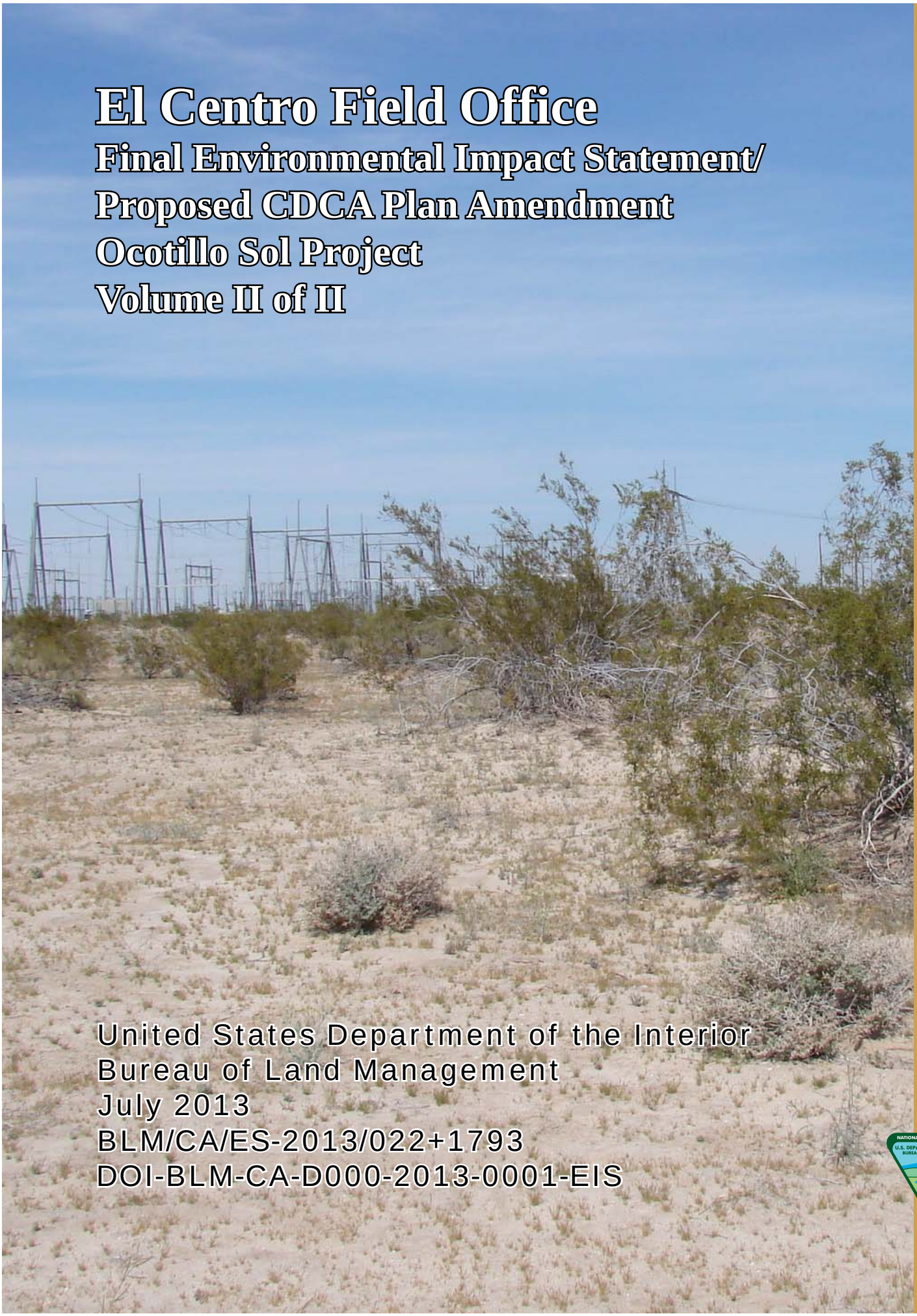


El Centro Field Office

Final Environmental Impact Statement/ Proposed CDCA Plan Amendment Ocotillo Sol Project Volume II of II

