

# **HABITAT ASSESSMENT FOR MOHAVE GROUND SQUIRREL**

## **LUCERNE VALLEY DESERT VIEW RANCH GENERATING FACILITY**

**APN 0435-083-39 & 0435-132-01**

**SAN BERNARDINO COUNTY, CALIFORNIA**  
(USGS Fifteemile Valley, CA Quad.; Township 4 North, Range 2 West, Section 10 & 15)

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**Project No: RCA#2011-20A  
October 10, 2011  
(Date report prepared.)**

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## EXECUTIVE SUMMARY

The project proponent is proposing to construct a solar photovoltaic generating facility on a 358-acre parcel located in the Lucerne Valley area of San Bernardino County. The site is located at the northwest corner and southwest corner of Desert View Road and Canyon View Road about 0.5-miles south of Highway 18 and one mile west of Joshua Road. The site supports a creosote bush community dominated by *Larrea tridentata* with co-dominants burrobrush (*Franseria dumosa*) and Joshua tree (*Yucca brevifolia*).

The property is located within the known distribution of the Mohave ground squirrel; therefore, a habitat assessment was performed for the species on September 21 and 22, 2011 from approximately 0930 to 1330 hours on each survey day. The habitat assessment was performed by Ryan Young who holds a Memorandum of Understanding (MOU) from California Department of Fish and Game (CDFG) for the species.

**The site supports suitable habitat for the Mohave ground squirrel based on several criteria outlined in the following sections. Based on the results of the assessment, the proponent will be required to mitigate for potential impacts to the species. Mitigation will involve acquisition of an Incidental Take Permit and payment of appropriate mitigation fees. However, in lieu of acquiring the Incidental Take Permit, the proponent may elect to conduct a live-trapping survey to definitively determine the presence or absence of the species.**

## 1.0 PROJECT AND PROPERTY DESCRIPTION

The property consists of vacant land and is about 358-acres in size (gross). It is located at the northwest corner and southwest corner of Desert View Road and Canyon View Road in San Bernardino County (Township 4 North, Range 2 West, Section 10 & 15) (Figures 1 and 2). Elevations ranged from about 3040 to 3280 feet (MSL) and soils consisted of sandy loam to gravelly loam. The Fifteenmile Valley quadrangle shows three blueline channels bisecting the property as depicted in Figure 1. The channel in the northern portion of the site within Section 15 is relatively well defined and may be used as a wildlife corridor.

Weather conditions during the habitat assessment consisted of winds of 0 to 10 mph, temperatures in the low 50's °F (AM) to mid 90's °F (PM), and about 0 to 10 percent cloud coverage. The site is surrounded by vacant lands although there are a few single-family dwellings within about 0.25 miles of the site. The site supports a creosote bush community (*Larrea tridentata*) with burrobush (*Franseria dumosa*) and Joshua tree (*Yucca brevifolia*) co-dominants. Dominant annuals consisted of schismus (*Schismus barbatus*), buckwheat (*Eriogonum brachyanthum*). The USGS quadrangle map is provided in Figure 1 and site photographs are provided in Figure 2. (Note: No project map was available at the time this report was prepared.)

The proposed generating facility would have a generating capacity of approximately 40 megawatts alternating current (MW-AC) encompassing approximately 180-acres of the 358-acre site with the remaining 178-acres to remain as open space. No construction activities will occur within the blueline channels. The project will employ photovoltaic (PV) modules that convert sunlight directly into electrical energy without use of heat transfer fluid or cooling water. The facilities will deliver the electrical output of the project to the existing regional transmission system. The project will utilize a series of arrays of PV modules to convert solar energy directly to electrical power for export to the electrical grid. The PV modules convert the sunlight striking the modules directly into low-voltage direct current (DC) power, which is subsequently transformed to alternating current (AC) power through an inverter. The PV modules are made of a semiconductor material in which the process of converting light (photons) to electricity (voltage) allows the electrons to flow through the material to produce electricity (the PV effect).

