highway 93. The local and regional setting within this area has been significantly modified by the presence of these and other facilities, and the introduction of the extended transmission line into the Harry Allen Substation should not add substantially to the cumulative effects given the viewing distance (1.5 miles and beyond), and the back-dropped condition, most often in context with these other facilities. Mitigation measures including the use of dulled finishes on structures, and the use of non-specular conductors will further reduce cumulative effects in this area

Existing transmission lines and the resulting visual impacts are present within Coyote Spring Valley (69kV line) and in the immediate vicinity of Thirtymile Substation site (230kV and 345kV lines). In addition, the Western Elite Landfill and Quarry, and the planned Coyote Springs Development have, and will substantially alter the appearance of the natural landscape in Coyote Spring Valley, especially with the introduction of the newly planned residential/resort community. The SWIP will add increasingly to these visual impacts. Casual observers from U.S. Highway 93, and U.S. Highway 50 (substation) as well as other local roads would be affected, with the greatest incremental impact taking place on Highway 93 in association with the Coyote Springs Realignment and Coyote Springs Development and on eastbound U.S. Highway 50 near the Thirtymile Substation. Additional lines, if constructed, will add further to the visual cumulative impacts in these areas, although the Ely PRMP has designated the SWIP corridor as VRM Class IV, allowing for these major modifications in the corridor. In general, the grouping of facilities within the SWIP utility corridor would minimize overall cumulative effects on a regional basis through consolidation. However, in the immediate viewshed of the corridor area, the cumulative visual contrast could be slightly increased as each new project is added, and the multiple lines become more noticeable to the casual observer. Measures to minimize these impacts, such as the selective location of towers within the corridor, the use of similar structures and the similar placement of structures (matching spans), dulled finishes on structures, and the use of non-specular conductors will reduce these cumulative effects.

#### **7.4.6 Wilderness and Wild and Scenic Rivers**

No cumulative impacts to wild and scenic rivers are anticipated for the three modifications. No wild or scenic rivers are present in the areas of modification, and the nearest Wilderness area, the Delamar Wilderness area, is located approximately 0.75 to 2 miles east of the Coyote Springs Realignment and separated from the realignment by U.S. 93 and areas of private land in select locations. The realignment of future power lines and portions of the Coyote Springs development would be visible from the wilderness area to the west within this modified setting; however, impacts to viewers from the Delamar Wilderness and Meadow Valley Range Wilderness would be minimized based on distance to and the backdropped conditions of the SWIP, and implementation of the mitigation measures previously described.

#### **7.4.7 Wildfire Management**

Cumulative effects with respect to wildfire management are primarily associated with potential impacts that are influenced by construction activities and additional access and the types of vegetation located in the areas of modification, as well as fire suppression. There will be incremental cumulative effects from the addition of new access associated with the SWIP, as well as other planned future utilities that could allow for human-caused, accidental ignitions from maintenance activities or recreational users along access roads associated with the ROW extension to the Harry Allen Substation and the Realignment at Coyote Springs. However, mitigation measures including the closure of new access roads not required for operation and maintenance as approved by BLM in coordination with the Project Proponent would limit new or improved accessibility, and the potential for future lines to utilize long-term access associated with the SWIP could reduce these effects. In addition, improved access associated with the modifications and future transmission lines could have the potential for use as fire-break lines and help minimize the need to create new breaks in the event of a fire.

Fire suppression, including mitigation measures and protocols identified in the COM Plan for the SWIP will be applied during construction of the ROW extension to Harry Allen Substation, Thirtymile Substation, and the Realignment at Coyote Springs, and similar measures will also be required for future projects that will assist in reducing potential cumulative effects from fire related incidents that could affect other facilities and developments. These measures, including fire prevention measures (restrictions on smoking, no open fires, restrictions on welding and use of spark arresting devices, etc.) will reduce the potential for fires during construction, and it is assumed that for the SWIP and all future projects, construction personnel would be trained in fire suppression and appropriately equipped to deal with fires, should the need arise.

#### **7.4.8 Earth Resources**

There are no unique or special geological features in the areas of modification. Cumulative impacts to earth resources associated with the areas of modification primarily include effects to soils, including the potential for increased wind and water erosion during construction. Impacts to surface water associated with each modification are limited, and none of the modifications are expected to directly affect groundwater resources. With respect to soil erosion, the cumulative impacts would not be measurably different than the additive impacts of each of the incremental transmission line effects. Each additional transmission line or facility introduced into the utility corridor or in the area of cumulative effect associated with the utility corridor would add to

potential wind and water soil erosion dependent on the mitigation measures implemented for each project. Curtailing construction during periods of rain, limiting the areas of disturbance, and the use of erosion control mitigation measures and restoration practices as described in the COM Plan would be implemented to minimize the potential for short and long-term impacts to soils. Impacts to ephemeral drainages and washes in this area are expected to be reduced based on the selective location of towers (spanning of drainages), limiting the area of disturbance, and erosion control and reclamation measures presented in the COM Plan.

Generally, ground disturbance and new access would be incrementally less for each successive project within the corridor in proximity to the areas of modification, which would typically add less impact from each project. However, the cumulative effects of all transmission lines in the corridor would likely be greater than any single project. Indirect and off ROW impacts could result from increased OHV travel on-and-off access roads associated with the construction and maintenance of the ROW extension to Harry Allen and the Coyote Springs Realignment could result in greater ground disturbance over time, but mitigation measures including the closure of new access roads not required for maintenance as deemed practicable and identified by the BLM would limit new or improved accessibility. Access developed for construction of the modifications may also be potentially used by future projects, thereby reducing the amount of overall ground disturbance and cumulative effects to soils.

#### **7.4.9 Air Resources**

Cumulative impacts to air quality associated with the ROW extension to Harry Allen Substation, the Thirtymile Substation, and the Coyote Springs Realignment are anticipated to be minimal as air-related impacts are primarily short-term in duration resulting from the construction of the proposed facilities and limited operation and maintenance activities. Cumulative impacts to air quality could occur if other projects within the corridor were constructed at the same time as the SWIP (e.g., detention basins for the Coyote Springs Development), however, at this time the sequence for the construction of these facilities is unknown. If multiple projects were constructed during the same time period, adherence to air permit requirements, and mitigation measures including dust suppression as outlined in respective COM Plans would effectively reduce these cumulative effects (see also Section 6.11 of this EA). Exceedance of regulatory standards is not anticipated.

#### **7.4.10 Hazardous Materials**

No hazardous material sites in the areas of modification have been identified. No hazardous materials would be stored along the ROW extension to the Harry Allen Substation, along the Coyote Springs Realignment, or at the Thirtymile Substation. Therefore the potential for cumulative impacts from hazardous materials exists primarily during construction. A spill prevention plan and reference to hazardous material regulations are included in the COM Plan. During construction of the transmission line, mitigation measures outlined in the COM Plan would be followed to ensure that vehicles will be kept in good working condition and impacts from hazardous materials are minimized.

At this time the sequence for the construction of these facilities is unknown. If multiple projects were constructed during the same time period, adherence to spill prevention measures, regulations regarding the use of hazardous materials, and measures regarding the handling of

hazardous materials as outlined in respective COM Plans would effectively reduce cumulative impacts.

#### **7.4.11 Socioeconomic and Environmental Justice**

Cumulative socioeconomic impacts are generally only a concern if they would overextend public services and accommodations in the project area. Because of the small size of the work force associated with transmission line construction, and its transitory nature, cumulative impacts are not expected with regard to the construction of the ROW extension, the Coyote Springs Realignment, or the Thirtymile Substation.

Environmental justice addresses environmental concerns within the context of federal actions in the areas of minority and low-income populations. The ROW extension, construction and operation of the Thirtymile Substation, and Coyote Springs Realignment would not add cumulatively to impacts to minority or low-income populations because such populations were not identified in association with the three modification areas addressed in this EA (see also Section 6.6 of this EA).

#### **7.4.12 Areas of Critical Environmental Concern**

No ACECs would be affected by the extension of the ROW to the Harry Allen Substation, or at the Thirtymile Substation. The Coyote Springs Realignment slightly alters the original alignment at the northern end of the Coyote Springs ACEC (approximately 1.0 mile), which is designated for the protection of the Mojave Desert Tortoise. In this area, Section 7 Consultation with USFWS has been completed, and the BA and BO address direct and indirect impacts to the Desert Tortoise in these locations, and also prescribe mitigation measures including the use of H-frame structures, seasonal restrictions, tortoise monitoring, compensation and other measures included in the COM Plan as described in Section 7.4.1, above (see also Section 6.2 of this EA). It is expected that future projects may benefit from the access developed for the SWIP in this area, and that similar consultation with USFWS to minimize direct and cumulative impacts will occur.

### **7.5 SUMMARY**

Construction and maintenance of the modifications in the SWIP ROW will add cumulatively to other existing and future projects (identified in Table 7-1) within the region as previously described, however the extension of the ROW to the Harry Allen Substation and a small portion of the Coyote Springs Realignment are the only areas that were not accounted for in the original project analysis in the SWIP EIS in areas that have been, or are presently being substantially altered by other development. The 3.8-mile ROW extension to the Harry Allen Substation includes disturbance areas not included in the original cumulative analysis, however the Thirtymile Substation and the Coyote Springs Realignment (with the exception of an additional 1.5 miles) are relocations of facilities accounted for in the original project analysis. As part of the Proposed Action, the approved Robinson Summit Substation will not be constructed, but rather, replaced by the Thirtymile Substation. The Coyote Springs Realignment is a relocation of the previously approved and planned SWIP ROW from the eastern to the western side of U.S.

Highway 93 based on LCCRDA, therefore overall impacts from these modifications are not expected to add substantially to those previously documented in the SWIP EIS.

To a large degree, the cumulative effects to all environmental resources should be minimized in the long-term based on extensive planning and the location of the SWIP and other planned linear facilities within a common utility corridor (to the extent possible). The location of the SWIP, as well as other existing and planned linear facilities within this corridor, allows for the consolidation and therefore reduction of the incremental impacts associated with past, present, and future actions within a defined and relatively confined area. In particular, by consolidating these facilities within an established utility corridor, future lines and linear facilities are located in a previously planned for and modified setting, and may potentially benefit from long-term access established for the SWIP thereby reducing cumulative effects related to impacts resulting from the construction of new access and the land disturbance required for new access.

The BLM has worked, and will continue to work with the Project Proponent to position the transmission line in a manner that (1) accommodates existing and potential future utilities to the greatest degree possible, (2) minimizes environmental impacts, and (3) maintains consistency with the original ROW grant. This includes consideration for multiple transmission lines, including those proposed by other entities. The BLM also has taken additional steps to further accommodate future lines by requiring the SWIP to use double-circuit structures in the Pahranaagat Wash area, south of the Delamar Valley and Dry Lake.

## **SECTION 8.0**

### **LIST OF PREPARERS AND CONTRIBUTORS**

---

This EA was prepared at the direction of the BLM Ely and Southern Nevada District Offices, Nevada, by EPG, under a contract with Great Basin. The following is a list of individuals responsible for the preparation, or contribution of information for the EA:

#### **Bureau of Land Management**

##### **Ely District Office**

Jeff Weeks	Field Manager, Egan Field Office
Brenda Linnell	Realty Specialist
Jane Peterson	Energy Project Manager
Susan Baughman	Planning and Environmental Coordinator
Nathan Thomas	Archeologist
Elvis Wall	Native American Coordinator
Bonnie Million	Natural Resource Specialist/Weeds
Brad Pendley	Wildlife Biologist
Craig Hoover	Rangeland Management Specialist

##### **Caliente Field Office**

Ron Clementsen	Caliente Field Office Manager
Alicia Styles	Wildlife Biologist

##### **Southern Nevada District Office**

Frederick Marcell	Realty Specialist
Jeff Steinmetz	Planning and Environmental Coordinator
Susanne Rowe	Archeologist
Christina Lund	Botanist
Carrie Ronning	MSHCP Coordinator
Mark Maynard	Wildlife Biologist
Everett Bartz	Rangeland Management Specialist

#### **Great Basin Transmission LLC**

Mark Milburn	Project Manager
Michael Malmquist	Legal Counsel to Great Basin

#### **EPG, Inc.**

Garlyn Bergdale	Project Principal
Randall Palmer	Project Manager
Newton DeBardeleben	Project Coordinator
Ross Dorothy	Project Coordinator
Nate Ferguson	Land Use, Earth Resources
Linwood Smith	Biological Resources

EPG, Inc. (continued)

Jason Corbett  
Glenn Darrington  
Rebecca Halbmaier  
Marc Schwartz

Biological Resources  
Cultural Resources  
Cultural Resources  
Visual Resources

## REFERENCES

- Air Sciences Inc. January 10, 2007. *Air Quality Attainment Status Designations and Surface Area Disturbance Permitting Report for EPG.*
- Crews, Rachel, Rebecca Halbmaier, Sandy McDaniel II, Kris Dobschuetz and Glenn Darrington. 2007. *A Cultural Resource Survey for the Proposed Southwest Intertie Project – Southern Portion, White Pine, Nye, Lincoln, and Clark Counties, Nevada.* EPG Cultural Resource Services Technical paper 2006-7, EPG Phoenix (*draft*).
- Deis, Richard. 2007. *Cultural Resource Investigations for the White Pine Energy Station Project: Class I and Class III Inventory for the White Pine Energy Station Project, White Pine County, Nevada.* BLM Report #:CRR 8111 (NV 040) 2005-1542. EDAW, Sacramento.
- Marfil, Greg, Las Vegas BLM Fire Mitigation and Education Specialist. August 2006. *Email correspondence regarding Fire Management Units located within project vicinity.*
- Huffman-Broadway Group, Inc. 2005. *Mitigation Plan: The Coyote Springs Development Project, Clark County, Nevada.*
- San Bernardino County Museum. 2006. *Paleontologic Resources Literature Review and Treatment Plan.*
- U.S. Department of the Interior, Bureau of Land Management. December 1983. Egan Draft Resource Management Plan and Environmental Impact Statement .
- \_\_\_\_\_. September 1984. Egan Proposed Resource Management Plan and Final Environmental Impact Statement.
- \_\_\_\_\_. 1994. Southwest Intertie Project, Record of Decision and Approval Land Use Plan Amendment.
- \_\_\_\_\_. 1994. Southwest Intertie Project, Right-of-Way Grant, Serial Numbers: 1D1-26446, NVN-49781, UTU-73363.
- \_\_\_\_\_. 1999. Southwest Intertie Project, Right-of-Way Grant Extension, Serial Numbers: 1D1-26446, NVNj0-49781.
- \_\_\_\_\_. 2004. Southwest Intertie Project, Right-of-Way Grant Extension, Serial Numbers: 1D1-26446, NVN-49781.
- \_\_\_\_\_. 1981-1995. Caliente Management Framework Plan
- \_\_\_\_\_. 1980-1993. Schell Management Framework Plan
- \_\_\_\_\_. May 1998. Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement, Volumes I and II.

U.S. Department of the Interior, Bureau of Land Management, Ely District Office. Accessed on August 15, 2006. *Wilderness Fact Sheet, Delamar Mountain Wilderness*. [http://www.nv.blm.gov/ely/wilderness/fact\\_sheet\\_delamar\\_mountains.htm](http://www.nv.blm.gov/ely/wilderness/fact_sheet_delamar_mountains.htm)

\_\_\_\_\_. July 2007. Biological Assessment for the Southwest Intertie Project Southern Portion.

\_\_\_\_\_. November 2007. Proposed Ely Resource Management Plan and Final Environmental Impact Statement, Volumes I, II and Map Volume

\_\_\_\_\_. January 2008. Southwest Intertie Project Southern Portion, 500kV Transmission Line, Construction, Operation and Maintenance Plan, Volumes I and II.

U.S. Fish and Wildlife Service. Accessed August 23, 2006. *Desert National Wildlife Refuge*. <http://www.fws.gov/desertcomplex/desertrange/wilderness.htm>.

\_\_\_\_\_. Accessed August 17, 2006. *Desert National Wildlife Refuge*. <http://www.fws.gov/desertcomplex/desertrange/index.htm>.

\_\_\_\_\_. November 2007. Coyote Springs Investment Planned Development Project, Draft Environmental Impact Statement.

\_\_\_\_\_. December 2007. Memorandum and Biological Opinion for the Southwest Intertie Project (SWIP) Within the Range of the Desert Tortoise in Clark County and Lincoln Counties, Nevada.

**APPENDIX A  
MITIGATION**

---

# APPENDIX A MITIGATION

---

## INTRODUCTION

Two types of mitigation measures were developed during the SWIP EIS process and included as conditions in the ROD that approved the SWIP. These included generic mitigation and selectively committed mitigation measures.