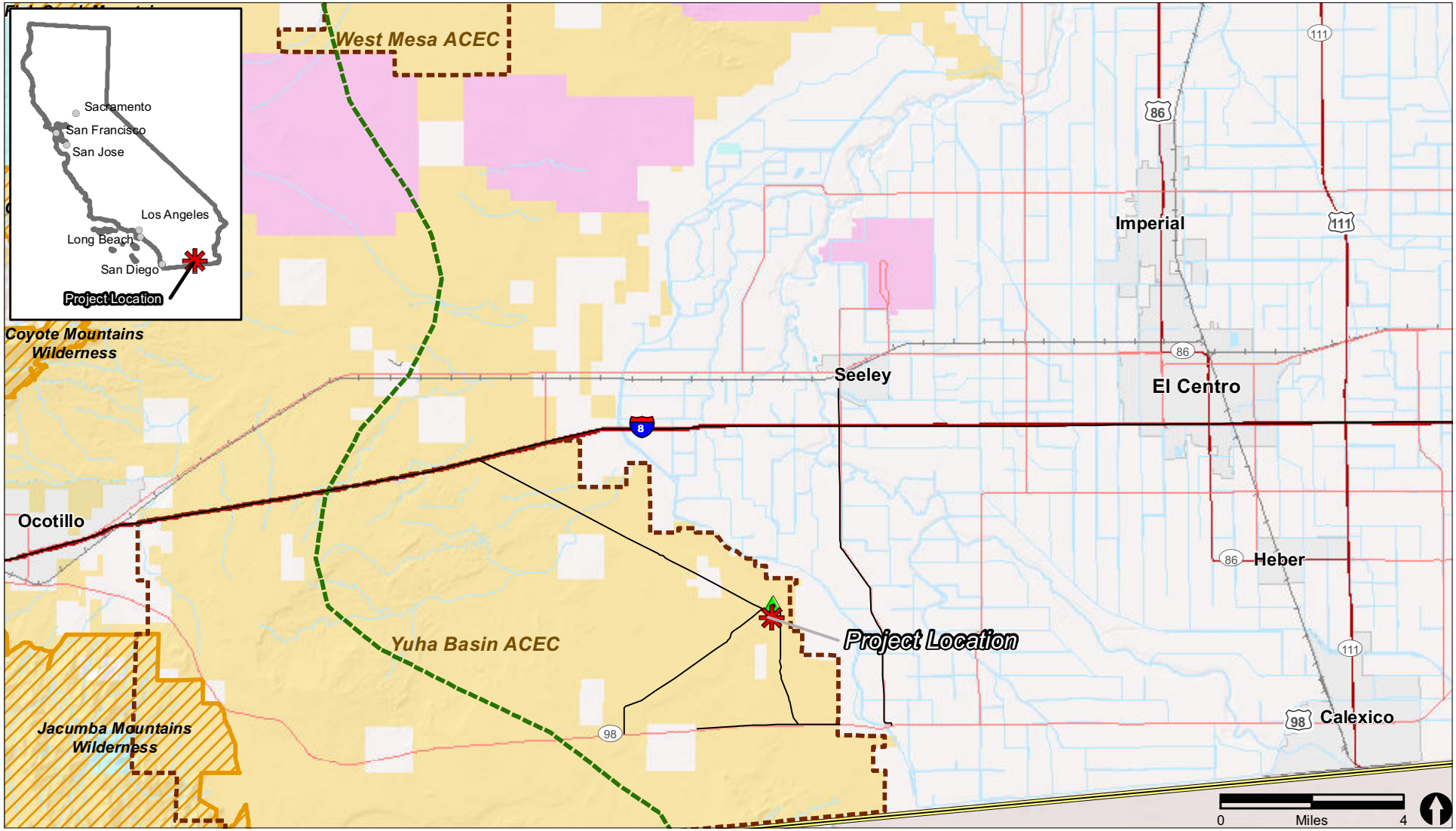
United States Department of the Interior
Bureau of Land Management
July 2013
BLM/CA/ES-2013/022+1793
DOI-BLM-CA-D000-2013-0001-EIS

BLM

El Centro Field Office

APPENDIXES

APPENDIX A



Primary Limited Access or Interstate
Primary US and State Highways
Secondary State and County
Project Access Routes
Railroads
International Boundary
Rivers and Canals
Imperial Valley Substation