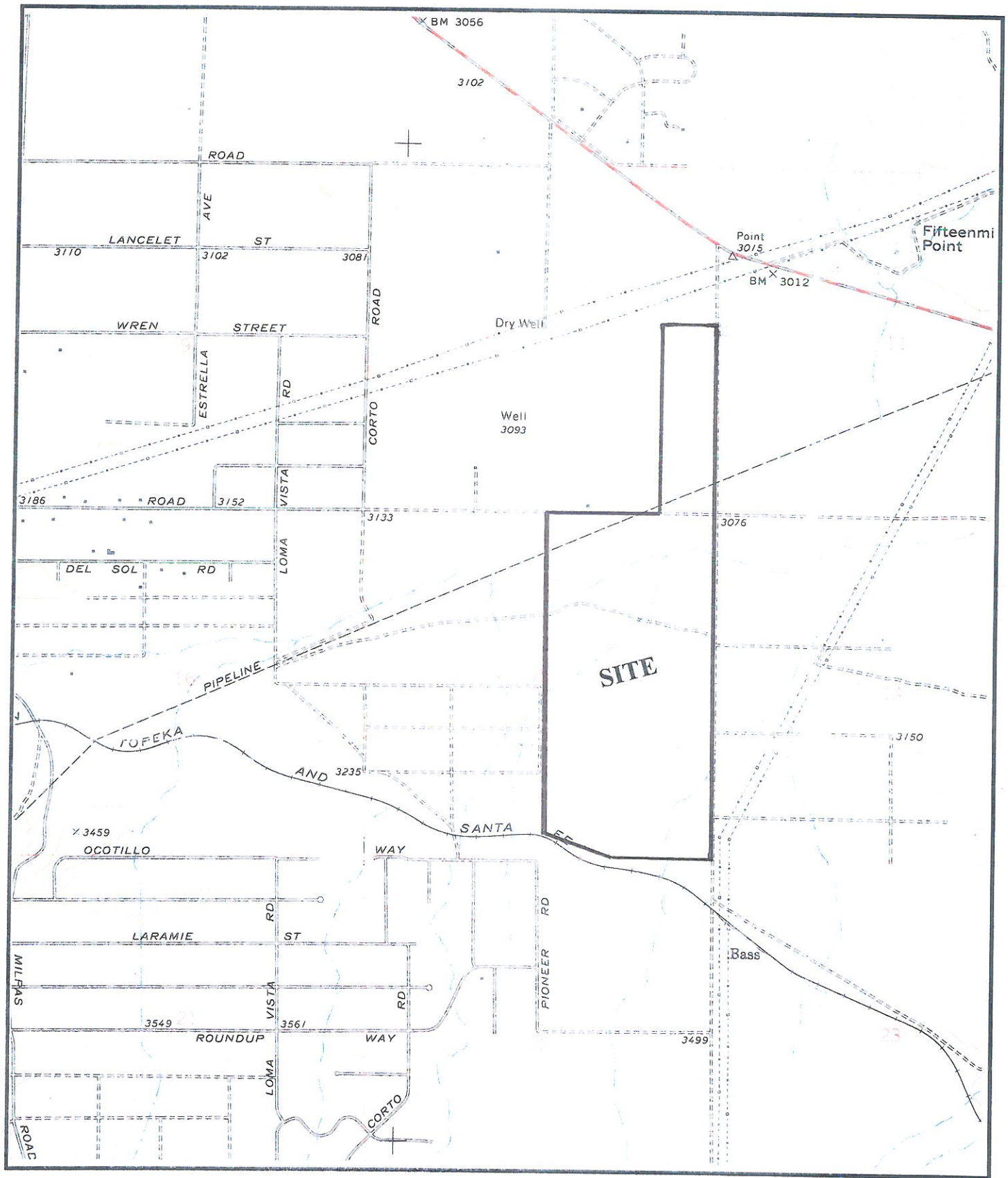


FIGURE 1

PROPERTY LOCATION  
 (Source: USGS Fifteenmile Valley, CA Quadrangle, 1971)  
 (Lucerne Valley Desert View Ranch Generating Facility)





PHOTO POINT #1 - LOOKING SOUTH

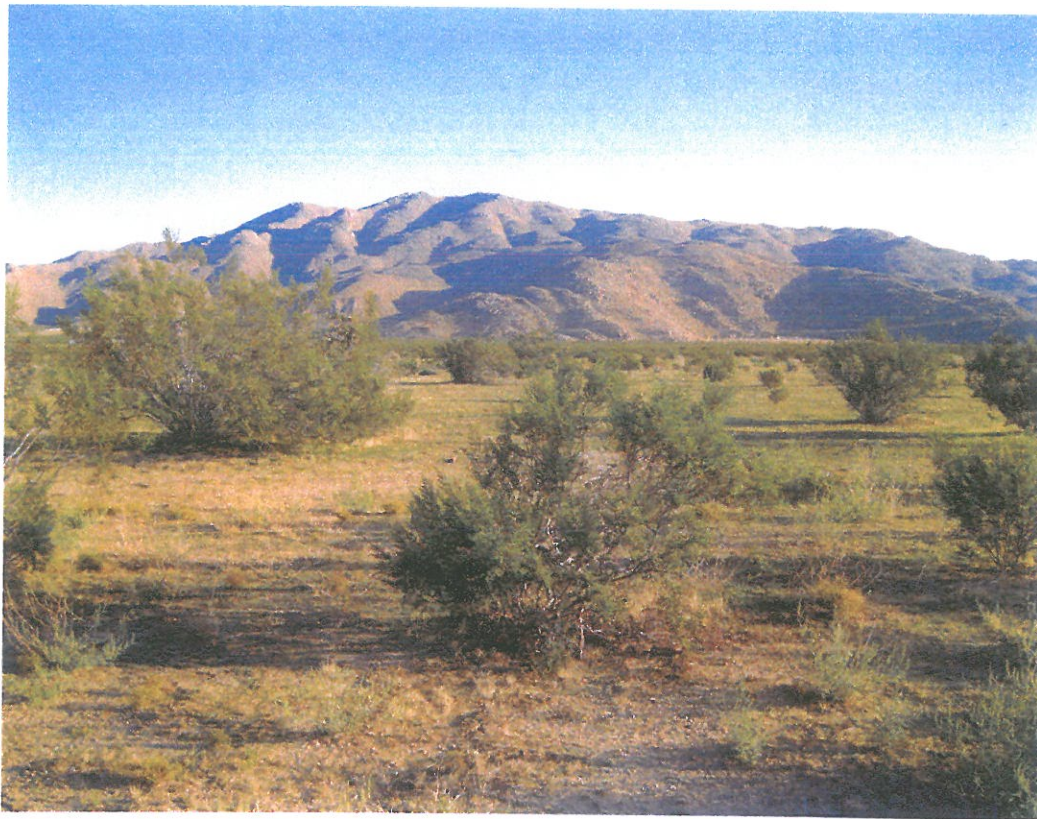


PHOTO POINT #2 - LOOKING NORTH

FIGURE 2  
LUCERNE VALLEY DESERT VIEW RANCH GENERATING FACILITY  
(APN 0435-083-39 & 0435-132-01)