Generic mitigation measures are those that apply to the project as a whole and are typically part of the project description. Selectively committed measures are applied on a case-by-case basis, in specific impact locations. Since the SWIP was approved in 1994, both generic and selectively committed measures have been revisited and revised as a result of several meetings with agency personnel. The following two tables provide a list of the most recent mitigation measures identified to reduce impacts to environmental resources resulting from the construction, operation, and maintenance of the proposed transmission line. During construction, these measures will be monitored by the Construction Inspection Contractor who will review the applicability of these measures and make final determinations regarding their implementation.

Additional mitigation measures have been proposed by Great Basin or requested or required by the BLM, USFWS and other resource agencies, in connection with the preparation of this EA and the BA, BO, and COM Plan. All of the mitigation measures from these various sources have been incorporated in the COM Plan, and compliance with that plan would be included as an enforceable stipulation in the amended ROW grant, just as it is in the original SWIP ROW grant.

<b>Southwest Intertie Project GENERIC MITIGATION MEASURES TABLE A-1</b>	
<b>1.</b>	All construction vehicle movement outside the ROW would normally be restricted to predesignated access, contractor acquired access, or public roads.
<b>2.</b>	The areal limits of construction activities would normally 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 survey or construction activity limits.
<b>3.</b>	In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for resprouting.
<b>4.</b>	In construction areas (e.g., marshalling yards, tower sites, spur roads from existing access roads) where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency. The method of restoration would normally consist of returning disturbed areas back to their natural contour, reseeding (if required), cross drains installed for erosion control, placing water bars in the road, and filling ditches.
<b>5.</b>	Watering facilities (e.g., tanks, natural springs and/or developed springs, water lines, wells, etc.) would be repaired or replaced if they are damaged or destroyed by construction activities to their predisturbed condition as required by the landowner or land management agency.
<b>6.</b>	Towers and/or ground wire would be marked with high-visibility devices where required by governmental agencies (Federal Aviation Administration).
<b>7.</b>	On agricultural land, ROW would be aligned, in so far as practical, to reduce the impact to farm operations and agricultural production.

**Southwest Intertie Project  
GENERIC MITIGATION MEASURES  
TABLE A-1**

<b>8.</b>	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 and state laws regarding antiquities and plants and wildlife, including collection and removal; (b) the importance of these resources and the purpose and necessity of protecting them.
<b>9.</b>	Cultural resources would continue to be considered during post-EIS phases of project implementation in accordance with the programmatic agreement that would be developed in conjunction with preparation of the EIS. This would involve intensive surveys to inventory and evaluate cultural resources within the selected corridor and any appurtenant impact zones beyond the corridor, such as access roads and construction equipment yards. In consultation with appropriate land managing agencies and state historic preservation officers, specific mitigation measures would be developed and implemented to mitigate any identified adverse impacts. These may include project modifications to avoid adverse impacts, monitoring of construction activities, and data recovery studies.
<b>10.</b>	The Project Sponsors would respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigation measures. The transmission line would be patrolled on a regular basis so that damaged insulators or other line materials that could cause interference are repaired or replaced.
<b>11.</b>	The Project Sponsors would apply necessary mitigation to eliminate problems of induced currents and voltages onto conductive objects sharing ROW, to the mutual satisfaction of the parties involved.
<b>12.</b>	The Project Sponsors would continue to monitor studies performed to determine the effects of audible noise and electrostatic and electromagnetic fields in order to ascertain whether these effects are significant.
<b>13.</b>	Roads would be built as near as possible at right angles to the streams and washes. Culverts would be installed where necessary. All construction and maintenance activities shall be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial streambanks. In addition, road construction would include dust-control measures during construction in sensitive areas. All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line. Towers will be sited with a minimum distance of 200 feet from streams.
<b>14.</b>	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary dust control plans will be developed, and permits for construction activities would be obtained. Open burning of construction trash would not be allowed unless permitted by appropriate authorities.
<b>15.</b>	Fences and gates would be repaired or replaced to their original predisturbed condition as required by the landowner or the land management agency if they are damaged or destroyed by construction activities. Temporary gates would be installed only with the permission of the landowner or the land management agency; and would be restored to its original predisturbed condition following construction.
<b>16.</b>	Transmission line materials would be designed and tested to minimize corona. A bundle configuration (three conductors per phase) and larger diameter conductors would be used to limit the audible noise, radio interference (RI), and television interference (TVI) due to corona. Tension would be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution would be exercised during construction to avoid scratching or nicking the conductor surface which may provide points for corona to occur.
<b>17.</b>	During operation of the transmission line, the ROW would be maintained free of non-biodegradable debris. Slash will be left in place or disposed of in accordance with requirements of the land management agency.
<b>18.</b>	The primary focus of paleontological mitigation efforts should be areas of greatest disturbance and areas likely to have significant fossils. Preconstruction surveys of such areas may be conducted as agreed upon by the land-managing and lead federal agency.

**Southwest Intertie Project  
GENERIC MITIGATION MEASURES  
TABLE A-1**

<b>19.</b> Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act (1974) will be adhered to as specified in the Biological Opinion of the USDI Fish and Wildlife Service.
<b>20.</b> Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials shall be removed to a disposal facility authorized to accept such materials.
<b>21.</b> Pre-construction surveys for plants and wildlife species, designated as sensitive or of concern will be conducted in areas of known occurrence or habitat, including noxious weed surveys as stipulated by the land-administering agency during the development of the Construction, Operation, and Maintenance Plan once the transmission line centerline, access roads, and tower sites have been located and staked in the field.
<b>22.</b> Prior to construction, a Noxious Weed Management Plan will be developed in accordance with BLM standards. Included in the noxious weed plan will be stipulations regarding construction, restoration and operation (e.g., use of weed free materials, washing of equipment, etc.).

**Southwest Intertie Project  
SELECTIVELY COMMITTED MITIGATION MEASURES  
TABLE A-2**

<b>1.</b> No widening or upgrading of existing access roads would be undertaken in the area of construction and operation, except for repairs necessary to make roads passable, where soils and vegetation are very sensitive to disturbance.
<b>2.</b> There would be no blading of new access roads in the area of construction and operation. Existing crossings would be utilized at perennial streams, National Recreational Trails, and irrigation channels. Off-road or cross-country access routes would be used for construction and maintenance. This would minimize ground disturbance impacts. These access routes must be flagged with an easily seen marker and the route must be approved in advance of use by the authorized officer.
<b>3.</b> The alignment of any new access roads or overland route would follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values. This would minimize ground disturbance and/or reduce scarring (visual contrast).
<b>4.</b> All new access roads not required for maintenance would be permanently closed using the most effective and least environmentally damaging methods appropriate to that area as approved by BLM in coordination with the Project Proponent (e.g., stock piling and replacing topsoil, or rock replacement). This would limit new or improved accessibility into the area.
<b>5.</b> Modified tower design or alternate tower type would be utilized to minimize ground disturbance, operational conflicts, visual contrast, and/or avian conflicts.
<b>6.</b> In designated areas, structures would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, water courses, and cultural sites, and/or to allow conductors to clearly span the features, within limits of standard tower design. This would minimize amount of sensitive feature disturbed and/or reduce visual contrast.
<b>7.</b> Standard tower design would be modified to correspond with spacing of existing transmission line structures where feasible and within limits of standard tower design. The normal span would be modified to correspond with existing towers, but not necessarily at every location. This would reduce visual contrast and/or potential operational conflicts.
<b>8.</b> At highway, canyon, and trail crossings, towers are to be placed at the maximum feasible distance from the crossing, to reduce visual impacts
<b>9.</b> Nonspecular conductors would be used, where specified by the authorized officer, to reduce visual impacts.

**Southwest Intertie Project  
SELECTIVELY COMMITTED MITIGATION MEASURES  
TABLE A-2**

<b>10.</b> “Dulled” metal finish towers would be used to reduce visual impacts.
<b>11.</b> With the exception of emergency repair situations, ROW construction, restoration, maintenance, and termination activities in designated areas would be modified or discontinued during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed threatened and endangered, or other sensitive animal species. Sensitive periods, species affected, and areas of concern would be approved in advance of construction or maintenance by the authorized officer.
<b>12.</b> Helicopter placement of towers would be used to reduce ground disturbance impacts (e.g., soil erosion).
<b>13.</b> Construction and/or post-construction monitoring, and treatment in selective areas will occur in accordance with Section 106 Compliance (see Generic Mitigation Measure 9), Paleontological Resources (see Generic Mitigation Measure 18), Section 7 of the Endangered Species Act (See Generic Measure 19), or as specified by the land management agency and state or county authority. Mitigation measures identified will be included in the Construction, Operation, and Maintenance Plan.
<b>14.</b> To minimize disturbance to timber resources and reduce visual contrast, clearing of trees in and adjacent to the ROW will be minimized to the extent practicable to satisfy conductor-clearance requirements (National Electric Safety Code and 10 years of timber growth). Trees and other vegetation will be removed selectively (e.g., edge feathering) to blend the edge of the ROW into adjacent vegetation patterns, as practicable and appropriate.

**APPENDIX B**  
**BIOLOGICAL OPINION**

---



# 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

December 20, 2007  
File Nos. 84320-2008-F-0066,  
84320-2008-I-0075 & 1-5-94-F-28R

### Memorandum

To: Field Manager, Ely Field Office, Bureau of Land Management, Ely, Nevada

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

Subject: Biological Opinion for the Southwest Intertie Project (SWIP) Within the Range of the Desert Tortoise in Clark and Lincoln Counties, Nevada

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Bureau of Land Management's (BLM) proposal with supporting documents to issue a Notice to Proceed for the subject project and its possible effects on the desert tortoise (*Gopherus agassizii*) (Mojave population). The Mojave desert tortoise population is listed as threatened under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). The right-of-way grant would allow construction, operation, and maintenance of an overhead 500-kilovolt (kV) transmission line from the existing Harry Allen substation north to the northern extent of desert tortoise habitat in Lincoln County, Nevada. The project will continue north to the proposed White Pine Energy Station. In addition, BLM requested our concurrence that the subject project *may affect but is not likely to adversely affect* the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and the bald eagle (*Haliaeetus leucocephalus*).

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

The bald eagle was delisted from the Act, effective August 8, 2007 (72 FR 37345). The effect of this rule removes the bald eagle in the lower 48 States from the Federal List of Endangered and Threatened Wildlife, and also removes the special rule for the bald eagle at 50 CFR 17.41(a). The prohibitions and conservation measures provided by the Act, particularly sections 7, 9, and 10 no longer apply to this species. Federal agencies will no longer be required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect the bald eagle. Critical habitat was not designated for the bald eagle, so the delisting will not affect critical habitat provisions of the Act. The provisions of the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (including prohibitions on the



taking of bald eagles) will remain in place. The rule will not affect the bald eagle's status as a threatened or endangered species under State laws or suspend any other legal protections provided by State law. Thus, Service concurrence or non-concurrence that the proposed action *may affect but is not likely to adversely affect* the bald eagle no longer applies under section 7 consultation procedures.

The informal consultation for the southwestern willow flycatcher and biological opinion for the desert tortoise are issued in accordance with section 7 of the Act and based on information provided in BLM's memorandum to the Service with attached final biological assessment (EPG 2007) received on October 12, 2007; additional information received on October 31, 2007, by conference call; correspondence dated November 1 and 28, 2007, and December 4, 2007; E-mail correspondence between the Service and BLM and its contractors; and our files. A complete administrative record of this consultation is on file in the Service's Nevada Fish and Wildlife Office in Las Vegas, Nevada.

#### **Informal Consultation (File No. 84320-2008-I-0075)**

This informal consultation addresses proposed project activities and their possible impacts to the southwestern willow flycatcher. Currently, there are no known potential nesting locations within the project area. The closest known breeding location for southwestern willow flycatchers is approximately 3 miles north and west of the project centerline at Lower Pahranaagat Lake in Lincoln County. The project will cross the Pahranaagat Wash approximately 1 mile downstream of Maynard Lake in an area that does not contain suitable habitat for the flycatcher. Other suitable habitat exists along the Virgin River, Meadow Valley Wash, Muddy River, Las Vegas Wash, and the Colorado River. The Virgin River is located approximately 25 miles southeast of the project; the Muddy River is located on the east side of Arrow Canyon Range approximately 12 miles from the project area; Meadow Valley Wash is approximately 6 miles east of the project area; and Las Vegas Wash flows southeasterly through Las Vegas Valley, approximately 18 miles south/southwest of the project area. BLM concludes that construction, operation, and maintenance of the proposed transmission line would have little to no effect on southwestern willow flycatcher breeding habitat.

In consideration of the proposed action and anticipated potential effects, BLM determined that the proposed project *may affect, but is not likely to adversely affect* the southwestern willow flycatcher. The Service concurs with this determination.

#### **Consultation History**

The Service previously issued two biological opinions for the proposed project. On May 12, 1993, the first biological opinion was issued for the project (File No. 1-5-93-F-91). The project proposed in 1993 consisted of a 500-kV transmission line from a new, to be constructed substation at the southern terminus of the project in Dry Lake Valley in Clark County, north to the northern extent of tortoise habitat in Lincoln County. Modifications from the 1993 project in

tortoise habitat include: a 3.8-mile extension of the transmission line to connect to the existing Harry Allen Substation; elimination of the Dry Lake 500kV Substation; and relocation of a portion of the right-of-way in Coyote Spring Valley from the east to west side of US Highway 93 (US 93). Construction methods remain relatively unchanged from the 1993 proposal except the modification to use H-frames with perching deterrents within desert tortoise critical habitat to minimize the potential impacts of ravens on the tortoise.

On November 5, 1993, BLM requested reinitiation of consultation for the SWIP project in response to designation of desert tortoise critical habitat which became effective February 8, 1994. A portion of the proposed project (approximately 53 miles) would occur within the newly designated Mormon Mesa Critical Habitat Unit. On March 23, 1994, the Service issued a biological opinion (File No. 1-5-94-F-28R) to BLM for the SWIP project which included an analysis of potential effects to both the desert tortoise and its designated critical habitat. This biological opinion was amended as requested by BLM on December 8, 1994, to allow fees to be paid prior to issuance of the Notice to Proceed rather than the right-of-way grant.