Land Jurisdiction
Bureau of Land Management
Military
State

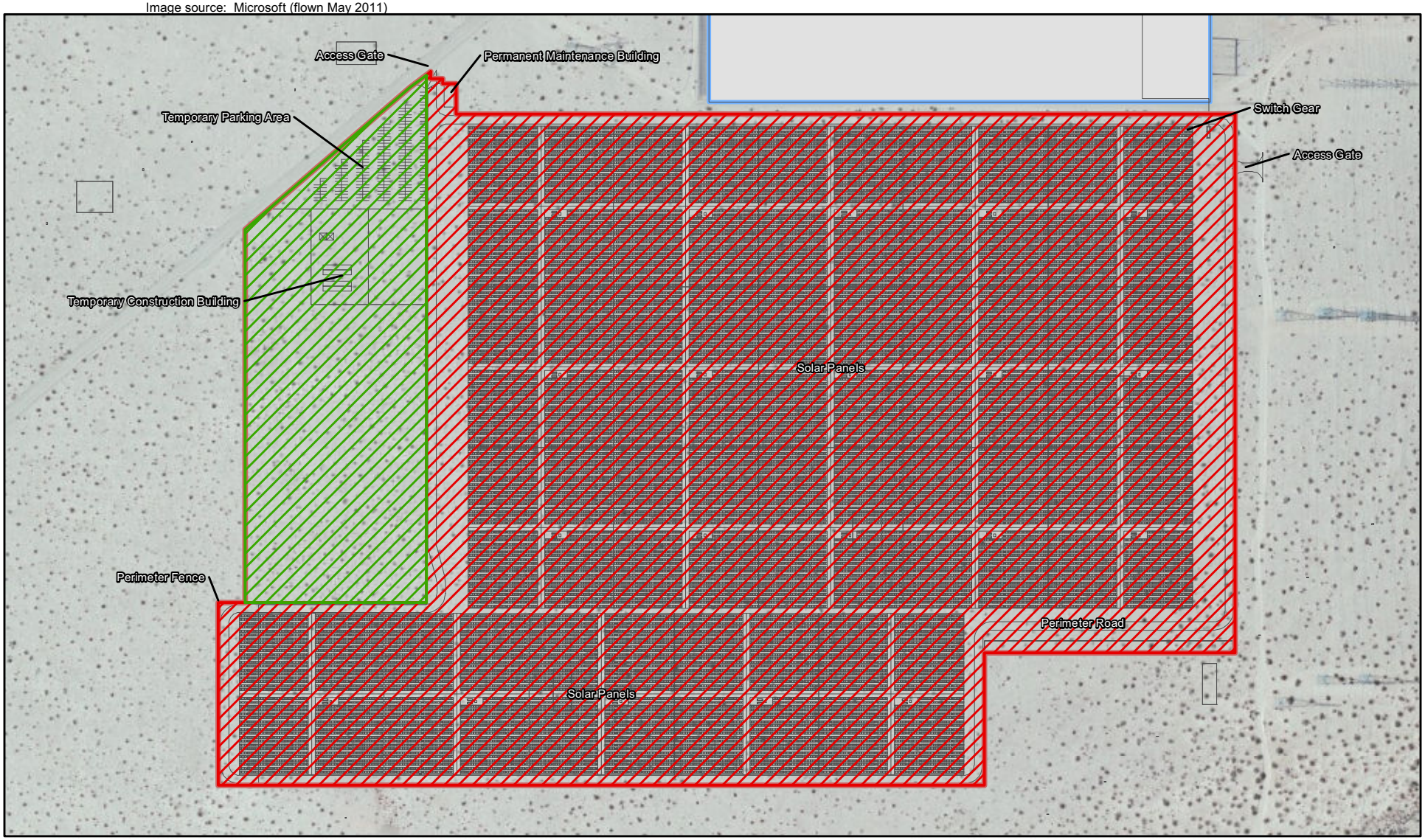
Federal Wilderness Areas
BLM ACEC
Juan Bautista de Anza National Historic Trail

RECON

FIGURE 1-1

Ocotillo Sol Project Location

Image source: Microsoft (flown May 2011)