PHOTO POINT #3 - LOOKING SOUTHEAST



PHOTO POINT #4 - LOOKING SOUTHWEST

FIGURE 2, cont.  
LUCERNE VALLEY DESERT VIEW RANCH GENERATING FACILITY  
(APN 0435-083-39 & 0435-132-01)



PHOTO POINT #5 - LOOKING NORTHWEST



PHOTO POINT #6 - LOOKING NORTHEAST

FIGURE 2, cont.  
LUCERNE VALLEY DESERT VIEW RANCH GENERATING FACILITY  
(APN 0435-083-39 & 0435-132-01)



## **2.0 LITERATURE/RECORDS REVIEW FOR MOHAVE GROUND SQUIRREL**

As part of the environmental process, California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) data sources were reviewed prior to initiation of field surveys to determine if populations of the Mohave ground squirrel have been documented on the site or in the area surrounding the property. Based on the literature review and evaluation of the CNDDDB database for the Fifteenmile Valley quadrangle, it was determined that the site is located within the general distribution of the Mohave ground squirrel.

CNDDDB records indicate that the closest known occurrence of the species is approximately 0.5 miles north of the project (Occurrence #48, Fifteenmile Valley, CA Quad., CNDDDB, 2011). This observation was made in 1954 and the female specimen is currently stored at the Kansas University Museum. The second closest observation (Occurrence #33, Fifteenmile Valley, CA Quad., CNDDDB, 2011) is three miles northwest of the site and consisted of a female trapped in 1955. The specimen is currently stored at California State University – Long Beach, California.

### **3.0 METHODOLOGY**

The habitat assessment was performed on September 21 and 22, 2011 by Ryan Young. As per CDFG requirements, Mr. Young evaluated the vegetation on the site as well as in the surrounding area to determine if the dominant plant community in the area was representative of those associated with the Mohave ground squirrel. In addition to the field investigations, a background database search was performed using the CNDDDB Rarefind 3 along with supplemental references for the species, including the CDFG MGS Survey Guidelines.

Field investigations included walking meandering transects throughout the site during which a vegetation list was compiled, and the site evaluated for the presence of plants that are frequently utilized by the squirrel for food (Figure 4). All transects were walked at a pace that allowed careful observations along the transect routes for the presence of any small mammal burrows. Additional field notes were recorded regarding native plant assemblages, wildlife sign, and human affects in order to determine the presence or absence of suitable Mohave ground squirrel habitat. Surveys were performed on the site and in the surrounding area from about 0930 to about 1330 hours on each survey day. Temperatures during the September surveys were in the low 50's °F (AM) to mid 90's °F (PM), wind speeds of about 0 to 10 mph (mainly from the south), and cloud coverage of about 0 to 10 percent. No precipitation was recorded during the survey.

#### **Limitations:**

The results of the habitat assessment and the results presented in this report do not constitute authorization for the "take" of the Mohave ground squirrel or any other listed or sensitive wildlife species. The authorization to impact the species can only be granted by CDFG. If Mohave ground squirrels are observed during future project activities, the activities should cease immediately and CDFG should be contacted to discuss mitigation measures which may be required for the species.