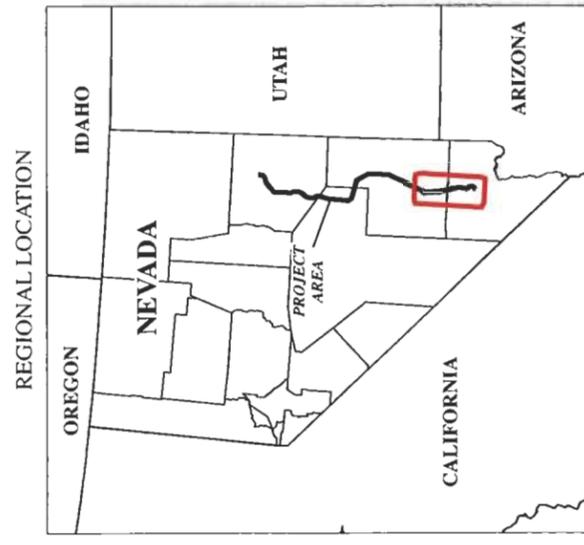
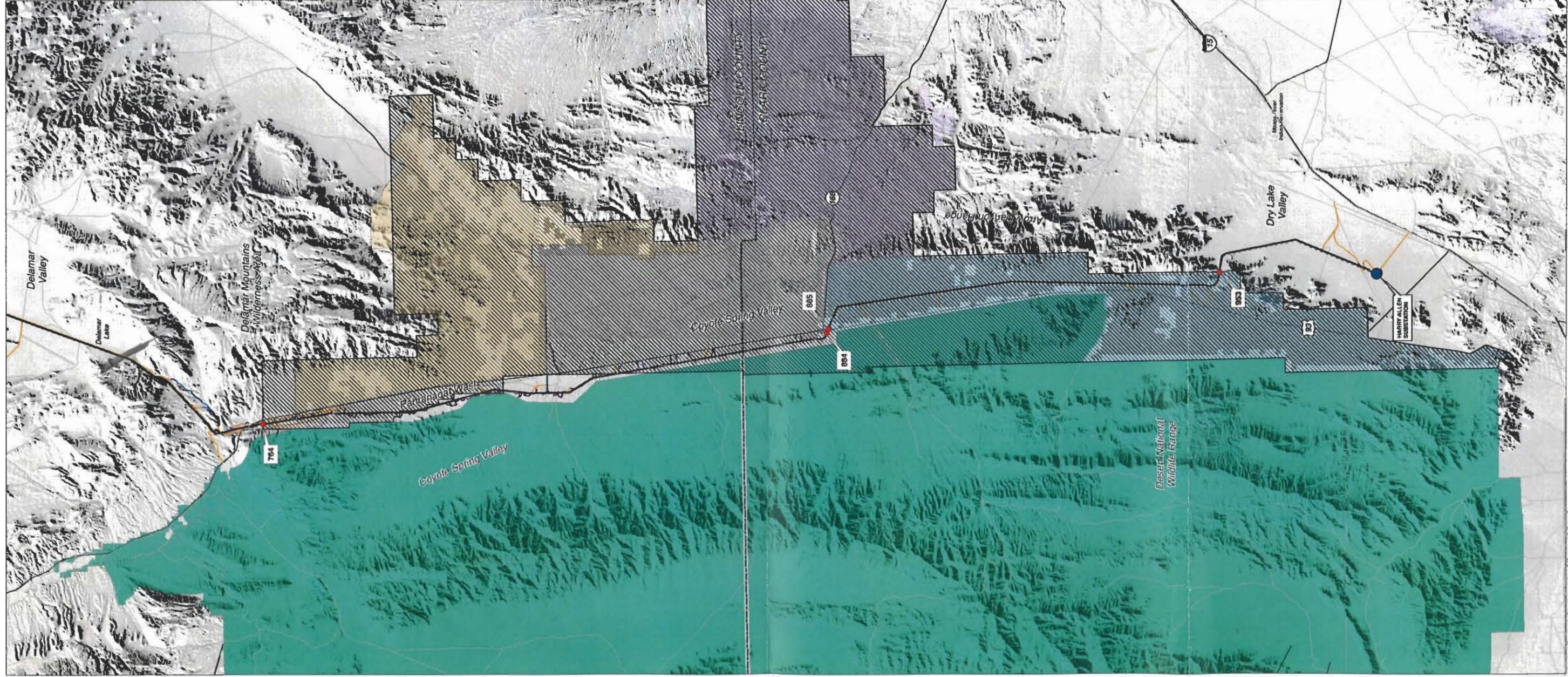
On July 24, 2007, BLM requested consultation for the proposed project. The Service did not receive the request until October 12, 2007. The Service requested additional information by email on October 22, 2007. Additional information was provided during a conference call on October 31, 2007; on November 1, 2007, and November 28, 2007. Formal consultation was initiated for the project on October 31, 2007.

## **BIOLOGICAL OPINION**

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

#### **A. Proposed Action and Action Area**

BLM proposes to amend an existing right-of-way (BLM File No. N-49781) and issue a Notice to Proceed to Great Basin Transmission, LLC (Great Basin) for construction, operation, and maintenance of a single-circuit, overhead 500 kV transmission line. The southern portion of the project begins at the Harry Allen Substation in Dry Lake, Clark County, Nevada and ends at a point approximately 3 miles west of the proposed White Pine Energy Station located approximately 34 miles north of Ely, White Pine County, Nevada (Figure 1). The transmission line and associated facilities comprise the southern portion of the Midpoint to Dry Lake segment of the SWIP, which was approved by BLM in 1994. The SWIP right-of-way was granted by BLM to Idaho Power Company (IPC), when the project was approved in 1994. Great Basin has an option to purchase the SWIP (including the BLM right-of-way) from IPC, and has been authorized by IPC to complete the project permitting process, including obtaining a notice to proceed from BLM. The scope of this biological opinion is limited to the range of the desert tortoise within southern Nevada.



- Desert Tortoise Survey**
- Desert Tortoise Critical Habitat
  - Coyote Springs ACEC
  - Kane Springs ACEC
  - Mormon Mesa ACEC
  - Desert National Wildlife Refuge

- Access Roads**
- Existing Access Road
  - Existing Access Road with Improvements
  - Proposed New Access Road
    - Overland
    - Bladed

- Electrical Transmission Facilities**
- Structure Location
  - Harry Allen Substation
  - 500kV Transmission Line

- General Reference Features**
- County Boundary
  - Major Transportation
  - Minor Transportation

**Sources**  
 USGS, 30 meter Digital Elevation Models  
 BLM - Nevada State Office, ACEC 2005  
 Ely RMP July 2005



**SOUTHWEST INTERTIE PROJECT**  
 500kV Transmission Line  
 Southern Portion  
 Great Basin Transmission, LLC  
 Desert Tortoise Critical Habitat

July 2007

Figure 2

The transmission project will consist of self-supporting, steel-lattice, and steel-pole H-frame structures placed approximately 1,200 to 1,500 feet apart. The transmission line will create a connection between existing electrical grids and service areas in southern Nevada (Nevada Power Company) and northern Nevada (Sierra Pacific Power Company), and will contribute to increased transmission reliability and sharing of the electrical supplies between the regions of the West. The project will provide a means to transmit power from power generation projects (*e.g.*, proposed wind energy projects north of Ely) to market.

BLM and IPC estimate that construction of the entire project would require approximately 28 months. Following construction, the transmission line would be inspected annually or as required, by fixed-wing aircraft, helicopters, ground vehicles, all-terrain vehicles, or on foot. Maintenance will be performed as needed. Non-emergency repairs will be completed within the range of the desert tortoise following the same measures as for ground disturbance in the original construction phase of the project. For emergency repairs, reasonable efforts will be made to protect tortoises and their habitat. Restoration and reclamation procedures following completion of repair work will be similar to those proposed during construction.

#### B. Proposed Minimization Measures

BLM and the project proponent propose to minimize the effects of the proposed action on the desert tortoise by implementing the following measures:

1. All construction vehicle movement outside the right-of-way will normally be restricted to pre-designated access, contractor acquired access, or public roads.
2. The areal limits of construction activities will normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits.
3. In construction areas where recontouring is not required, vegetation will be left in place wherever possible and original contour will be maintained to avoid excessive root damage and allow for resprouting.
4. In construction areas (*e.g.*, marshalling yards, tower sites, spur roads from existing access roads) where ground disturbance is significant or where recontouring is required, surface restoration will occur as required by the landowner or land management agency. The method of restoration will normally consist of returning disturbed areas back to their natural contour, reseeding (if required), cross drains installed for erosion control, placing water bars in the road, and filling ditches.
5. Prior to construction, all supervisory construction personnel will be instructed on the protection of ecological resources. To assist in this effort, the construction contract will address: (a) Federal and State laws regarding antiquities and plants and wildlife,

including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.

6. Roads will be built as near as possible at right angles to the streams and washes. Culverts will be installed where necessary. All construction and maintenance activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent or perennial streambanks. In addition, road construction will include dust-control measures during construction in sensitive areas. Only water or an alternative substance approved by BLM will be used as a dust suppressant. All existing roads will be left in a condition equal to or better than their condition prior to the construction of the transmission line. Towers will be sited with a minimum distance of 200 feet from streams and washes.
7. Fences and gates will be repaired or replaced to their original pre-disturbed condition as required by the landowner or the land management agency if they are damaged or destroyed by construction activities. Temporary gates will be installed only with the permission of the landowner or the land management agency; and will be restored to their original pre-disturbed condition following construction.
8. Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials shall be removed to a disposal facility authorized to accept such materials.
9. Pre-construction surveys for plants and wildlife species, designated as sensitive or of concern will be conducted in areas of known occurrence or habitat, including noxious weed surveys as stipulated by the land-administering agency once the transmission line centerline, access roads, and tower sites have been located and staked in the field.
10. No widening or upgrading of existing access roads will be undertaken in the area of construction and operation, except for repairs necessary to make roads passable, where soils and vegetation are very sensitive to disturbance.
11. The alignment of any new access roads or overland routes will follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values.
12. All new access roads not required for maintenance will be permanently closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager (*e.g.*, stock piling and replacing topsoil, seeding, or rock replacement). Public access will be controlled through the installation of

- fences and gates in key locations or sections. This will limit new or improved accessibility into the area.
13. In designated areas, structures will be placed so as to avoid sensitive features such as, but not limited to, riparian areas, water courses, and cultural sites, and/or to allow conductors to clearly span the features, within limits of standard tower design. This will minimize the amount of sensitive features disturbed and/or reduce visual contrast.
  14. With the exception of emergency repair situations, right-of-way construction, restoration, maintenance, and termination activities in designated areas will be modified or discontinued during sensitive periods (*e.g.*, nesting and breeding periods) for candidate, proposed, threatened and endangered, or other sensitive animal species. Sensitive periods, species affected, and areas of concern will be approved in advance of construction or maintenance by the authorized officer.
  15. If blasting is necessary, all tortoises located within 100 feet of the blast site will be removed prior to blasting and temporarily relocated in accordance with desert tortoise handling protocol. Prior to any blasting, all tortoise burrows or coversites within a 200-foot radius of the blast site will be located and the entrances carefully stuffed with crumpled newspaper or other material approved by BLM and the Service. After blasting is completed, all burrows and coversites will be inspected for damage, and stuffing material will be removed. If a burrow or coversite has collapsed and there is a possibility that it could be occupied, it will be excavated to ensure that no tortoises have been buried and are in danger of suffocation.
  16. With the exception of emergency repair situations, maintenance and termination activities in areas of critical habitat will be modified or discontinued during sensitive periods (March 1 through October 31), or as identified by BLM.
  17. During tortoise high activity (*e.g.*, March through October), tortoise biologists shall be present during all construction, and maintenance (*e.g.*, emergency repairs) activities where one or more pieces of heavy construction equipment are being used.
  18. All movement of construction vehicles outside of the right-of-way will be restricted to pre-designated access, contractor-acquired access, or public roads.
  19. The limits of construction will be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits.
  20. Construction and maintenance vehicles will not exceed a speed of 20 miles per hour in tortoise habitat, except where posted otherwise.

21. All construction sites and access roads shall be clearly marked or flagged at the outer limits prior to the onset of any surface-disturbing activity. All personnel shall be informed that their activities must be confined within the marked or flagged areas.
22. Construction sites and access roads shall be surveyed by qualified tortoise biologists no more than 15 days prior to the initiation of construction. Surveys shall provide 100-percent coverage of the construction area. All desert tortoise burrows located will be conspicuously flagged or marked. All desert tortoise burrows, and other species' burrows that may be used by desert tortoises, will be examined to determine the occupancy of each burrow by tortoises, using a fiber-optic scope, if necessary.
23. When desert tortoises are not highly active (*e.g.*, winter), environmental monitors or desert tortoise biologists will be onsite during all phases of transmission line construction to ensure that all construction vehicles and heavy equipment remain within the boundaries of the marked construction zone. If necessary, a qualified desert tortoise biologist will be brought on site to excavate any tortoise burrow in harm's way.
24. Desert tortoises and eggs found within construction sites will be removed by qualified desert tortoise biologists, in accordance with the most current protocols identified by BLM and the Service. Desert tortoises removed from the project sites will be released into undisturbed habitat within 1,000 feet of the collection site.

Any desert tortoise removed from construction sites shall be placed in the shade of a shrub or in a natural, unoccupied burrow similar to the one in which it was found or in an artificial burrow, following the most current protocol approved by BLM and the Service. Desert tortoises shall not be placed on lands outside the administration of the Federal government without the written permission of the landowner. Desert tortoises shall be purposely moved only by qualified tortoise biologists, solely for the purpose of moving them out of harm's way.

25. Any excavated holes related to transmission line construction (*i.e.*, foundations) left open overnight will be covered, and/or tortoise-proof fencing will be installed to prevent the possibility of tortoises falling into the open holes.
26. Anyone on the right-of-way within desert tortoise habitat will be required to check under their vehicle before driving away. This includes all construction equipment and the area under vehicles should be checked any time a vehicle is left unattended, as well as in the morning before any construction activity begins.
27. H-frame structures with perch deterrents will be utilized in critical habitat south of State Route 168 in the Coyote Spring Area of Critical Environmental Concern (ACEC) and post-construction monitoring for ravens and removal of raven nests will be undertaken in

- this area as part of the inspection and maintenance activities. If evidence of raven nesting is observed in the right-of-way, the Service will be notified within 3 days.
28. To prevent mortality, injury, and harassment of desert tortoises and damage to their burrows and coversites, no pets shall be permitted in any project construction area, unless confined or leashed.
  29. Trash and food items will be removed daily by construction workers and placed in raven-proof containers
  30. Within desert tortoise habitat, a biologist will be assigned to the pre-construction survey team(s). The biologist will be responsible for ensuring that the placement of new access routes, spur roads, and tower sites will affect as few tortoise burrows as possible. The alignment of access and spur roads will be as direct as possible, to minimize habitat disturbance and minimize the destruction of tortoise burrows. Other work areas (*e.g.*, splicing, tensioning, pulling, and batch sites) will be surveyed by a biologist as construction proceeds. Potential work areas will be flagged several days prior to construction for review by a biologist. To the extent possible, these sites will be located in previously disturbed areas.
  31. Overnight parking and storage of equipment will be in previously disturbed areas (*i.e.*, lacking vegetation). These areas will also be designated by the pre-construction survey team. If previously disturbed areas are not available, these activities will be restricted to the right-of-way and will be cleared of tortoises by the on-site biologist prior to use.
  32. Within desert tortoise habitat, construction and maintenance workers will strictly limit their activities and vehicles to construction areas and routes of travel that have been identified and/or flagged to eliminate adverse impacts to desert tortoises and their habitat. Aside from these areas, workers may not drive cross-country, even within the right-of-way. All workers will be instructed that their activities are restricted to previously identified, flagged or cleared areas.
  33. The project proponent will designate a Compliance Inspector Contractor (CIC), who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordinating compliance. The CIC will have the authority to halt activities of construction equipment that may be in violation of the stipulations.
  34. In areas where restoration is required, reseeded will occur through the use of native plant species. Reclamation and monitoring requirements and practices will be approved by BLM.
  35. Herbicides will not be used as a part of this project within desert tortoise habitat.

36. To the extent possible, access to tower sites, and at splicing and tensioning sites will occur by overland travel and crushing of vegetation, *i.e.*, no blading of such sites, will occur. The CIC will ensure that blading is conducted only where necessary. Due to construction constraints resulting from equipment size and personnel safety, blading will be needed at most spur roads and tower sites.
37. All construction and maintenance workers will participate in a tortoise-education program. The program will be developed by the project proponent prior to the beginning of construction. The program will be submitted to the Service for review and approval prior to implementation. The program will include, at a minimum, the following topics: (a) the occurrence of desert tortoises in the project area; (b) the sensitivity of the species to human activities; (c) legal protection for desert tortoises; (d) penalties for violations of Federal and State laws; (e) general tortoise activity patterns; (f) reporting requirements; (g) measures to protect tortoises; and (h) personal measures employees can take to promote the conservation of desert tortoises.
38. Injured tortoises will be transported to a qualified veterinarian. The Service will furnish direction on the final disposition of tortoises taken to a veterinarian.
39. The CIC and on-site biologist will prepare a report for BLM and the Service no later than 90 days after completion of construction within desert tortoise habitat. The report will make recommendations for modifying or refining the stipulations. The report will include the actual acreage of habitat disturbance caused by crushing and blading versus the estimates prior to construction.
40. Fees collected for Lincoln and Clark counties shall be deposited in interest-bearing escrow accounts.

## **II. Status of the Species/Critical Habitat Rangewide**

### **A. *Desert Tortoise***

#### 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 off-highway vehicle (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.

The **Northeastern Mojave Recovery Unit** occurs primarily in Nevada, but it also extends into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern

Arizona. Vegetation within this unit is characterized by creosote bush scrub, big galleta-scrub steppe, desert needlegrass scrub-steppe, and blackbrush scrub (in higher elevations). Topography is varied, with flats, valleys, alluvial fans, washes, and rocky slopes. Much of the northern portion of the Northeastern Mojave Recovery Unit is characterized as basin and range, with elevations from 2,500 to 12,000 feet. Desert tortoises typically eat summer and winter annuals, cacti, and perennial grasses. Desert tortoises in this Recovery Unit, the northern portion of which represents the northernmost distribution of the species, are typically observed in low densities (about 10 to 20 adults per square mile).

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 2008.

### Desert Tortoise Distribution

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 (Hanski 1999, Levins and Culver 1971, Levin *et al.* 1984). 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.

The prescriptions for recovery in the Recovery Plan were for individual populations and recovery planning was based on managing threats in that habitat. 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. 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, and the cryptic nature of this species.

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.

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.