Site Boundary
Plan Lines
New Transmission Line
Imperial Valley Substation

Impacts
Permanent
Temporary

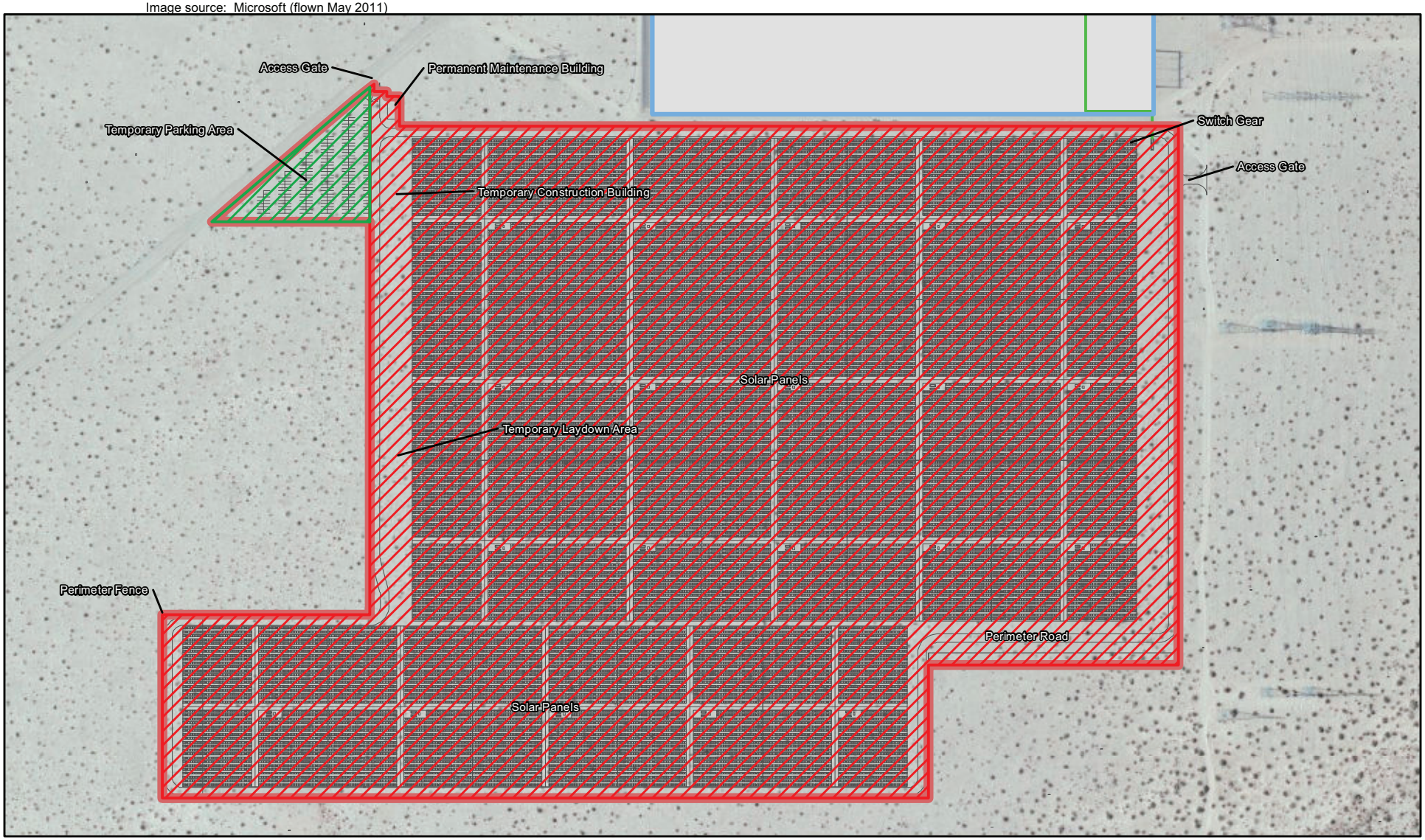
0 Feet 400

RECON

FIGURE 2-3

Alternative 2 Ocotillo Sol
Project Facility Layout

Image source: Microsoft (flown May 2011)