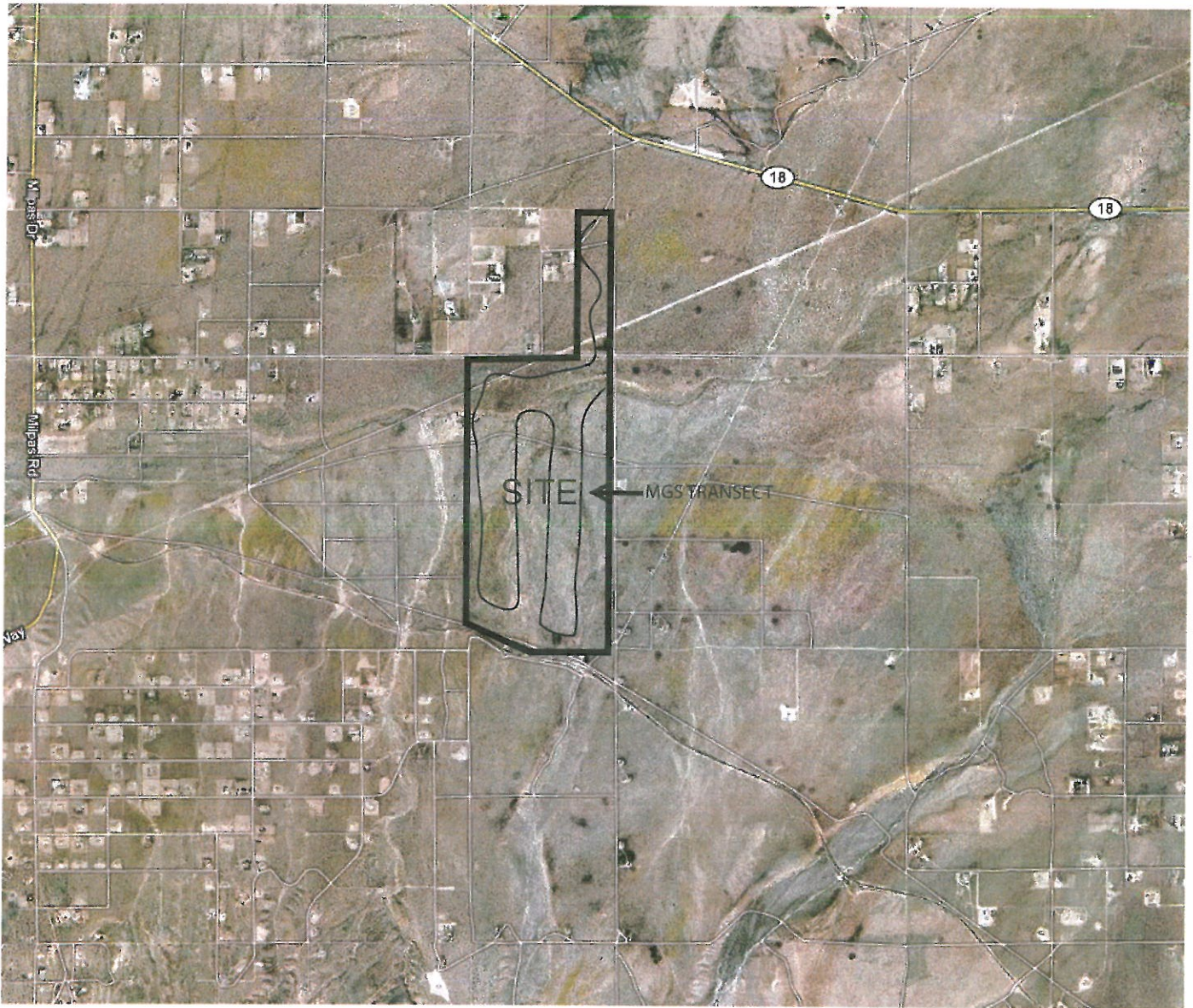


FIGURE 3  
LUCERNE VALLEY DESERT VIEW RANCH GENERATING FACILITY  
(Location of Mohave Ground Squirrel Transect)  
(APN 0435-083-39 & 0435-132-01)

#### 4.0 GENERAL BIOLOGICAL SURVEY RESULTS

The site supports a relatively undisturbed creosote bush community dominated by *Larrea tridentata* (Figure 4). Co-dominants included burrobush (*Franseria dumosa*) and Joshua tree (*Yucca brevifolia*). A wide variety of other perennials were observed and some of the more common species included cholla (*Opuntia ramosissima* and *O. biglovia*), cheesebush (*Hymenoclea salsola*), paperbag plant (*Salazaria mexicana*), ephedra (*Ephedra nevadensis*), lycium (*Lycium cooperi*), Indian ricegrass (*Achnatherum hymenoides*), buckwheat (*Eriogonum fasciculatum*), spiny hop-sage (*Grayia spinosa*), and winterfat (*Kraschenokovia lanata*). Dominant annuals included schismus (*Schismus barbatus*), yellow buckwheat (*Eriogonum brachyanthum*), vinegar weed (*Lessingia germanorum ramulosissima*) and desert trumpet (*Eriogonum inflatum*). All of the perennials and annuals listed above were relatively common and were evenly distributed throughout the site. None of the above species were confined to any one specific area (Figures 3 and 4). Most of the perennial shrubs ranged in height from about two to six feet. Table 1 provides a compendium of all perennials and annuals observed on the property (Appendix A).

Wildlife species were identified during the habitat assessment conducted on September 21 and 22, 2011 from about 0930 to 1330 hours. Birds identified included sage sparrows (*Amphispiza belli*), morning doves (*Zenaida macroura*), ravens (*Corvus corax*), and western kingbirds (*Tyrannus verticalis*). A solitary northern harrier (*Circus cyaneus*), which is a California species of special concern, was also observed on the property on two separate occasions. A few side-blotched lizards (*Uta stansburiana*) and western whiptail lizards (*Cnemidophorus tigris*) were the only live reptiles observed during the field investigations; however, tortoise carcasses were also noted (See Section 5.0). Antelope ground squirrels (*Ammospermophilus leucurus*), desert cottontail rabbits (*Sylvilagus auduboni*), jackrabbits (*Lepus californicus*), and desert woodrats (*Neotoma lepida*) were the only mammals seen during the field investigations. However, Merriam's kangaroo rats (*Dipodomys merriami*) may also be present on the site given the presence of numerous small mammal burrows observed throughout the property.

The large desert wash located in the northern portion of the site, which is relatively well defined and extends off-site to the east and west for several miles, may act as a wildlife corridor for both small and large mammals (Figure 1). No breeding activities were observed among any of the wildlife species during the September 2011 field investigations. Table 2 (Appendix A) provides a compendium of wildlife species observed on the site and other species known to occur in the region.



FIGURE 4  
 BIOLOGICAL RESOURCES MAP  
 (LUCERNE VALLEY DESERT VIEW RANCH GENERATING FACILITY)  
 (APN 0435-083-39 & 0435-132-01)

## 5.0 RESULTS – MOHAVE GROUND SQUIRREL

The site supports suitable habitat (i.e., creosote bush community) for the Mohave ground squirrel based on the habitat assessment conducted by Ryan Young. This conclusion was based on the following criteria. (Note: The local CDFG representative, Ms. Tonya Moore, should be contacted for concurrence with this conclusion.)