### *Threats*

The Service identified key threats when the Mojave population of the desert tortoise was emergency listed as endangered and subsequently listed as a threatened species, which remain valid today. Since becoming listed under the Act, more information is available on threats to the desert tortoise with some threats such as wildfires and alien plants affecting large areas occupied by tortoises.

Alien plants continue to contribute towards overall degradation or habitat quality for the desert tortoise. 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).

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).

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).

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 1). 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.

In 2006, less than 50,000 acres of desert tortoise habitat burned which includes less than 20,000 acres of desert tortoise critical habitat.

**Table 1. 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.

### 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 in California 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 Exclosure 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).

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 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 2). 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.

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.

**Table 2. 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)

B. *Desert Tortoise Critical Habitat*

On February 8, 1994, the Service designated approximately 6.45 million acres of critical habitat for the Mojave population of the desert tortoise in portions of California (4.75 million acres), Nevada (1.22 million acres), Arizona (339 thousand acres), and Utah (129 thousand acres) (59 FR 5820-5846, also see corrections in 59 FR 9032-9036), which became effective March 10, 1994. Desert tortoise critical habitat was designated by the Service to identify the key biological and physical needs of the desert tortoise and key areas for recovery, and focuses conservation actions on those areas. Desert tortoise critical habitat is composed of specific geographic areas that contain the primary constituent elements of critical habitat, consisting of the biological and physical attributes essential to the species' conservation within those areas, such as space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats. The specific primary constituent elements of desert tortoise critical habitat are:

1. Sufficient space to support viable populations within each of the six recovery units, and to provide for movement, dispersal, and gene flow;
2. sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species;
3. suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites;
4. sufficient vegetation for shelter from temperature extremes and predators; and
5. habitat protected from disturbance and human-caused mortality.

CHUs were based on recommendations for DWMAAs outlined in the *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (Service 1993). These DWMAAs are also identified as "desert tortoise ACECs" by BLM. Because the critical habitat boundaries were drawn to optimize reserve design, the critical habitat unit may contain both "suitable" and "unsuitable" habitat. Suitable habitat can be generally defined as areas that provide the primary constituent elements.

Although recovery of the tortoise will focus on DWMAAs/ACECs, 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 in 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).

The Recovery Plan recommended DWMA's and subsequently the Service designated CHUs based on these proposed DWMA's (Service 1993). When designated, desert tortoise critical habitat contained all the primary constituent elements. The following seven principles of conservation biology serve as the standards by which the Service determines whether or not the CHUs are functioning properly:

(1) *Reserves should be well-distributed across the species' range.* The entire range of the Mojave desert tortoise occurs within one of the six recovery units identified in the Recovery Plan and at least one DWMA and CHU occurs within each recovery unit. The reserves remain well-distributed across the range of the desert tortoise.

(2) *Reserves should contain large blocks of habitat with large populations of target species.* The desert tortoise requires large, contiguous areas of habitat to meet its life requisites. Each DWMA and its associated CHUs were designated to conserve contiguous blocks of habitat that exceed 500,000 acres, with the exception of the Upper Virgin River Recovery Unit (Table 3). The Upper Virgin River Recovery Unit does not meet the minimum size requirement identified in the Recovery Plan; however, the Service anticipates that reserve-level management will adequately conserve the desert tortoise within this recovery unit. Designation of CHUs were based largely on transect data and included areas with the largest populations of desert tortoises.

(3) *Blocks of habitat should be close together.* This principle was met when CHUs were designated and remains valid.

(4) *Reserves should contain contiguous rather than fragmented habitat.* This principle was met when CHUs were designated and generally continues to be met. Desert tortoise-proof fencing has been constructed along major roads and highways that traverse critical habitat including Interstate 15 in Nevada and California (Ivanpah Valley DWMA/CHU), U.S. Highway 95 in Nevada (Piute-Eldorado DWMA/CHU), and Highway 58 in California (Fremont-Kramer DWMA/CHU). Major roads and highways alone constitute a barrier to tortoise movements without fencing; however, the fencing minimizes take of tortoises and culverts or underpasses allow for limited tortoise movement across the road or highway.

(5) *Habitat patches should contain minimal edge-to-area ratios.* This principle was met when CHUs were designated and generally continues to be valid. Notable exceptions include the northern Gold Butte-Pakoon CHU, and the southern termini of the Mormon Mesa, Ivanpah Valley, and Chuckwalla CHUs which have large edge-to-area ratios and are further compromised by highways that traverse these relatively narrow areas within the CHUs. Pending development of private lands in Coyote Spring Valley would substantially increase the edge-to-area ratio in the southwestern section of the Mormon Mesa CHU.

(6) *Blocks should be interconnected by corridors or linkages connecting protected, preferred habitat for the target species.* Most CHUs are contiguous with another CHU with the exception of Ord-Rodman, Ivanpah Valley, Gold Butte Pakoon, and Upper Virgin River CHUs. Interstate

15 and the Virgin River separate the Gold Butte-Pakoon CHU from other CHUs in the Northeastern Mojave Recovery Unit. Similarly, Interstate 40 separates the Piute-Eldorado and Chemehuevi CHUs, and Ord Rodman and Superior-Cronese CHUs. Ongoing and proposed development in Coyote Spring Valley may fragment the Mormon Mesa DWMA by restricting tortoise movements between the Kane Springs ACEC to the north and Coyote Springs ACEC to the south, depending on the extent of development.

(7) *Blocks of habitat should be roadless or otherwise inaccessible to humans.* Achieving this principle is the most problematic. A 2001 inventory of roads in the Western Mojave suggests that road density increased from the mid-1980s. Further evaluation should be conducted as some of the recently mapped roads were actually historical roads especially with the advent of effective mapping capabilities (Tracy *et al.* 2004). Roads proliferate desert tortoise habitat rangewide and may be increasing in density (Tracy *et al.* 2004).

The recommendations for desert tortoise critical habitat in the Recovery Plan include elimination of specified activities that are incompatible with desert tortoise conservation including habitat destruction that diminishes the capacity of the land to support desert tortoises, and grazing by livestock, feral burros and horses. Since approval of the Recovery Plan, all livestock grazing in desert tortoise critical habitat has either been eliminated (Nevada) or substantially reduced and managed to minimize potential impacts to desert tortoise critical habitat (California, Arizona, and Utah). BLM and National Park Service (NPS) manage for zero burros in Nevada and the California Desert Managers Group developed a burro management plan in 2004.

**Table 3. Desert Tortoise CHUs, DWMAs, and Recovery Units- Size and Location**

CHU	SIZE (ac.)	STATE	DWMA	RECOVERY UNIT
Chemehuevi	937,400	CA	Chemehuevi	Northern Colorado
Chuckwalla	1,020,600	CA	Chuckwalla	Eastern Colorado
Fremont-Kramer	518,000	CA	Fremont-Kramer	Western Mojave
Ivanpah Valley	632,400	CA	Ivanpah Valley	Eastern Mojave
Pinto Mountain	171,700	CA	Joshua Tree	Western Mojave/Eastern Colorado
Ord-Rodman	253,200	CA	Ord-Rodman	Western Mojave
Piute-Eldorado- CA	453,800	CA	Fenner	Eastern Mojave
Piute-Eldorado- NV	516,800	NV	Piute-Eldorado	Northeastern & Eastern Mojave
Superior-Cronese	766,900	CA	Superior-Cronese Lakes	Western Mojave
Beaver Dam	87,400 74,500 42,700	NV UT AZ	Beaver Dam Beaver Dam Beaver Dam	Northeastern Mojave (all)
Gold Butte-Pakoon	192,300 296,000	NV AZ	Gold Butte-Pakoon Gold Butte-Pakoon	Northeastern Mojave (all)
Mormon Mesa	427,900	NV	Mormon Mesa Coyote Spring	Northeastern Mojave
Upper Virgin River	54,600	UT	Upper Virgin River	Upper Virgin River

Further information on the status of desert tortoise critical habitat can be found in the following documents:

- Desert Tortoise Recovery Plan Assessment Report (Tracy *et al.* 2004) - all CHUs.
- Final Environmental Impact Report and Statement for the West Mojave Plan (BLM 2005) - Fremont-Kramer CHU, Superior-Cronese CHU, Ord-Rodman CHU, and Pinto Mountains CHU.
- Mojave National Preserve General Management Plan (NPS 2002) - Ivanpah Valley CHU and Piute-Eldorado CHU.
- Northern and Eastern Colorado Coordinated Management Plan (BLM 2002a) - Chemehuevi CHU, Pinto Mountains CHU, and Chuckwalla CHU.
- Northern and Eastern Mojave Desert Management Plan (BLM 2002b) - Ivanpah Valley CHU, Piute-Eldorado CHU, and Chemehuevi CHU.
- Clark County Multiple Species Habitat Conservation Plan (HCP) (RECON 2000) - Beaver Dam Slope CHU, Mormon Mesa CHU, Gold Butte-Pakoon CHU, and Piute-Eldorado CHU.
- Washington County HCP (Washington County Commission 1995).
- Biological Assessment for the Proposed Addition of Maneuver Training Land at Fort Irwin, CA (U.S. Army National Training Center 2003) - Superior-Cronese CHU.

### III. Environmental Baseline

#### A. Status of the Species/Critical Habitat Within the Action Area

The vegetation type that occurs within the range of the desert tortoise and the project area is Mojave Desert scrub. The southeastern portion of Nevada is characterized as an intermediate zone between the Great Basin Desert Scrub located generally to the north of Delamar, Clover, and the Pahranaagat Mountains, and the Mojave Desert Scrub to their south. Plants and animals occupying Mojave Desert Scrub are similar to those observed in the Lower Colorado River Subdivision of Sonoran Desert Scrub, within the creosote bush series, *Larrea tridentata*-*Ambrosia dumosa* association. These open-plant communities occupy areas characterized by gravelly bajadas and inconspicuous low plains. Common plant species observed during surveys include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Mojave yucca (*Yucca schidigera*), Mormon tea (*Ephedra* spp.), ratany (*Krameria* spp.), and fourwing saltbush (*Atriplex canescens*).

Desert tortoise surveys were conducted and other forms of data were collected in support of preparation of the environmental impact statement for SWIP. Survey data were collected within 2-mile-wide study corridors centered on the proposed alignment. In July 2006, two biologists conducted field surveys for the desert tortoise along the right-of-way. The survey consisted of a total of 29 triangular strip transects providing 43.5 miles of total transect length. Each side of the triangular strip transect is 0.5 mile and is walked by desert tortoise biologists while recording tortoises and sign observed within a 9-meter-wide (10-yard-wide) area. The total number of

tortoise sign per transect was then adjusted such that multiple sign obviously associated with a single individual was reduced to one sign (referred to as the Corrected Sign or CS). The total CS per transect was used to estimate the number of tortoises inhabiting the survey area based on methods described by Berry and Nicholson (1984). Tortoises or sign thereof were found in 10 of the 29 transects. Most of the CS (88 percent) was found along the right-of-way at the southernmost portion of the Mormon Mesa CHU and north of Kane Springs Road in the same CHU. Two live tortoises were encountered with a total of 32 observations of tortoise sign. Total corrected sign for all transects was 25.

Desert tortoise population data was collected in 2001, 2002, 2003, using line transects and distance sampling (TDS). The ratio of carcasses versus live tortoises was calculated from transect observations (Tracy *et al.* 2004). Ratios much larger than “1” suggest excessive tortoise mortality and therefore, a decline in tortoise populations. Ratios around “1” indicate a stable population. The Mormon Mesa CHU ratio was 1.58 suggesting that desert tortoise populations in this CHU have only experienced a small decline.

Specific data on the distribution and abundance of desert tortoise in the project area was obtained from BLM’s Las Vegas Field Office including maps showing the results of the 1.5-mile triangular strip-transect surveys. Updated biological information was collected including literature reviews and field surveys for the desert tortoise along the transmission line from the southern end of Delamar Lake to the Harry Allen Substation.

The proposed project would occur within the Mormon Mesa CHU. The right-of-way that occurs within critical habitat approximates U.S Highway 93. The right-of-way enters critical habitat approximately 10 miles north of Interstate 15. Approximately 43 miles of the right-of-way occurs within or immediately adjacent to desert tortoise critical habitat.

The Mormon Mesa CHU includes expansive bajadas which provide prime tortoise habitat. The CHU is unique in that it is the only east-west oriented CHU in Nevada and may serve as an east-west corridor for movement of tortoises within and between Nevada, Utah, and Arizona. Desert tortoise populations are patchy in distribution in the Mormon Mesa CHU, as they typically are throughout their range, but estimates identify 41 to 87 subadults and adults per square mile (Service 1994).

#### B. Factors Affecting the Desert Tortoise and Its Critical Habitat Within the Action Area

Most impacts to the Mormon Mesa CHU occur along the western section of the CHU which includes the proposed action area. In 2005, wildfires burned across the northernmost portion of the right-of-way at the northern range limit for the desert tortoise. A commercial recycling facility occurs on private land east of the proposed project near the intersection of US 93 and Kane Springs Road. A large residential and commercial development (Coyote Springs Investment; CSI) is under development mostly just east of US 93, north of State Route 168, and south of Kane Springs Road. The development will result in habitat loss, fragmentation, and

alteration. Although tortoises are being removed from the development, some inadvertent mortality may occur. Development in Coyote Spring Valley would also increase human activities within the CHU such as recreational activities, increasing the likelihood of collection, handling, vandalism of tortoises, and dumping. Human interaction can also alter the predator regime by introducing domestic dogs and attracting raven populations. Release of captive tortoises may introduce diseased tortoises into the wild population, increasing the risk of disease.

On June 6, 2007, the Service issued a reinitiated, tiered biological opinion to the U. S. Army Corps of Engineers (Corps) for construction of a flood detention basin along and west of US 93 (File No. 1-5-05-FW-536-Tier 01R) to support development in Coyote Spring Valley. The Corps will amend their Section 404 (of the Clean Water Act) permit for the CSI development to include the new location of potable water reservoir facilities and detention basins on BLM-administered land. In coordination with the Corps, BLM will approve the right-of-way application for the construction and operation of potable water reservoir facilities and detention basins in BLM utility corridor located west of US 93. The proposed SWIP project would cross through this area.

Numerous paved and unpaved roads occur within the action area, some of which have been identified and proposed for access for the project. Signs of human activities were observed during the July 2007 survey including a campsite, garbage dumping/littering, shooting areas (firearms), utility lines, and cattle scat. The Harry Allen Substation occurs at the southern terminus of the proposed project.

#### *Habitat Conservation Plans Completed in the Action Area*

1. On July 11, 1995, the Service issued a section 10(a)(1)(B) incidental take permit under the Act (No. PRT-801045) to Clark County, Nevada, including cities within the county and the Nevada Department of Transportation (NDOT). 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' habitat conservation plan and detailed their proposed measures to minimize, monitor, and mitigate the effects of the proposed take on the desert tortoise (Regional Environmental Consultants 1995). The permittees imposed, and NDOT 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 initially conserved during the short-term HCP, and other areas being managed for desert tortoise recovery (e.g., ACECs or DWMAAs). The benefit to the species, as provided by the DCP,

substantially minimized and mitigated those effects which occurred through development within the permit area and aided in recovery of the desert tortoise.

2. On November 22, 2000, the Service issued an incidental take permit (TE-034927) to Clark County, Nevada, including cities within the county and the Nevada Department of Transportation. The Clark County Multiple Species Habitat Conservation Plan (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. In the biological/conference opinion (File No. 1-5-00-FW-575), the Service determined that issuance of the incidental take permit would not jeopardize the listed desert tortoise or southwestern willow flycatcher, or any of the 76 species that are not listed nor proposed for listing under the Act that are covered under the incidental take permit. 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 south of the 38th parallel in Nevada. The MSHCP covers the CSI development in the Clark County portion of Coyote Spring Valley.

On November 2, 2007, the Service published a Notice of Availability (72 FR 62254) of the Coyote Spring MSHCP and supporting documents addressing the potential effect of development in Coyote Spring Valley in Lincoln County, Nevada. If issued, the incidental take permit for the Coyote Spring MSHCP would exempt incidental take for the desert tortoise and four other listed species on 21,454 acres.

#### *Programmatic Consultations Affecting the Action Area*

1. BLM Las Vegas Field Office. On November 25, 1997, the Service issued a programmatic biological opinion (File No. 1-5-97-F-251) to BLM for implementation of various land management programs within non-critical desert tortoise habitat and the Las Vegas planning area. Activities that were proposed that may affect the desert tortoise in the action area include issuance of rights-of-way, R&PP leases, mineral material sales and leases, and mining plans of operation.

On June 18, 1998, the Service issued a programmatic biological opinion (File No. 1-5-98-F-053) to BLM for implementation of various land management programs within desert tortoise habitat and the Las Vegas planning area, including desert tortoise critical habitat and ACECs. Activities that were proposed that may affect the desert tortoise in the action area include recreation; designation of utility corridors and mineral material extraction areas along US 93; and designation of the Coyote Spring, Mormon Mesa (Clark County portion), and Gold Butte desert tortoise ACECs.

2. BLM Caliente Field Station. On March 3, 2000, the Service issued a programmatic biological opinion (File No. 1-5-99-F-450) to BLM for implementation of various land management programs within desert tortoise habitat and the Caliente planning area.

Activities that were addressed were similar to BLM's Las Vegas Field Office including designation of the Kane Springs, Mormon Mesa (Lincoln County portion), and Beaver Dam Slope ACECs.

#### **IV. Effects of the Proposed Action on the Listed Species/Critical Habitat**

Linear construction projects can negatively affect desert populations. Studies suggest that differences in the extent of the threat are related to the scale of the project, the ability of crews to avoid disturbing burrows, and timing of construction to avoid peak activity periods of tortoises (Boarman 2002). In addition to the discrete disturbance points formed by towers and lines, maintenance roads and repeated operations can (1) introduce continuous sources of disturbance and (2) provide potential sites for invasion of exotic species. Rights-of-way can cause habitat destruction and alteration where vegetation is minimal, possibly increasing mortality, directly or indirectly (Boarman 2002).

The greatest potential threat to desert tortoises resulting from the proposed action is from vehicles and heavy equipment activity on new and existing access roads. Roads provide direct invasion routes and habitat generation for invasive weedy plants. Tortoises could also be killed or injured as a result of being crushed by worker vehicles commuting to and from the project area. Tortoises in harm's way and not located before project activities commence, or not avoided by vehicles, could also be killed or injured. Any tortoise on an access road during project hours would be highly vulnerable. If vehicles travel at excessive speeds on access roads they may inadvertently run over desert tortoises. Project vehicles or equipment that stray from designated areas or widen existing access roads may crush desert tortoises aboveground or in their burrows or damage habitat outside the project area. Tortoises could wander into the construction work area or take refuge underneath project vehicles and equipment, and be killed or injured when the vehicle/equipment is moved.

Following construction, the public may use project access roads which may result in adverse effects to tortoise populations. Humans use the desert for off-road exploration, casual shooting and target practice, personal or commercial collection of animals and plants, searches and digging for minerals and gems, geocaching (GPS guided stash hunts), and even the production of illegal drugs. Desert tortoise shells found in the Mojave Desert with bullet holes were examined forensically with the finding that the tortoises were alive when they were shot (Berry 1986), suggesting that illegal shooting of tortoises could occur. Project personnel could illegally collect tortoises for pets or bring dogs to the project area. Measures proposed by BLM to (1) clear project areas of tortoises, (2) implement a desert tortoise awareness program, (3) provide an onsite biologist, (4) prohibit pets from the project area, (5) impose a speed limit, (6) avoid "sensitive periods" for the desert tortoise, and (7) close unnecessary roads following construction and control public access, should minimize the potential effects to the tortoise described above. Although a maximum speed limit of 20 miles per hour will be established and biological monitors will be present, the potential remains (though minimized) for vehicle-wildlife related accidents.

Project activities may provide food in the form of trash and litter which attracts important tortoise predators such as the common raven, kit fox, and coyote (BLM 1990, Boarman and Berry 1995). The majority of raven predation occurs during the spring and is most likely accomplished by breeding birds (Boarman 2002). Ravens use transmission towers as well as other anthropogenic structures as nest sites which threaten small tortoises in the area surrounding the nest site (Boarman 2002). During the raven breeding season, most foraging is probably done near the nest (Sherman 1993) and most food is likely brought back to or near the nest. 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). Some forms of trash may be ingested by tortoises or they may become entangled resulting in their injury or death. If fuel or other hazardous materials are spilled in desert tortoise habitat, desert tortoises and their habitat may be adversely affected as a result. Measures proposed by BLM to (1) implement a litter-control program and require trash and food to be disposed of properly in predator-proof containers, (2) inspect structures for raven nesting, (3) prohibit hazardous material drainage, and (4) provide desert tortoise awareness training and an onsite biologist, should minimize these effects.

Tortoises that are physically moved out of project areas to prevent mortality or injury could be inadvertently harmed if not handled properly. Urine and large amounts of urates may be voided during handling and may represent a severe water loss, particularly to juveniles (Luckenbach 1982). Overheating can occur if tortoises are not placed in the shade when ambient temperatures equal or exceed temperature maximums for the species (Desert Tortoise Council 1994, revised 1999). The timing of the proposed project to avoid sensitive periods for the tortoise and measures proposed by BLM to conduct clearance surveys and provide qualified biologists should minimize these effects.

The proposed project would result in disturbance of 231 acres of non-critical desert tortoise habitat and 365 acres of critical desert tortoise habitat. Disturbance consists of access routes for project vehicles and equipment, tower work sites, a concrete batch plant, wire pulling and tensioning sites, and guard structures. Approximately 200 acres will be lost for an indefinite period and the remaining approximately 400 acres will not return to pre-construction function for more than 10 years (long-term disturbance). Measures proposed by BLM to (1) assess remuneration fees, (2) initiate restoration activities, (3) limit extent of disturbance and travel by project vehicle and equipment, (4) minimize disturbance of vegetation, (5) implement a tortoise awareness training, and (6) flag or mark construction limits, should minimize most of these effects.

The use of blasting may result in take of desert tortoises through noise and ground vibration. Open excavations may result in tortoise falls and entrapment. The right-of-way would become a linear disturbed area that provides open, barren areas that increase the visibility of tortoises to

avian and other predators and reduce the thermal cover for tortoises, contributing towards fragmentation of tortoise habitat and populations. The disturbance and use of earth moving equipment may increase the spread of weeds and alien grasses which facilitate wildfires. Measures proposed by BLM to (1) relocate tortoises from blasting zones, (2) cover or fence open excavations, and (3) restore habitat, should minimize most of these effects.

The Service believes that implementation of the proposed action including the minimization measures may result in no more than two desert tortoises being killed or injured. All desert tortoises that appear on the right-of-way in harm's way may be captured and relocated or temporarily penned (when inactive).

## **V. Cumulative Effects**

Cumulative effects are those effects of future non-Federal (State, tribal, local government, or private) activities that are reasonably certain to occur in the action 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 determined that future actions in the action area would likely require section 7 consultation or fall under purview of an HCP (section 10 of the Act). Thus, no future non-Federal activities are reasonably certain to occur in the action area; thus, there are no cumulative effects as a result of the proposed action.

## **VI. Conclusion**

After reviewing the current status of the desert tortoise and its critical habitat, 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).

Critical habitat for the desert tortoise has been designated in portions of the Piute and Eldorado valleys, Mormon Mesa, Gold Butte, and Beaver Dam Slope areas of Nevada. The proposed project would result in new disturbance of critical habitat in the Mormon Mesa CHU. However, it is the Service's biological opinion that the proposed project is not likely to result in adverse modification of designated critical habitat for the desert tortoise (Mojave population) or diminish the capability of the area to serve its role for recovery by continuing to provide the primary constituent elements of critical habitat. This conclusion is based on the following:

1. The proposed project will not result in a level of take of desert tortoise that would significantly affect the rangewide number, distribution, or reproduction of the species; tortoises that are taken as a result of the project are anticipated to remain in the wild with

no long-term effects except for two desert tortoises estimated to be killed or injured by project activities.

2. Measures have been proposed by BLM and Great Basin 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 restated or modified measures proposed by BLM or 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 so that they become binding conditions of any project, contract, grant, or permit issued by BLM or other jurisdictional Federal agencies 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 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 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 as part of the proposed action.

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

**I. Amount or Extent of Take Anticipated**

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

1. The Service determined that no more than two desert tortoises would be incidentally killed or injured as a result of the proposed project. Should any desert tortoise be killed or injured in association with the proposed action, all activity in the vicinity of the incident shall cease and the project proponent shall immediately contact the Service.
2. All desert tortoises located in harm's way will be harassed by capture and removal from the project area. Based on survey data, description of proposed activities, timing of the proposed project, and description of the project area, the Service estimates that no more than 45 desert tortoises may be taken (other than killed or injured) by non-lethal means as a result of project activities.
3. An unknown number of desert tortoise nests with eggs may be excavated and relocated. The Service determined that no desert tortoise nests with eggs are anticipated to be destroyed as a result of project activities.
4. An unknown number of desert tortoises may be taken as a result of increased raven predation in association with the proposed action; however, the Service estimates that the potential increase in ravens will be minimized by measures proposed by BLM to control litter and identify raven nest sites on the right-of-way.

**II. Effect of Take**

In the accompanying biological opinion, the Service has determined that this level of anticipated take will not jeopardize the continued existence of the desert tortoise.

**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 shall ensure implementation of measures to minimize injury and mortality of desert tortoise as a direct or indirect result of project activities including capture and handling of desert tortoises.
2. BLM shall ensure implementation of measures to minimize predation on tortoises by ravens or other desert tortoise predators attracted to the project area.

3. BLM shall ensure implementation of measures to minimize loss and long-term degradation and fragmentation of desert tortoise habitat, such as soil compaction, erosion, crushed vegetation, or introduction of non-native invasive plants or weeds as a result of project activities.
4. BLM shall ensure implementation of measures to ensure compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion.

### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, BLM must ensure full compliance 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 shall ensure implementation of the following measures to minimize mortality and injury of desert tortoises as a result of project activities, including capture and handling of desert tortoises:
  - a. An authorized desert tortoise biologist will be onsite during project activities within desert tortoise habitat. Biologists, monitors, or anyone responsible for conducting monitoring or desert tortoise field activities associated with the project shall complete the Qualifications Form (Attachment A) and submit it to the Service for review and approval as appropriate. Allow 30 days for Service review and response.
  - b. Prior to initiation of construction, an authorized biologist or authorized monitor shall present a desert tortoise awareness program to all personnel who will be onsite, including but not limited to contractors, contractors' employees, supervisors, inspectors, and subcontractors. This program will contain information concerning the biology and distribution of the desert tortoise and other sensitive species, their legal status and occurrence in the project area; the definition of "take" and associated penalties; the terms and conditions of this biological opinion; the means by which employees can help facilitate this process; responsibilities of workers, monitors, biologists, and the CIC; and reporting procedures to be implemented in case of desert tortoise encounters or non-compliance with this biological opinion. The name of every individual trained will be recorded on a sign-in sheet. Each trained individual will be given evidence indicating they have received this training and will keep that evidence with them at all times when they are in the project area.
  - c. Immediately prior to vehicle and equipment travel on the right-of-way, Service-authorized individuals shall survey for desert tortoises and their burrows using

techniques providing 100-percent coverage of the right-of-way and an additional area approximately 90 feet from both sides of the right-of-way. Transects will be no greater than 30 feet apart. All potential desert tortoise burrows will be examined to determine occupancy of each burrow by desert tortoises and handled in accordance with Term and Condition 1.d. below.

- d. All potential desert tortoise burrows located within the project area that are at risk for damage shall be excavated by hand by authorized personnel, tortoises removed, and collapsed or blocked to prevent occupation by desert tortoises. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted in accordance with the Service-approved protocol (Desert Tortoise Council 1994, revised 1999). If the Service or Desert Tortoise Council releases a revised protocol for handling of desert tortoises before initiation of project activities, the revised protocol shall be implemented for the project area. Alternatively, tortoises may be temporarily penned to ensure their safety in accordance with Term and Condition 1.e. below.
- e. Desert tortoises found in the project area sheltering in a burrow during a period of reduced activity (*e.g.*, winter), may be temporarily penned. Tortoises should not be penned in areas of moderate or heavy public use. Penning shall be accomplished by installing a circular fence, approximately 20 feet in diameter to enclose the tortoise/burrow. The pen should be constructed with durable materials (*i.e.*, 16 gauge or heavier) suitable to resist desert environments. Fence material should consist of ½-inch hardware cloth or 1-inch horizontal by 2-inch vertical, galvanized welded wire. Pen material should be 24 inches in width. Steel T-posts or rebar (3 to 4 feet) should be placed every 5 to 6 feet to support the pen material. The pen material should extend 18 to 24 inches aboveground. The bottom of the enclosure will be buried several inches; soil mounded along the base; and other measures should be taken to ensure zero ground clearance. Care shall be taken to minimize visibility of the pen by the public. A biologist, monitor, or designated worker shall check the pen daily.
- f. Desert tortoises and eggs found within construction sites will be removed by an authorized desert tortoise biologist or authorized monitor in accordance with the most current protocols identified by BLM and the Service. Desert tortoises will be moved solely for the purpose of moving them out of harm's way. Desert tortoises will be relocated up to 1,500 feet into adjacent undisturbed habitat on protected public land in accordance with Service-approved handling protocol (Desert Tortoise Council 1994, revised 1999). The disposition of all tortoises handled shall be documented.
- 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. Ambient air temperature shall be measured in the shade, protected from wind, at a height of 2 inches above the ground surface. No desert tortoise shall be captured if the ambient air temperature is anticipated to exceed 95°F before handling and relocation can be completed. If the ambient air temperature exceeds 95°F during handling or processing, desert tortoises shall be kept shaded in an environment that does not exceed 95°F and the animals shall not be released until ambient air temperature declines to below 95°F.

- h. All fuel, transmission or brake fluid leaks, or other hazardous materials shall not be drained onto the ground or into streams or drainage areas. All petroleum products and other potentially hazardous materials shall be removed to a disposal facility authorized to accept such materials. Waste leaks, spills or releases shall be reported immediately to BLM. BLM or the project proponent shall be responsible for spill material removal and disposal to an approved off-site landfill. Servicing of construction equipment will take place only at a designated area. All fuel or hazardous waste leaks, spills, or releases will be stopped or repaired immediately and cleaned up at the time of occurrence. Service and maintenance vehicles will carry a bucket and pads to absorb leaks or spills.
- i. Vehicles shall not exceed 20 miles per hour on access roads except where otherwise posted. Authorized desert tortoise biologists and/or monitors will ensure compliance with speed limits during construction.
- j. Project personnel shall exercise caution when commuting to the project area and obey speed limits to minimize any chance for the inadvertent injury or mortality of species encountered on roads leading to and from the project site. All desert tortoise observations, including mortalities, shall be reported directly to an authorized desert tortoise biologist and the Service. Pets will be prohibited on the project.
- k. Any vehicle or equipment on the right-of-way within desert tortoise habitat will be checked underneath before moving. This includes all construction equipment and the area under vehicles should be checked any time a vehicle is left unattended, as well as in the morning before any construction activity begins. If a desert tortoise is observed, an authorized biologist will be contacted.
- l. The biologist shall ensure that no habitat is disturbed outside designated areas as a result of the project, including ensuring that all vehicles and equipment remain on

the right-of-way or areas devoid of native vegetation. All cross-country travel and travel outside designated areas are prohibited.

- m. All desert tortoises observed within the project area or access road shall be reported immediately to the authorized biologist. The biologists shall halt activities as necessary to avoid harm to a desert tortoise. Project activities that may endanger a 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 desert tortoise biologist.
  - n. Only water or an alternative substance approved by BLM will be used as a dust suppressant.
  - o. If blasting is necessary, all tortoises located within 100 feet of the blast site will be removed and temporarily relocated in accordance with desert tortoise handling protocol, prior to blasting. Prior to any blasting, all tortoise burrows or coversites within a 200-foot radius of the blast site will be located and the entrances carefully stuffed with crumpled newspaper or other material approved by BLM and the Service. After blasting is completed, all burrows and coversites will be inspected for damage, and stuffing material will be removed. If a burrow or coversite has collapsed and there is a possibility that it could be occupied, it will be excavated to ensure that no tortoises have been buried and are in danger of suffocation.
  - p. To prevent mortality, injury, and harassment of desert tortoises and damage to their burrows and coversites, no pets shall be permitted in any project construction area.
  - q. Any excavated holes related to transmission line construction (*i.e.*, foundations) left open overnight will be covered, and/or tortoise-proof fencing will be installed to prevent the possibility of tortoises falling into the open holes.
  - r. Any tortoise injured as a result of the proposed project shall immediately be transported to a qualified veterinarian and reported to the Service's Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.
2. To implement Reasonable and Prudent Measure Number 2, BLM shall ensure implementation of the following measure to minimize predation on tortoises by ravens or other desert tortoise predators attracted to the project area:
- a. Trash and food items shall be promptly disposed in predator-proof containers with re-sealing lids. Trash containers will be emptied daily, and waste will be removed

from the project areas and disposed in an approved off-site landfill. Construction waste also will be removed from the site each day and properly disposed.