1. Proximity of historic and recent records (Occurrences #33 and #48).
2. Creosote bush community that is frequently associated with the species.
3. Connectivity to undisturbed habitat in the surrounding area.
4. Numerous small mammal burrows present throughout the site.
5. Property is within the known distribution of the Mohave ground squirrel.

There are no designated critical habitats for the Mohave ground squirrel in the immediate area nor is there any proposed critical habitat in the area. Regardless of the results of the habitat assessment, Mohave ground squirrels cannot be taken under State law. The survey report and any mitigation included do not constitute authorization for incidental take of the species. If the species is observed during future site activities, all on-site activities should cease immediately and CDFG should be contacted.

The Mohave ground squirrel has been listed by the California Department of Fish and Game as a threatened species, thereby giving the animal protection under the California Endangered Species Act. The species is known to occur in the western Mojave Desert in portions of four counties including Inyo, Kern, San Bernardino, and Los Angeles. The distribution of the Mohave ground squirrel is quite limited as compared to the distribution of other ground squirrel species. The Mohave ground squirrel is found in several habitat types throughout the Mojave Desert including creosote bush scrub, saltbush scrub, and Joshua tree woodland communities. Degradation and destruction of the species' habitat and isolation of individual populations appear to be the primary factors in the species' decline.

## 6.0 IMPACTS AND RECOMMENDATIONS

Construction of the solar project will have a direct impact on potential Mohave ground squirrel habitat. The site does support suitable habitat for the species and populations of the species may be present on the site based on past observations of the species in the immediate area (CNDDDB, 2011). Therefore, the proponent will need to apply for an Incidental Take Permit (2081 permit) from CDFG and provide suitable mitigation fees for the purchase of compensatory mitigation. However, in lieu applying for the Incidental Take Permit, the proponent has the option of conducting a live-trapping survey to definitively determine the presence or absence of the species. The trapping survey must be conducted during the Spring months (March – June) and if the species is not detected during the trapping period, mitigation may not be required by CDFG. However, if the species is detected, the take permit and mitigations will be required as per State requirements.

If the site is modified by grading or otherwise disturbed prior to project approval and prior to acquisition of the Incidental Take Permit, which results in the loss of suitable habitat for the species, CDFG and the County Building and Safety Department should be notified. Such action prior to project approval will violate the State endangered species law and may be considered grounds for denial of the project. Mitigation and restoration plans will also be required under such actions.

## **7.0 PROPOSED MITIGATION MEASURES**

The site does support suitable habitat for the Mohave ground squirrel and the species has been observed in the surrounding area; therefore, the proponent will need to adhere to CDFG guidelines to mitigate for the loss of potentially occupied habitat. As noted in Section 6.0, an Incidental Take Permit will be required prior to the start of on-site activities, or a live-trapping survey will need to be conducted to definitively determine the presence or absence of the species. If the applicant chooses to apply for the Incidental Take Permit, the permit application should be submitted to CDFG for review and following approval, mitigation fees will be required for the purchase of compensatory mitigation lands to compensate for the loss of suitable Mohave ground squirrel habitat. CDFG is the only agency which can grant authorization for the “take” of the Mohave ground squirrel.



## 8.0 REFERENCES

California Department of Fish and Game

1990 California's Wildlife, Volumes 1, 2, and 3. Sacramento.

California Department of Fish and Game

2011 Natural Diversity Data Base. Sacramento

Holing, Dwight

1998 California Wild Lands. Chronical Books. San Francisco, CA. 211 pp.

Holland, Robert F.

1986 Preliminary Description of the Terrestrial Natural Communities of California. Prepared for the California Natural Diversity Data Base. California Department of Fish and Game. Sacramento, California. 160 pp.

Johnson, H.

1976 vegetation and Plant Communities of Southern California Deserts- a functional view. In Symposium proceedings: Plant communities of Southern California. June Lutting, editor. California Native Plant Society, Spec. No. 2 Berkeley, CA.

**LIST OF TABLES**

**Mohave Ground Squirrel Occurrence Table**

**Mohave ground squirrel occurrences within five miles of the site based on data from the California Natural Diversity Data Base (2011).**

Name	Listing Status	Habitat Requirements	Presence/Absence	Comments
Mohave ground squirrel ( <i>Spermophilus mohavensis</i> )	Fed: None State: T	Desert scrub	Site does supports suitable habitat for the species. Native vegetation evenly distributed throughout the site.	A. Occurrence #33; 3-miles northwest of site.  B. Occurrence #48; 0.5 miles north of site.