- b. H-frame structures with perch deterrents will be utilized in critical habitat south of State Route 168 in the Coyote Spring ACEC. Post-construction monitoring for ravens and removal of raven nests will be conducted along the right-of-way within desert tortoise habitat.
3. To implement Reasonable and Prudent Measure Number 3, BLM 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, or introduction of weeds as a result of construction and maintenance activities:
- a. The boundaries of all areas to be disturbed shall be flagged before beginning any activities, and all disturbances shall be confined to the flagged areas. All construction vehicle movement outside the right-of-way will be restricted to pre-designated access, contractor acquired access, or public roads. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction activity limits. Disturbance beyond the construction zone is prohibited. Authorized desert tortoise biologists will ensure that project vehicles and equipment occur only in designated areas.
  - b. No widening or upgrading of existing access roads will be undertaken in the area of construction and operation, except for repairs necessary to make roads passable, where soils and vegetation are very sensitive to disturbance. The alignment of any new access roads or overland route shall follow the designated area's landform contours where possible, providing that such alignment does not additionally impact resource values.
  - c. All new access roads not required for maintenance will be permanently closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager (*e.g.*, stockpiling and replacing topsoil, seeding, or rock replacement). This will limit new or improved accessibility into the area.
  - d. In construction areas where recontouring is not required, vegetation will be left in place wherever possible and original contour will be maintained to avoid excessive root damage and allow for resprouting. In construction areas where ground disturbance is significant or where recontouring is required, surface restoration will occur as required by BLM. The method of restoration will normally consist of returning disturbed areas back to their natural contour,

reseeding (if required), cross drains installed for erosion control, placing water bars in the road, and filling ditches.

- e. In areas where restoration is required, reseeding will occur through the use of native plant species. Reclamation and monitoring requirements and practices including seed mixes will be approved by BLM. Herbicides will not be used as a part of this project.
- f. Overnight parking and storage of equipment will be in previously disturbed areas (*i.e.*, lacking vegetation). These areas will also be designated by the pre-construction survey team. If previously disturbed areas are not available, these activities will be restricted to the right-of-way and will be cleared of tortoises by the on-site biologist prior to use.
- g. To the extent possible, access to tower sites, and at splicing and tensioning sites will occur by overland travel (*i.e.*, no blading of access will occur). The CIC will ensure that blading is conducted only where necessary. Due to construction constraints resulting from equipment size and personnel safety, blading would be needed at most spur roads and tower sites.
- h. Pre-construction surveys shall be conducted for noxious weeds as stipulated by BLM once the transmission line centerline, access roads, and tower sites have been located and staked in the field. BLM shall ensure that noxious weeds are monitored and appropriate control measures are implemented to ensure that weeds do not establish on the right-of-way.
- i. The proposed SWIP project would disturb a total of 595 acres of both critical and non-critical desert tortoise habitat. The project proponent shall pay compensation for disturbance of desert tortoise habitat prior to surface-disturbing activities associated with the proposed project. Fees for habitat disturbance within Clark County shall be paid to the Desert Tortoise Public Lands Conservation Fund (account number 730-9999-2315) (Section 7 Account). Fees for habitat disturbance in Lincoln County shall be paid to the Lincoln County Treasurer. Refer to attached forms (Attachment B for Clark County and Attachment C for Lincoln County). The section 7 fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) and becomes effective March 1 of each year. The next adjustment will occur March 1, 2008. Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nws.htm>.

**Clark County**

The proposed project would disturb a total of 296 acres of desert tortoise habitat in Clark County. Of this, 223 acres are within desert tortoise critical habitat on BLM lands, which is compensated at the current rate of \$3,253 per acre (factor of 4.5 x base rate of \$723). The multiplier used in this rate calculation was derived from Hastey *et al.* (1991), and consists of a multiplier of 3.0 for habitat quality (*i.e.*, critical habitat), plus 0.5 for growth-inducing effects of the project, plus 1.0 for long-term effects of the action (>10 years), for a total factor of 4.5. Total fees due for disturbance of critical habitat in Clark County are: 223 acres x \$3,253/ acre = \$725,419.

The remaining 73 acres would consist of disturbance of BLM land outside critical habitat in Clark County and will be compensated at \$723 per acre of disturbance (73 acres x \$723/acre = \$52,779.)

**Lincoln County**

The proposed project would disturb a total of 299 acres of desert tortoise habitat in Lincoln County. Of this, 142 acres are within desert tortoise critical habitat on BLM lands, which is compensated at the current rate of \$3,253 per acre as described above. Total fees due for disturbance of critical habitat in Lincoln County is: 299 acres x \$3,253/acre = \$972,647.

The remaining 157 acres would consist of disturbance of BLM land outside critical habitat in Lincoln County and will be compensated at \$723 per acre of disturbance (157 acres x \$723/acre = \$113,511.)

Total Section 7 fees required for the SWIP project is \$1,864,356.

- j. Prior to construction, cacti and yucca to be impacted by project activities shall be excavated and transplanted as part of the restoration in accordance with BLM standards.
  - k. The project proponent shall prepare and implement a BLM-approved weed-control plan and habitat restoration plan for the project prior to initiation of surface-disturbing activities. Heavy equipment will be cleaned of soil with high-pressure air or water prior to arrival at the project area to minimize the potential introduction of alien plant seeds.
4. To implement Reasonable and Prudent Measure Number 4, BLM shall ensure implementation of the following measures to comply with the reasonable and prudent

measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion:

- a. BLM shall designate a CIC to oversee compliance with protective stipulations for the desert tortoise and coordinating **directly** with BLM and the Service. The CIC shall have the authority to halt activities or construction equipment that may be in violation of the stipulations. BLM shall provide a copy of the terms and conditions of this biological opinion to the CIC and biologists for the project. The CIC and biologist will prepare a report for BLM and the Service no later than 90 days after completion of construction within desert tortoise habitat. The report will make recommendations for modifying or refining the stipulations, and include the actual acreage of habitat disturbance caused by crushing and blading versus the estimates prior to construction.
- b. The on-site biologist shall record each observation of desert tortoise handled. Information will 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.

The Service believes that no more than 2 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 construction and operation of the material site (however, the Service believes that no more than 45 desert tortoises will be captured and moved); and an unknown number of desert tortoises taken in the form of indirect mortality through predation by ravens or other subsidized predators 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 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.

### **Reporting Requirements**

Upon locating a dead or injured desert tortoise within the action area, notification must be made to the Service's Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230. Care should be taken in handling sick or injured desert tortoises to ensure effective treatment and in 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 shall bear the cost of any required treatment of injured desert tortoises, euthanasia of sick desert tortoises, or cremation of dead desert tortoises.
5. Should sick or 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.

### **REINITIATION**

This concludes formal consultation on the actions outlined in your request dated July 24, 2007. 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.

Field Manager

File Nos. 84320-2008-F-0066,  
84320-2008-I-0075 and  
1-5-94-F-28R

If we can be of any further assistance, or if you have any questions concerning this biological opinion, please contact Michael Burroughs in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

  
for Robert D. Williams

cc:

Assistant Field Office Manager, Division of Recreation and Renewable Resources, Bureau of  
Land Management, Las Vegas, Nevada  
Chief, St. George Regulatory Field Office, U.S. Army Corps of Engineers, St. George, Utah  
Administrator, Clark County Desert Conservation Program, Department of Air Quality and  
Environmental Management, Las Vegas, Nevada  
Lincoln County Treasurer, Pioche, Nevada

## LITERATURE CITED

- Berry, K. H. 1986. Desert tortoise (*Gopherus agassizii*) research in California, 1976-1985. *Herpetologica* 42:62-67.
- Berry, K. H. 2003. Declining trends in desert tortoise populations at long-term study plots in California between 1979 and 2002: multiple issues. Abstract of paper presented at the Twenty-eighth Annual Meeting of the Desert Tortoise Council.
- Berry, K. H. and B. L. Burge. 1984. The desert tortoise in Nevada. Chapter 8 *In*: The status of the desert tortoise (*Gopherus agassizii*) in the United States. Report to U.S. Fish and Wildlife Service from the Desert Tortoise Council. Order No. 11310-0083-81.
- Berry, K. H., and L. L. Nicholson. 1984. The Distribution and density of desert tortoise populations in California in the 1970s. Pp. 26-60. *In* E.K. Berry (ed.), The status of the desert tortoise (*Gopherus agassizii*) in the United States. Desert Tortoise Council, U.S. Fish and Wildlife Service, Washington, D.C.
- Berry, K. H., E. K. Spangenberg, B. L. Homer, and E. R. Jacobson. 2002. Deaths of desert tortoises following periods of drought and research manipulation. *Chelonian Conservation and Biology* 4:436-448.
- BLM (Bureau of Land Management). 1990. Draft Raven Management Plan for the California Desert Conservation Area. Prepared by Bureau of Land Management, California Desert District, Riverside, California. April 1990.
- BLM (U.S. Bureau of Land Management). 2002a. Proposed Northern and Eastern Colorado coordinated management plan. A California Desert Conservation Area Plan Amendment. Bureau of Land Management, California Desert District, Moreno Valley, California.
- BLM (U.S. Bureau of Land Management). 2002b. Proposed Northern and Eastern Mojave Desert management plan amendment to the California Desert conservation area plan and final environmental impact statement.
- BLM (U.S. Bureau of Land Management). 2005. Final environmental impact report and statement for the West Mojave Plan. A habitat conservation plan and California Desert Conservation Area Plan Amendment. Bureau of Land Management, California Desert District, Moreno Valley, California. January 2005. 2 volumes.
- Boarman, W. I. 2002. Threats to desert tortoise populations: a critical review of the literature. unpublished report prepared for the West Mojave Planning Team, Bureau of Land Management. U.S. Geological Survey, Western Ecological Research Center, San Diego, California. August 9, 2002

- Boarman, W. I. 1992. The raven management program of the Bureau of Land Management: Status as of 1992. Proceedings of the 1992 Desert Tortoise Council Symposium Las Vegas, Nevada. Pages 113-116.
- Boarman, W. I. and K. H. Berry. 1995. Common ravens in the southwestern United States, 1968-92. Pages 73-75 in E. T. LaRoe, G. F. Farris, C. E. Puckett, P. D. Doran, and M. J. Mac, editors. Our living resources: A report to the nation on the distribution, abundance, and health of U.S. plants, animals, and ecosystems. National Biological Service. Washington, D.C.
- Borysenko, M., and S. Lewis. 1979. The effect of malnutrition on immunocompetence and whole body resistance to infection in *Chelydra serpentina*. Developmental and Comparative Immunology 3:89-100.
- Britten, H. B., B. R. Riddle, P. F. Brussard, R. W. Marlow and T. E. Lee, Jr. 1997. Genetic delineation of management units for the desert tortoise, *Gopherus agassizii*, in northeastern Mojave Desert. Copeia 1997: 523-530.
- Brooks, M.L. 1998. Alien annual grass distribution, abundance, and impact on desert tortoise habitat in the western Mojave Desert. Ph.D. Dissertation. University of California at Riverside.
- Brooks, M. L., and T.C. Esque. 2002. Alien plants and fire in desert tortoise (*Gopherus agassizii*) habitat of the Mojave and Colorado deserts. Chelonian Conservation and Biology 4:330-340.
- Brown, D. E., and R. A. Minnich. 1986. Fire and changes in creosote bush scrub of the western Sonoran Desert, California. American Midland Naturalist 116(2):411-422.
- Brown, M. B., K. H. Berry, I. M. Schumacher, K. A. Nagy, M. M. Christopher, and P. A. Klein. 1999. Seroepidemiology of upper respiratory tract disease in the desert tortoise of California. J. Wildlife Diseases 35(4):716-727.
- Brown, M. B., I. M. Schumacher, P. A. Klein, K. Harris, T. Correll, and E. R. Jacobson. 1994. *Mycoplasma agassizii* causes upper respiratory tract disease in the desert tortoise. Infection and Immunity 62: 4580-4586.
- Brown, D. R. , I. M. Schumacher, G. S. McLaughlin, L. D. Wendland, M. B. Brown, P. A. Klein, and E. R. Jacobson. 2002. Application of diagnostic tests for mycoplasmal infections of the desert and gopher tortoises, with management recommendations. Chelonian Conservation and Biology 4:497-507.

- Burge, B. L. 1978. Physical characteristics and patterns of utilization of cover sites by *Gopherus agassizii* in southern Nevada. Proceedings of the 1978 Desert Tortoise Council Symposium. Pages. 80-111.
- Burge, B. L., and W. G. Bradley. 1976. Population density, structure and feeding habits of the desert tortoise (*Gopherus agassizii*), in a low desert study area in southern Nevada. Proceedings of the 1976 Desert Tortoise Council Symposium. Pages 51-74.
- Bury, R. B. 1987. Off-road vehicles reduce tortoise numbers and well-being. U. S. Department of the Interior, Fish and Wildlife Service, National Ecology Research Center, Fort Collins, Colorado. Research Information Bulletin Number 87-6.
- Bury, R. B., T. C. Esque, L. A. DeFalco, and P. A. Medica. 1994. Distribution, habitat use, and protection of the desert tortoise in the Eastern Mojave Desert. *In*: R. B. Bury and D. J. Germano, editors. Biology of the North American tortoises. National Biological Survey, Fish and Wildlife Research 13:57-72.
- Christopher, M. M., K. H. Berry, B. T. Henen, and K. A. Nagy. 2003. Clinical disease and laboratory abnormalities in free-ranging desert tortoises in California (1990-1995). *Journal of Wildlife Diseases* 39:35-56.
- EPG, Incorporated. 2007. Final biological assessment for the Southwest Intertie Project, southern portion. Unpublished report prepared for the Bureau of Land Management on behalf of Great Basin Transmission, LLC. July 2, 2007. 46 pages plus appendix.
- Desert Tortoise Council. 1994. Guidelines for handling desert tortoises during construction projects. Edward L. LaRue, Jr., editor. San Bernardino, California. Revised 1999.
- General Accounting Office [GAO]. 2002. Endangered species: research strategy and long-term monitoring needed for the Mojave desert tortoise recovery program. GAO-03-23. Washington, DC. 53 pp.
- Germano, D. J., R. B. Bury, T. C. Esque, T. H. Fritts, and P. A. Medica. 1994. Range and habitat of the desert tortoise. *In*: R. B. Bury and D. J. Germano, editors. Biology of the North American tortoises. National Biological Survey, Fish and Wildlife Research 13:57-72.
- Goodlett, G., and A. P. Woodman. 2003. Desert tortoise population survey at Virgin Slope desert tortoise study plot, spring 2003. Unpublished report prepared for Arizona Game and Fish Department, Nongame, Contract G90040-K, Phoenix, Arizona.
- Hanski, I. 1999. Metapopulation Ecology. Oxford University Press. Oxford.

- Hastey, E., L.K. Rosenkrance, B.R. Templeton, J.M. Parker, W.H. Radtkey, D.L. Harlow, B.D. Taubert, F. Worthley, W.A. Molini, R.D. Radantris. 1991. Compensation for the desert tortoise. A report prepared for the Desert Tortoise Management Oversight Group. November 1991. 16 pp.
- Henen, B. T. 1997. Seasonal and annual energy and water budgets of female desert tortoises (*Gopherus agassizii*) at Goffs, California. *Ecology* 78:283-296.
- Hovik, D. C. and D. B. Hardenbrook. 1989. Summer and fall activity and movements of desert tortoise in Pahrump Valley, Nevada. Abstract of paper presented at the Fourteenth Annual Meeting of the Desert Tortoise Council.
- Jacobson, E. R., T. J. Wronski, J. Schumacher, C. Reggiardo, and K.H. Berry. 1994. Cutaneous dyskeratosis in free-ranging desert tortoises, *Gopherus agassizii*, in the Colorado Desert of Southern California. *J. Zoo and Wildlife Medicine* 25(1):68-81.
- Karl, A. 1981. The distribution and relative densities of the desert tortoise (*Gopherus agassizii*) in Lincoln and Nye Counties, Nevada. Proceedings of the 1981 Desert Tortoise Council Symposium. Pages 76-92.
- Karl, A. E. 1983a. The distribution and relative densities of the desert tortoise (*Gopherus agassizii*) in Clark County, Nevada. Unpublished Report to Bureau of Land Management, Denver, Colorado. Contract No. YA-512-CT9-90. 46 pages.
- Karl, A. E. 1983b. The distribution, relative densities, and habitat associations of the desert tortoise (*Gopherus agassizii*) in Nevada. M.S. Thesis, California State University, Northridge. 111 pages.
- Lamb, T., J. C. Avise, J. W. Gibbons. 1989. Phylogeographic patterns in mitochondrial DNA of the desert tortoise (*Xerobates agassizii*), and evolutionary relationships among North American gopher tortoises. *Evolution* 43: 76-87.
- Lamb, T., and C. Lydehard. 1994. A molecular phylogeny of the gopher tortoises, with comments on familiar relationships within the Testudinoidea. *Molecular Phylogenetics and Evolution* 3: 283-91.
- Levins R., and D. Culver. 1971. Regional coexistence of species and competition between rare species. *Proceedings of the National Academy of Sciences* 68:1246-1248.
- Levin S. A., D. Cohen, and A. Hastings. 1984. Dispersal strategies in patchy environments. *Theoretical Population Biology* 26:165-191.

- Longshore, K. M., J. R. Jaeger, and J. M. Sappington. 2003. Desert tortoise (*Gopherus agassizii*) survival at two eastern Mojave Desert sites: death by short-term drought? *Journal of Herpetology* 37:169–177.
- Luckenbach, R. A. 1982. Ecology and management of the desert tortoise (*Gopherus agassizii*) in California. *In*: R. B. Bury, editor. North American tortoise: Conservation and ecology. U.S. Fish and Wildlife Service, Wildlife Research Report 12, Washington, D.C.
- McLuckie, A. M. and R. A. Fridell. 2002. Reproduction in a desert tortoise population on the Beaver Dam Slope, Washington County, Utah. *Chelonian Conservation and Biology* 2002, 4(2):288-294.
- McLuckie, A. M., M. R. M. Bennion, and R. A. Fridell. Draft 2006. Regional desert tortoise monitoring in the Red Cliffs Desert Reserve, 2005. Salt Lake City: Utah Division of Wildlife Resources, Publication Number 06-06. 44 pages.
- Mueller, J. M., K. R. Sharp, K. K. Zander, D. L. Rakestraw, K. P. Rautenstrauch, and P. E. Lederle. 1998. Size-specific fecundity of the desert tortoise (*Gopherus agassizii*). *Journal of Herpetology* 32:313-319.
- NPS (National Park Service). 2002. General management plan for the Mojave National Preserve. San Bernardino County, California. April 2002.
- Noss, R. F. and A. Y. Cooperrider. 1994. Saving nature's legacy. Protecting and restoring biodiversity. Island Press. Covelo, California.
- Origgi, R., C. H. Romero, P. A. Klein, K. H. Berry, and E. R. Jacobson. 2002. Serological and molecular evidences of herpesvirus exposure in desert tortoises from the Mojave Desert of California. Abstract of paper presented at the twenty-seventh annual meeting of the Desert Tortoise Council.
- Peterson, C. C. 1994. Different rates and causes of high mortality in two populations of the threatened desert tortoise *Gopherus agassizii*. *Biological Conservation* 70:101–108.
- Peterson, C. C. 1996. Ecological energetics of the desert tortoise (*Gopherus agassizii*): effects of rainfall and drought. *Ecology* 77:1831–1844.
- Rainboth, W. J., D. G. Booth, and F. B. Turner. 1989. Allozyme variation in Mojave populations of the desert tortoise. *Copeia* 1989: 115-123.
- RECON (Regional Environmental Consultants). 1991. Short-term habitat conservation plan for the desert tortoise in Las Vegas Valley, Clark County, Nevada. Prepared for Clark County, 225 Bridger Avenue, Las Vegas, Nevada 89155. January 1991. 143 pages.

- RECON (Regional Environmental Consultants). 1995. Clark County desert conservation plan. Prepared for Clark County, 500 Grand Central Parkway, Las Vegas, Nevada 89155. 129 pages, plus appendices.
- RECON (Regional Environmental Consultants). 2000. Clark County multiple species habitat conservation plan. Prepared for Clark County, 500 Grand Central Parkway, Las Vegas, Nevada 89155.
- Service (U.S. Fish and Wildlife Service). 1993. Draft recovery plan for the desert tortoise (Mojave population). Prepared for Regions 1, 2, and 6 of the Fish and Wildlife Service. Portland, Oregon. 170 pp. plus appendices.
- Service (Fish and Wildlife Service). 1994. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. 73 pp. plus appendices.
- Service (Fish and Wildlife Service). 2006. Range-wide monitoring of the Mojave population of the desert tortoise: 2001-2005. Summary report prepared by the Desert Tortoise Recovery Office, Reno, Nevada.
- Sherman, M. W. 1993. Activity patterns and foraging ecology of nesting common ravens in the Mojave Desert, California. S.S. thesis, Colorado State University, Ft. Collins, Colorado.
- Tracy, C. R., R. Averill-Murray, W. I. Boarman, D. Delahanty, J. Heaton, E. McCoy, D. Morafka, K. Nussear, B. Hagerty, and P. Medica. 2004. Recovery Plan assessment. Unpublished report. 254 pages.
- Turner, R. M. 1982. Mohave desertscrub. *In*: Biotic communities of the American southwest-United States and Mexico. D. E. Brown, editor. Special issue of desert plants, volume 4. Pages 157-168.
- Turner, R. M. and D. E. Brown. 1982. Sonoran desertscrub. *In*: Biotic communities of the American southwest-United States and Mexico. D. E. Brown, editor. Special issue of desert plants, volume 4. Pages 181-221.
- Turner, F. B., P. A. Medica, and C. L. Lyons. 1984. Reproduction and survival of the desert tortoise (*Scaptochelys agassizii*) in Ivanpah Valley, California. *Copeia* 1984(4):811-820.
- U.S. Army National Training Center. 2005. Biological assessment for the proposed addition of maneuver training land at Fort Irwin, California. Prepared by Charis Professional Services Corporation, Temecula, California. May 2003.
- Walker, M. and P. Woodman. 2002. Desert tortoise population survey at Beaver Dam Slope enclosure desert tortoise study plot; spring, 2001. Report to Arizona Game and Fish Department, Phoenix, Arizona.

- Washington County Commission. 1995. Washington County, Utah desert tortoise incidental take permit application/documents. Unpublished report submitted to the U.S. Department of Interior, Fish and Wildlife Service. December 1995.
- Weinstein, M., K. H. Berry, and F. B. Turner. 1987. An analysis of habitat relationships of the desert tortoise in California. A report prepared for Southern California Edison Company. 96 pages.
- Wilson, D. S., K. A. Nagy, C. R. Tracy, D. J. Morafka, and R. A. Yates. 2001. Water balance in neonate and juvenile desert tortoises, *Gopherus agassizii*. Herpetological Monographs 15:158–170.
- Young, R., C. Halley, and A. P. Woodman. 2002. Desert tortoise population survey at Littlefield desert tortoise study plot, spring 2002. Unpublished report prepared for Arizona Game and Fish Dept, Nongame, Contract G40088-001, Phoenix, Arizona.

**Attachment B**

**SECTION 7 FEE PAYMENT FORM**

**Entire form is to be completed by project proponent**

**Biological Opinion File Number:** 84320-2008-F-0066

**Fish and Wildlife Service Office that issued the Opinion:**

Nevada Fish and Wildlife Office, Las Vegas, Nevada

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

**Project:** Southwest Intertie Project (SWIP)

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

**Fee rate (per acre):** \_\_\_\_\_

**Total payment required:** \_\_\_\_\_

**Amount of payment received:** \_\_\_\_\_

**Date of receipt:** \_\_\_\_\_

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

**Project proponent:** Great Basin Transmission, LLC    **Telephone number:** \_\_\_\_\_

**Authorizing agencies:** Bureau of Land Management, Las Vegas and Ely, Nevada

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

**Deliver check to:**  
Clark County Desert Conservation Program  
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) 455-3536

If you have questions, you may call the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

**Attachment C**

**LINCOLN COUNTY SECTION 7  
LAND DISTURBANCE FEE  
PAYMENT FORM**

**Entire form is to be completed by project proponent**

**Biological Opinion File Number:** 84320-2008-F-0066

**Biological Opinion issued by:** Nevada Fish and Wildlife Office, Reno, Nevada

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

**Project:** Southwest Intertie Project (SWIP)

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

**Fee rate (per acre):** \_\_\_\_\_

**Total payment required:** \_\_\_\_\_

**Amount of payment received:** \_\_\_\_\_

**Date of receipt:** \_\_\_\_\_

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

**Project proponent:** Great Basin Transmission, LLC

**Telephone number:**

**Authorizing agencies:** Bureau of Land Management, Las Vegas and Ely, Nevada

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

**Deliver check to:** Lincoln County Habitat Conservation Section 7 Account  
Lincoln County Treasurer  
Attn: Ms. Cathy Hiatt  
P.O. Box 416  
Pioche, Nevada 89043  
(775) 962-5805

**If you have questions, you may call the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.**

**ATTACHMENT 1  
SUMMARY RESPONSE TO COMMENTS ON  
SWIP – SOUTHERN PORTION ENVIRONMENTAL ASSESSMENT  
EA NV-040-07-048**

**INTRODUCTION**

Three sets of comments were received on the Southwest Intertie Project – Southern Portion (SWIP – Southern Portion), Environmental Assessment (EA). One set supported the project and EA. Comments in the other two sets can be grouped into five general areas (1) the EA's relationship to information in the 1994 Southwest Intertie Project Environmental Impact Statement (SWIP EIS), (2) the adequacy of the EA's description of the transmission line's impact on ecological and other resources, (3) the purpose and need of the SWIP – Southern Portion and relationship to the White Pine Energy Station (WPES), (4) Cumulative Effects, and (5) Mitigation Measures and the Construction, Operation and Maintenance Plan (COM Plan). Responses to comments in these areas follow.

**1. RELATIONSHIP OF THE SWIP – SOUTHERN PORTION EA TO SWIP EIS**

The impacts of the Southwest Intertie Project (SWIP) were presented in the 1992 Draft Environmental Impact Statement and the 1994 Final Environmental Impact Statement (SWIP DEIS/FEIS). The purpose of the EA for the SWIP – Southern Portion is to address (1) proposed project modifications that were not covered in the previous EIS or by the Right-of-Way (ROW) granted by the Bureau of Land Management (BLM), and (2) policy and resource updates associated with key environmental resources that may affect the southern project area.

The SWIP DEIS/FEIS disclosed the potentially significant impacts that could result from the construction of the SWIP. The decision to issue the Record of Decision (ROD) and grant the ROW was informed by awareness of these impacts and the ability to reduce them through specified mitigation measures. The EA addresses the current Proposed Action, which is an amendment of the SWIP ROW Grant to provide for two modifications: (1) relocation of the southern terminus of the SWIP transmission line from the previously proposed Dry Lake Substation to the now-existing Harry Allen Substation, and a corresponding, approximately 3.8-mile Right-of-Way Extension (Harry Allen Extension) and (2) a westward shift of the approved site for a substation in the Robinson Summit area to the new Thirtymile Substation site, and corresponding transmission interconnections with the Falcon-to-Gonder 345kV line (Substation Relocation). In addition to the Proposed Action, the EA evaluates relocation of the ROW within the Aerojet Corridor/Coyote Spring Valley (Coyote Springs Realignment) which was mandated by Congress in Section 302(c) of the Lincoln County Conservation, Recreation, and Development Act (LCCRDA) in 2004. The EA also addresses important policy and/or resource changes (Policy/Resource Updates) identified by the BLM.

Sections 4 and 5 of the EA address resource impacts associated with the proposed and mandated ROW modifications, including the extent of disturbance and the mitigation measures that would help ensure that impacts would be less than significant. Section 6 of the EA assesses the key policy and/or resource changes that have occurred since issuance of the SWIP DEIS/FEIS, the ROD, and ROW.

## 2. ECOLOGICAL AND RESOURCE IMPACTS

### **Biological Concerns**

**Listed and Sensitive Species:** Section 6 of the EA identifies impacts and mitigation for the Mojave Desert Tortoise, Sage Grouse, migratory birds, and other key animal and plant species identified as sensitive by BLM and the Nevada Department of Wildlife. New species listings and policy changes since the DEIS/FEIS which could affect management of these species are also addressed in this section, which incorporates analysis from the Biological Assessment (BA) for the SWIP – Southern Portion. Raven and Golden Eagle predation of Sage Grouse and Desert Tortoise, and mitigation in the form of targeted use of H-frame transmission towers with perch deterrents, is discussed in Sections 6.2.2 and 6.3.2. A Biological Opinion (BO) prepared by the United States Fish and Wildlife Service (USFWS) in December 2007 concluded that the SWIP – Southern Portion (including the modifications addressed in the EA) is not likely to jeopardize the continued existence of the threatened Desert Tortoise (Mojave population). Impacts to predators, including the Mountain Lion, Coyote, and Bobcat are anticipated to be minimal based on the limited amount of disturbance associated with the proposed modifications and the mitigation measures presented in Sections 4.3.3 and 5.3.1.3 of the EA, the EA Appendices, and the COM Plan.

The EA notes that the Banded Gila Monster could possibly inhabit the area of the Harry Allen Extension and discusses wildlife related impacts and mitigation for this area (pages 3-3 and 4-4). Seventeen lizard species, including the Gila Monster, were addressed in context with the Coyote Springs Realignment (pages 5-3 and 5-14) and a specific reference has been added to this section of the EA. The BA also considered the Gila Monster as a potentially affected species, concluding that the project would not lead to federal listing.

**Other Wildlife:** The EA discloses that there will be some mortality of small vertebrate species, and general wildlife habitat quality will be degraded from the construction of the transmission line in association with the Harry Allen Extension and for the Coyote Springs Realignment (Sections 4.3.3.1 and 5.3.1.3). Construction of the Thirtymile Substation will also result in some mortality of small vertebrate species and the removal of wildlife habitat on the substation site (Section 4.3.3.2). Wildlife mortality and habitat impacts associated with the Thirtymile Substation and Coyote Springs Relocation modifications would be generally the same as under the existing ROW Grant. Mitigation measures, including limiting access and disturbance to areas previously determined and clearly flagged, controlling speed limits on the ROW, and restoration practices, will assist in reducing impacts to habitat and wildlife.

**Noxious Weeds/Vegetation/Wildfire:** Only limited populations of noxious weeds were found along the SWIP – Southern Portion (Section 6.5.1), and project construction was given a “low to moderate risk.” Mitigation measures in the Noxious Weed Management Plan, including identification of problem areas, preventative measures, and post-construction reclamation, treatment and monitoring will help eradicate existing populations and minimize potential spread of noxious weeds (Section 6.5.2). Under the ROW Preparation, Rehabilitation, and Restoration Plan, reseeding practices and seed mixes for temporary disturbance areas will discourage establishment of noxious and invasive weeds, including cheatgrass.

The proposed modifications will result in approximately 178 acres of temporary disturbance and 195 acres of permanent disturbance. Temporary disturbance will be restored in accordance with practices and procedures described in Sections 4.3.1.1, 4.3.1.2, and 5.3.1.1 of the EA. ROW

preparation, restoration and reclamation practices to reduce impacts to vegetative communities are also addressed in the COM Plan. Construction, restoration and monitoring practices identified in this plan, together with the Noxious Weeds Management Plan will assist in reducing the short- and long-term effects to native species and the Sagebrush Biome.

Concerns regarding potential wildfire impacts on native vegetation communities are discussed in Sections 3.7 and 5.3.6. Methods to minimize wildfire potential are in Sections 4.8 and 5.3.6.

### **Hydrological and Climatological Concerns**

No springs, seeps, wet meadows, or perennial streams would be affected by the proposed ROW modifications. In areas traversed by the Harry Allen Extension and the Coyote Springs Realignment, impacts to ephemeral drainages are expected to be minimal due to the selective location of towers, limiting the area of disturbance, and implementing erosion control measures. See Section 4.9.1.3 and Section 5.3.7.3.

Water quality impacts to surface and groundwater are expected to be minimal for the Harry Allen Extension (Section 4.9.1.3), the Thirtymile Substation (Section 4.9.2.3), and the Coyote Springs Realignment (Sections 5.2.9.3 and 5.3.7.3). Mitigation, including erosion control and spill prevention measures as presented in the EA (including Appendix A), will also minimize potential water quality impacts.