**LIST OF FIGURES**

**Vicinity Map  
Property Location**

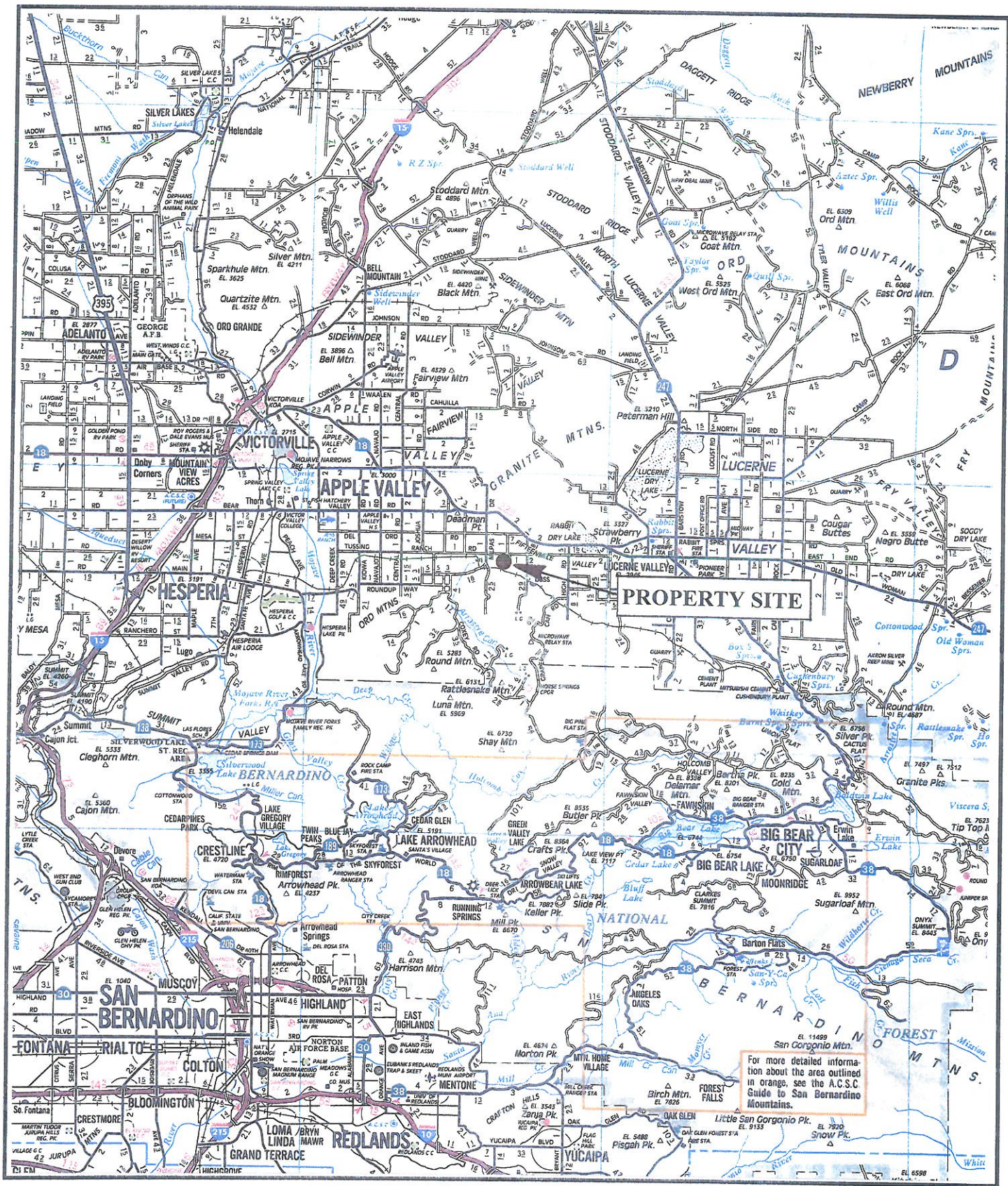


FIGURE 5

VICINITY MAP  
 (Source: ACSC Map Source4e, 2011)  
 (Lucerne Valley Desert View Ranch Generating Facility)



For more detailed information about the area outlined in orange, see the ACSC Guide to San Bernardino Mountains.