Coordination with the U.S. Army Corps of Engineers and Nevada Division of Environmental Protection (NDEP) has occurred with regard to the SWIP transmission line and the Thirtymile Substation. No “jurisdictional waters” were identified in the vicinity of the substation site and NDEP did not identify any specific sensitive drainages in this area. The EA notes that several small intermittent drainages descend from the foothills of the area around the substation site and that an unnamed streambed is located near the southwest corner of the substation (page 3-14). As noted in the EA, it is anticipated that this streambed will be avoided and erosion control and spill prevention measures will be incorporated to address potential short- and long-term impacts to this ephemeral drainage (page 4-10).

### **Global Warming and Desertification**

Vehicles and equipment used for construction and maintenance of the proposed facilities will emit carbon dioxide, a greenhouse gas (GHG). The amount of GHGs emissions from these mobile sources will be so small relative to global GHG emissions that a meaningful analysis could not be achieved with current methodology and therefore are not specifically addressed in the EA. The SWIP – Southern Portion has independent utility from proposed or future generation projects, and the GHG and/or climate change implications of such projects, if any, are appropriately addressed in their respective National Environmental Policy Act (NEPA) documents.

Regarding the desertification of watersheds, the Harry Allen Extension and the Coyote Springs Realignment are not anticipated to affect groundwater, and effects, if any, at the Thirtymile Substation will be minimal due to erosion control and spill prevention measures. Desalinization of topsoil or water and reduction of surface waters are not anticipated. Excessive soil erosion and effects to native plant communities will be minimized through construction and restoration

practices presented in the EA, and impacts to soils will be mitigated as described in Sections 4.9.1.2, 4.9.2.2, and 5.3.7.2. Effects to native vegetation communities and the Sagebrush Biome will also be reduced through restoration and reclamation practices, as described above.

### **Cultural and Paleontological Resources**

Cultural surveys identified no cultural resources for the Area of Potential Effect (APE) for the Harry Allen Extension. Within the APE for the Thirtymile Substation and associated interconnections, 18 sites were identified, four of which were determined eligible for listing on the National Register of Historic Places (NRHP). Within the APE for the Coyote Springs Realignment, cultural surveys identified 58 sites, 12 of which were determined eligible for listing on the NRHP. A Historic Properties Treatment Plan will be implemented prior to construction. This plan will be reviewed and approved by the BLM and the Nevada State Historic Preservation Office, and will identify measures to minimize any potential impacts and ensure compliance with Section 106 of the National Historic Preservation Act. Mitigation measures presented in the EA Appendices will also help minimize cultural resource impacts.

Paleontological resource studies concluded that the Harry Allen Extension is within an area of low paleontological sensitivity, ultimately resulting in minimal impacts to paleontological resources. Paleontological sensitivities associated with the Thirtymile Substation and the Coyote Springs Realignment were “undetermined” and it has been recommended that intensive pedestrian field inspections be conducted prior to construction. A Paleontological Resources Treatment Plan has been prepared and includes mitigation measures that would address potential impacts to paleontological specimens identified in the intensive pedestrian field inspection, which will be conducted prior to construction of the proposed project.

### **Land Use, Land Owner Benefits, and Economic Considerations**

**Increased Access:** The EA addresses access requirements and the resulting impacts for the three modification areas (pages 4-6, 4-7 and 5-15, 5-16). The SWIP EIS identified and analyzed access impacts for the entire alignment and the ROD outlines generic and selective mitigation measures to mitigate access-related adverse impacts. General categories of access type (e.g., existing, new) were identified in the SWIP EIS, subject to detailed and final engineering and design. These access types have been considered in the detailed engineering of the SWIP – Southern Portion and in preparation of the COM Plan. The COM Plan depicts the location of access and identifies mitigation measures associated with existing, improved, and new access.

The EA acknowledges the potential impacts of increased off-road and dispersed access associated with the proposed modifications. Numerous generic and selective mitigation measures have been developed to reduce access related impacts (EA Appendix A).

Additional linear facilities have been proposed for the utility corridor to be occupied by the SWIP – Southern Portion. Consolidation of access within the corridor may result in an overall reduction of access related concerns and/or impacts to the environmental resources within and near the utility corridor. At the appropriate time the BLM, in coordination with the Proponent and other potential users of the utility corridor, will determine which of the newly-constructed access roads will be closed, restored, or retained for operation and maintenance activity. New access roads not required for operation and maintenance of the SWIP – Southern Portion and/or other

planned facilities may be closed using the most effective and least environmentally damaging methods appropriate to that area. Where access is to be restored, the practices identified in the COM Plan will be implemented accordingly. While detailed engineering and the potential to accommodate future lines have required changes to the access originally anticipated in select locations, the overall impacts of access will remain consistent with those presented in the SWIP EIS.

**BLM Management Plan and Designated Utility Corridor:** The utility corridor for this area is based on Land Use Plan Amendments approved by BLM in the 1994 ROD, specifically for the SWIP transmission line. The decision to locate the SWIP transmission line, and ultimately the broader corridor in this area, was based on an extensive planning process that included review of environmental resource impacts and mitigation during the preparation of the SWIP DEIS/FEIS. With the exception of the modifications presented in the EA, this location remains consistent with the original ROW Grant, and neither the original nor modified grant will prohibit other utilities from maintaining consistent electrical spacing.

The BLM has worked, and will continue to work with the Project Proponent to position the transmission line in a manner that (1) accommodates existing and potential future utilities to the greatest degree possible, (2) minimizes environmental impacts, and (3) maintains consistency with the original ROW Grant. As noted in the cumulative effects section of the EA, this includes consideration for multiple transmission lines, including those proposed by Sierra Pacific Resources and Nevada Power Company. The BLM also has taken additional steps to further accommodate future lines by requiring the SWIP to use double-circuit structures in the Pahranaagat Wash area, south of the Delamar Valley and Dry Lake.

At this time no potentially unused, and/or duplicate ROWs are known to exist in the corridor occupied by the SWIP. Concerns that the SWIP – Southern Portion, if constructed, might go unused are not considered realistic, given the need for additional interconnectivity of the grid and significant interest for additional regional transmission in support of new energy projects including proposed or potential renewable energy resources, as evidenced by the number of transmission line ROW applications being applied for in this area.

**Effects to Special Management Areas:** There are no Wilderness Areas, Wilderness Study Areas, or Wild and Scenic Rivers within the Harry Allen Extension or at the Thirtymile Substation Site, as described in Section 3.8 of the EA. No Areas of Critical Environmental Concern (ACECs) would be affected by these modifications (Section 4.13). While the Thirty Mile Substation is located within the Loneliest Mountain Special Recreation Management Area, there are no existing or planned recreation sites within close proximity to the substation. Impacts to recreation from the construction and operation of the Thirtymile Substation would be limited to temporary disruption to traffic and access along Jakes Wash Road and U.S. Highway 50 during construction. Mitigation measures identified in the COM Plan regarding the use of signage that notifies the public of the timing for construction activities will help reduce any potential conflicts with users, and additional practices outlined during construction and restoration will help minimize damages to resources in this area and provide for public safety (Section 4.6.2).

With respect to the Coyote Springs Realignment, the Delamar Mountain Wilderness is located east of the realignment and U.S. Highway 93, approximately 0.75 to 2.0 miles from the realignment. No increase in access to the Wilderness is expected from construction of the transmission line in this area (Section 5.3.4). The Desert National Wildlife Range (DNWR), including portions that are proposed for Wilderness designation and are currently being

managed as Wilderness, is located west of the realignment (Section 5.2.7). There is potential for increased off-road and dispersed access to the DNWR from the construction of new access and maintenance roads, however, potential increased off-road access will be limited by closing and reclaiming construction roads not needed for maintenance, and through the use of locking gates or other barriers, to the extent practicable (as described in Section 5.3.4 of the EA).

The Coyote Springs Realignment crosses approximately 1 mile of the Coyote Springs ACEC, which was designated for protection of the Mojave Desert Tortoise and is located in Critical Habitat (Section 5.2.13). Effects to the Coyote Springs ACEC, including mitigation measures to reduce impacts to Desert Tortoise, are addressed in the BO for the SWIP – Southern Portion, including measures presented in Sections 5.3.1.5 and 5.3.11 and Appendix A of the EA.

**Landowner Benefits:** Grazing lands may be affected in the short-term during construction, and may be displaced in the long-term by permanent roads and project facilities that will displace grazing. While the SWIP – Southern Portion crosses numerous range allotments, the permittees associated with these allotments will not receive any direct financial benefit from the SWIP – Southern Portion. The effects of the Coyote Springs Realignment are presented in Section 5 of the EA. The sponsors of the Coyote Springs Development Project and their plans for development of electrical and water supply infrastructure to serve this Project are separate from, and unrelated to, the SWIP Project and the Project Proponent.

**Economic Considerations:** Economic concerns were expressed regarding loss of public recreational opportunities, loss of healthy watersheds, and the cost of wildfire and noxious weed suppression. A loss of recreational opportunities is not anticipated in conjunction with the proposed modifications. There are no recreation areas in the immediate vicinity of the Harry Allen Extension (Section 4.6.1) and impacts to the construction and operation of the Thirtymile Substation would be limited to temporary disruption of Jakes Wash Road during construction. In this location, mitigation measures including the use of signage that notifies the public of the timing for construction will help to reduce any potential conflicts. In the location of the Coyote Springs Realignment, the transmission line does not conflict with recreation use (Section 5.3.4).

Given the location of the modifications, the minimal impacts to hydrology and the identified mitigation measures which will be employed to further minimize hydrologic concerns, the health of the watersheds in these areas is not anticipated to be jeopardized by the proposed modifications. Also, the costs associated with the control of noxious weeds and the prevention of wildfires will be the responsibility of the Project Proponent, in accordance with the COM Plan.

### **3. PURPOSE AND NEED & RELATIONSHIP TO THE WHITE PINE ENERGY STATION**

The purpose and need for the modifications to the SWIP right-of-way, which is the proposed action considered in the EA, is presented in Section 1.2. The objective for the SWIP itself is also summarized in Section 1.2 for informational purposes.

In order to provide clarification with respect to the relationship with the WPES, BLM has done the following.

First, we have determined that it would be more appropriate for Section 1.1.1 of the EA to define the analysis area for the SWIP – Southern Portion as that part of the SWIP that runs between the Harry Allen Substation and the proposed Thirtymile Substation. This is consistent with the

independent utility of this part of the transmission line, as identified by Great Basin Transmission, LLC (Great Basin) and reflected in Great Basin's pending application to the Nevada Public Utility Commission for a Utility Environmental Permit Act (UEPA) permit for the Harry Allen to Thirtymile Project. This clarification really only affects Section 6 of the EA, Policy and Resource Updates, because the rest of the EA addresses ROW amendments which are limited to the Harry Allen to Thirtymile portion. The Policy and Resource Update Section of the EA has been revised by removal of specific discussion of resources north of the proposed Thirtymile site, which were minimal, and the maps of the project area have been revised. From a NEPA perspective, the portion of the line north of Thirtymile is more appropriately addressed in the BLM's ongoing review of the SWIP -- Northern Portion, and/or the WPES Environmental Impact Statement being developed by the Ely District Office. This approach is consistent with the initial SWIP ROD, which recognized that the SWIP might be constructed in phases. It will allow Great Basin the flexibility to phase development and construction of the SWIP in a commercially reasonable manner in light of existing system connectivity issues and in response to the evolving generation and transmission situation in the region.

Second, we have added a reference to the WPES in Section 1.1.1 and have also added a brief discussion of the relationship of the SWIP and the WPES to Section 7, Cumulative Impacts as described below.

Given the need for additional interconnectivity of the grid, and significant interest for additional regional transmission in support of proposed or potential renewable energy resources, as evidenced by the number of transmission line right-of-way applications being applied for in this area, it is unlikely that the Southern SWIP, if constructed, might go unused. BLM will make the determination on the scope and timing of notices to proceed for construction with due consideration for prevailing circumstances.

#### **4. CUMULATIVE IMPACTS**

Issues raised in the comments included (1) cumulative effects to environmental resources, including those impacted by grazing, and (2) cumulative effects of other energy projects.

**Cumulative Effects of the SWIP to Environmental Resources:** Cumulative impacts associated with the Harry Allen Extension and Thirtymile Relocation, and with the Coyote Springs Realignment are presented in Section 7 of the EA. That discussion addresses biological resources; cultural and paleontological resources; land use, recreation, and access; visual resources; Wilderness and Wild and Scenic Rivers; wildfire management; earth resources (geology, soils, and water); air resources; hazardous materials; socioeconomic and environmental justice; and, ACECs. Concerns regarding biological resources, including habitat loss, disturbance and fragmentation, increase of access, noxious weeds, and affects to threatened and sensitive species, are addressed in Section 7.4.1 of the EA.

The collocation of the SWIP and other planned linear facilities within a common utility corridor, to the extent possible, should minimize the cumulative effects to all environmental resources in the long-term. The location of the SWIP, as well as other existing and planned linear facilities within this corridor, allows for the consolidation and therefore reduction of the incremental impacts associated with past, present, and future actions within a relatively confined area. In particular, by consolidating these facilities within an established utility corridor, future linear facilities will be located in a well-planned and previously modified setting, and may potentially

benefit from long-term access established for the SWIP, thereby reducing cumulative effects related to impacts resulting from the construction of additional new roads.

**Cumulative Effects in Association with Grazing:** No grazing allotments are located in the areas of the Harry Allen Extension or the Coyote Springs Realignment. Construction of the Thirtymile Substation and interconnections would displace approximately 81 acres of the 178,716 acre Thirty Mile Spring BLM grazing allotment as described in Section 4.6.2 of the EA. It is not anticipated that construction and operation of this substation will lead to an increase in grazing activities (in fact it would reduce the amount of area potentially used by livestock). It is also not anticipated that construction, operation, and maintenance of the facilities associated with the modifications described in the EA will directly, or indirectly, contribute to grazing related impacts. The impacts associated with the construction and operation of these modifications, when added to grazing related impacts in the region, are not anticipated to be substantial based on (1) the location of these modifications, (2) their placement in an area with the potential to consolidate future facilities, and (3) the mitigation measures as presented in Section 7.4 of the EA, which will minimize impacts to watersheds and plant and animal communities and habitat, and will prevent or minimize the spread of noxious weeds.

**Cumulative Effects of Other Energy Projects:** Table 7-1 in Section 7 of the EA catalogues the past, present and reasonably foreseeable future actions (including energy related projects) in the region which, due to general proximity, could potentially have cumulative impacts with the SWIP ROW modifications considered in the EA. These projects have been taken into account (as appropriate) in the description of cumulative effects to environmental resources as presented in Section 7.4 of the EA. In addition, several other NEPA documents for energy related facilities have also been completed which include the SWIP in their cumulative analyses. A description of these NEPA documents is provided in Section 7.3 of the EA. In addition, and as previously described, a brief discussion has been added to Section 7 providing additional clarification with respect to the relationship of the SWIP and the WPES. That discussion clarifies that while the WPES is unlikely to be constructed to full build-out without the SWIP, the SWIP has independent utility and all or a portion of it may be built in the absence of the WPES. This discussion is consistent with the discussion in the Draft EIS for the WPES.

## **5. MITIGATION MEASURES AND COM PLAN**

The BLM received a preliminary COM Plan from the Project Proponent in March of 2007. The plan was used by the BLM to assess potential resource impacts in the EA. The EA summarizes key mitigation measures included in this plan. A current COM Plan is on file in the Ely District Office, the Caliente Field Office, and the Southern Nevada District Office.

These generic and selective mitigation measures are discussed in the EA and included in Appendix A. They represent the range of measures that could be applied to address impacts associated with the three areas of modification or in context with key policy and resource changes since the Final SWIP EIS and ROD. Mitigation measures, including the terms and conditions of the BO issued by the USFWS on December 20, 2007, are presented in the BO which has also been included in Appendix B of the EA and the COM Plan.

Key mitigation measures to address specific resource impacts associated with the Harry Allen Extension and the Thirtymile Relocation are described in Section 4 of the EA. Mitigation measures to address resource impacts associated with the Coyote Springs Realignment are

presented in Section 5.3, and those that apply to key policy and/or resource changes that have occurred since the SWIP DEIS/FEIS are presented in Section 6. These measures include those identified in the original SWIP as well as additional measures determined to be applicable since the issuance of the ROD and subsequent ROW Grants. Additional mitigation measures have been proposed by Great Basin or requested or required by the BLM, USFWS and other resource agencies, in connection with the preparation of the EA and the BA, BO, and COM Plan. All of the mitigation measures from these various sources have been incorporated in the COM Plan, and compliance with that plan would be included as an enforceable stipulation in the amended ROW Grant, just as it is in the original SWIP ROW Grant as presented in the Decision Record for the EA.