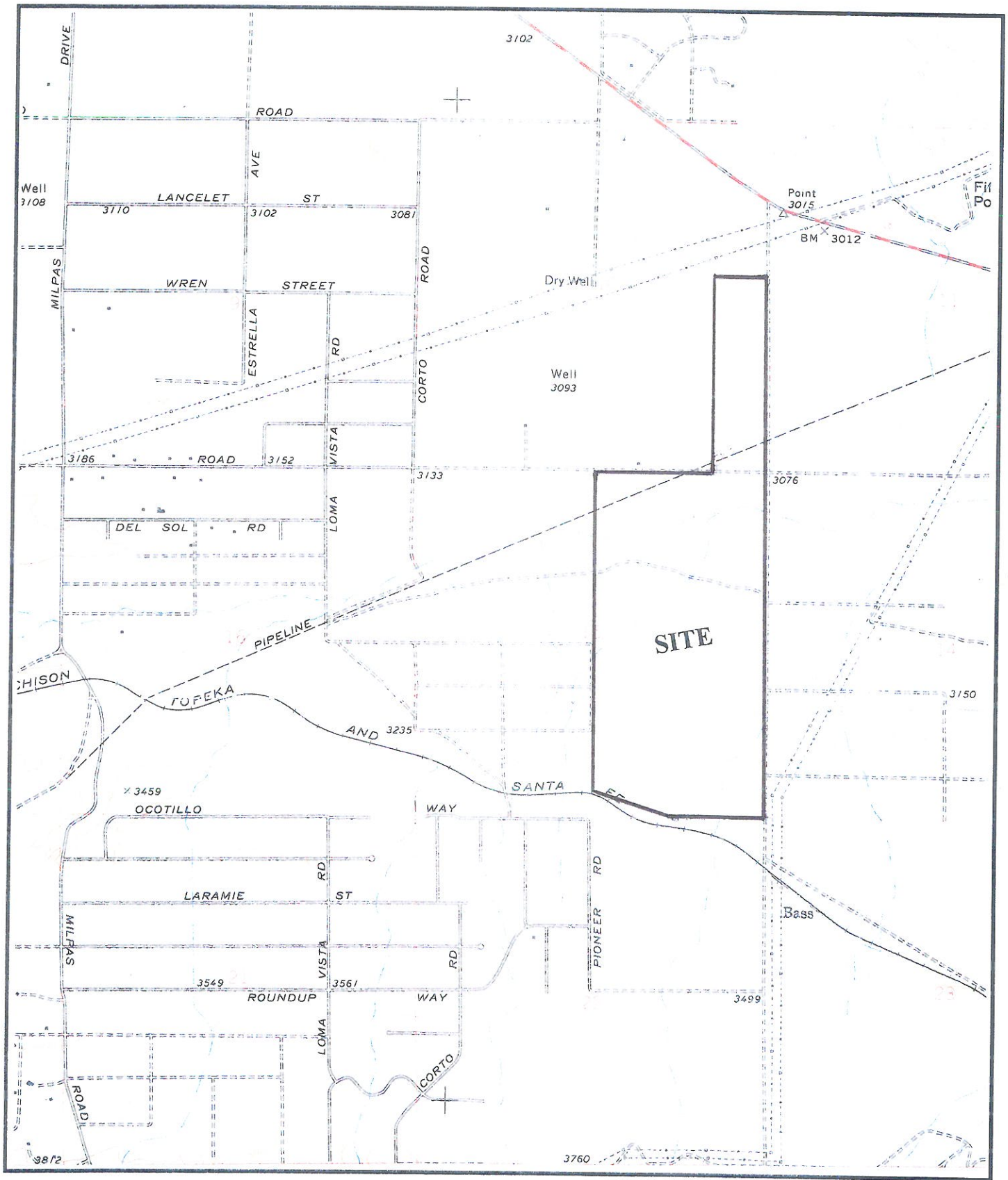


FIGURE 6

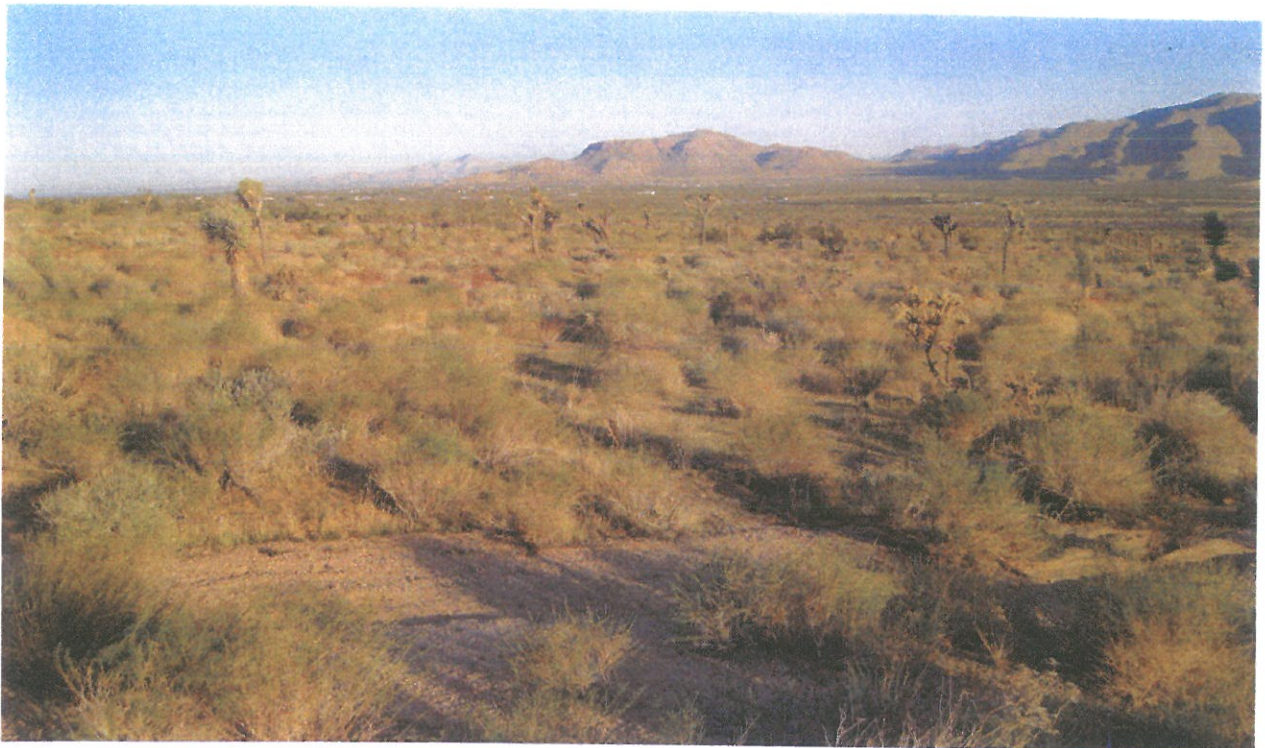
FIFTEENMILE VALLEY, CA QUADRANGLE (1971)  
 (Lucerne Valley Desert View Ranch Generating Facility)



**LIST OF SITE PHOTOGRAPHS**



**VIEW FROM NORTHEAST CORNER LOOKING SOUTHWEST**



**VIEW FROM SOUTHEAST CORNER LOOKING NORTHWEST**

**PHOTOGRAPHS OF SITE**  
**(Lucerne Valley Desert View Ranch Generating Facility)**





**VIEW FROM NORTHWEST CORNER LOOKING SOUTHEAST**



**VIEW FROM SOUTHWEST CORNER LOOKING NORTHEAST**

**PHOTOGRAPHS OF SITE  
(Lucerne Valley Desert View Ranch Generating Facility)**

**APPENDIX A**

**Flora and Fauna Compendia**

**Table 1 - Plants observed on the site.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Location</b>
Creosote bush	<i>Larrea tridentata</i>	On-site and off-site
Joshua tree	<i>Yucca brevifolia</i>	“
Burrobush	<i>Franseria dumosa</i>	“
Cottonthorn	<i>Tertadymia spinosa</i>	“
Cholla	<i>Opuntia biglovia</i>	“
Pencil cholla	<i>Opuntia ramosissima</i>	“
Calico cactus	<i>Echonocereus Englemannii</i>	“
Spanish dagger	<i>Yucca schidigera</i>	“
Whipple Yucca	<i>Yucca whipplei</i>	“
Cheesebush	<i>Hymenoclea salsola</i>	“
Ephedra	<i>Ephedra nevadensis</i>	“
Paperbag plant	<i>Salazaria mexicana</i>	“
Spiny hop-sage	<i>Grayia spinosa</i>	“
Winterfat	<i>Kraschenokovia lanata</i>	“
Desert sage	<i>Salvia dorii</i>	“
Lycium	<i>Lycium andersonii</i>	“
Fremont thornbush	<i>Lycium fremontii</i>	“
Fiddleneck	<i>Amsinckia tessellate</i>	“
Indian bunchgrass	<i>Achnatherum hymenoides</i>	“
Rubberbrush	<i>Chrysothamnus teretifolius</i>	“
Saltbush	<i>Atriplex canescens</i>	“
Buckwheat	<i>E. fasciculatum</i>	“
Desert almond	<i>Prunus fasciculata</i>	“
Flat-top buckwheat	<i>Eriogonum plumatella</i>	“
Desert straw	<i>Stephanomeria pauciflora</i>	“
Sandpaper plant	<i>Petalonyx thurberi</i>	“
Desert aster	<i>Aster abatus</i>	“
Acton encelia	<i>Encelia actoni</i>	“
Spiked tristetum	<i>Trisetum spicatum</i>	“
Fringed amaranthus	<i>Amaranthus fimbriatus</i>	“
Desert gilia	<i>Gilia eremica</i>	“
Desert trumpet	<i>Eriogonum inflatum</i>	“
Vinegar weed	<i>Lessingia germanorum</i>	“
Burweed	<i>Franseria acanthicarpa</i>	“
Thistle sage	<i>Salvia carduacea</i>	“
Brittle spineflower	<i>Chrorizante brevicornu</i>	“
Yellow buckwheat	<i>Eriogonum brachyamthum</i>	“
Sonoran sandmat	<i>Euphorbia micromera</i>	“
Jimson weed	<i>Datura meloides</i>	“

**Table 2 - Wildlife observed on the site and those species expected to occur in surrounding area.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Location</b>
Common raven	<i>Corvus corax</i>	Observed on-site
Sage sparrow	<i>Amphispiza belli</i>	“
Morning dove	<i>Zenaida macroura</i>	“
Western kingbird	<i>Tyrannus verticalis</i>	“
Northern harrier	<i>Circus cyaneus</i>	“ (Note: This bird species is a CA Species of special concern.)
Western whiptail lizard	<i>Cnemidophorus tigris</i>	“
Side-blotched lizard	<i>Uta stansburiana</i>	“
Antelope ground squirrel	<i>Ammospermophilus leucurus</i>	“
Desert cottontail rabbit	<i>Sylvilagus audubonii</i>	“
Jackrabbit	<i>Lepus californicus</i>	“
Desert woodrat	<i>Neotoma lepida</i>	“
Coyote	<i>Canis latrans</i>	“ (scats observed”
Desert spiny lizard	<i>Sceloporus magister</i>	Known to occur in area.
California ground squirrel	<i>Spermophilus beecheyi</i>	“
Merriam’s kangaroo rat	<i>Dipodomys mohavensis</i>	“

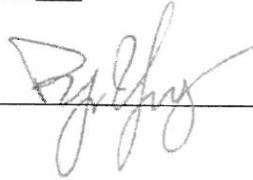
Note: The above Tables are not comprehensive lists of every plant or animal species which may occur in the area, but are a list of those common species which have been identified on the site or in the region by biologists from RCA Associates, LLC, or which are common species in the region.

**Certification:**

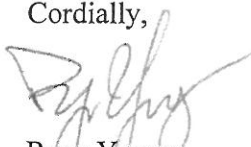
I hereby certify that the statements furnished above and in the attached exhibits present the data and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.

Date: September 29, 2011

Field Work Performed By: \_\_\_\_\_



Cordially,



Ryan Young  
Phoenix Ecological Consulting  
PO Box 720949  
Pinon Hills, CA 92372-0949