Site Boundary
Plan Lines
New Transmission Line
Imperial Valley Substation

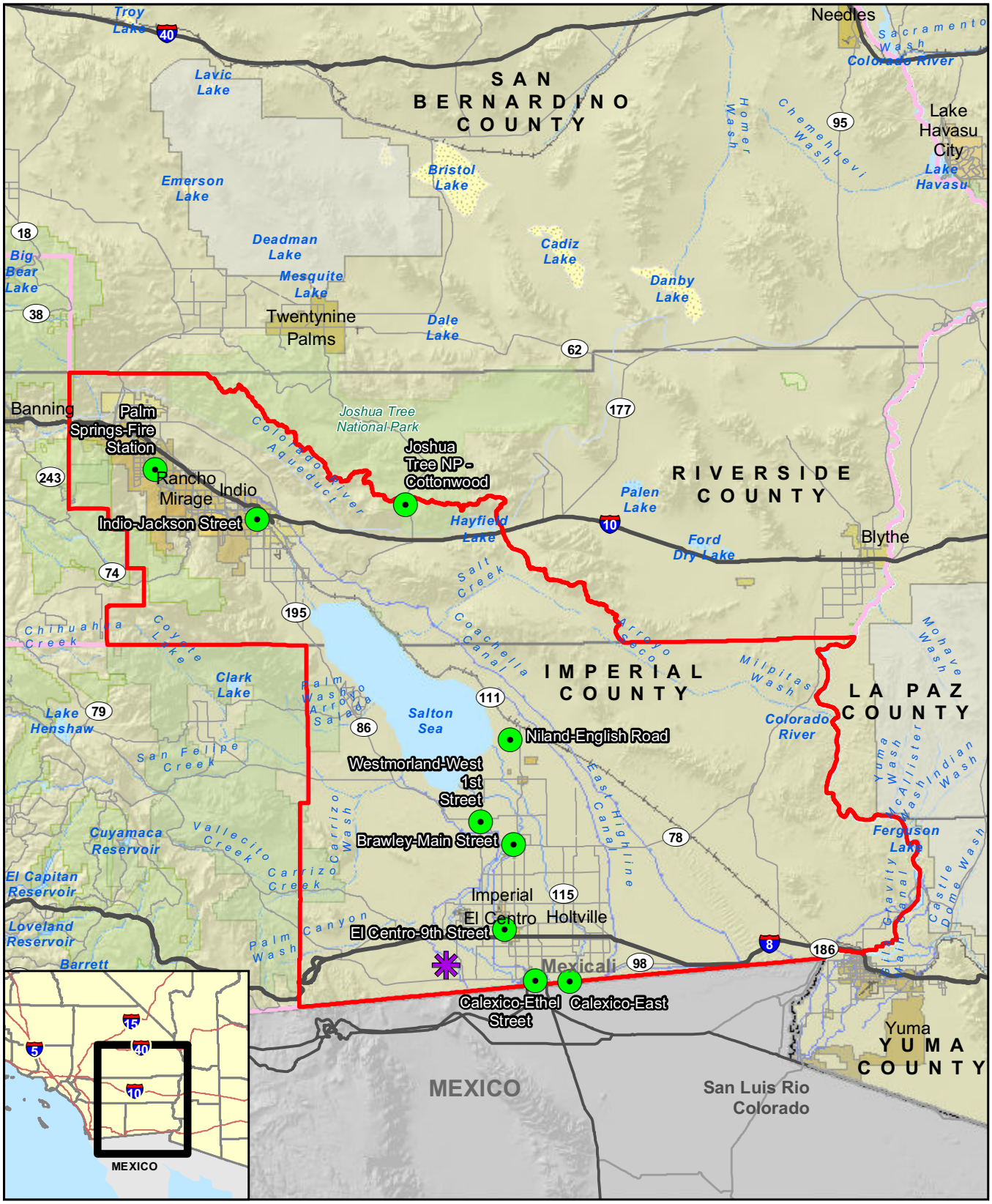
Impacts
Permanent
Temporary

0 Feet 380

RECON

FIGURE 2-4

Alternative 3 Ocotillo Sol
Project Facility Layout



RECON

FIGURE 3.2-1

Salton Sea Air Basin

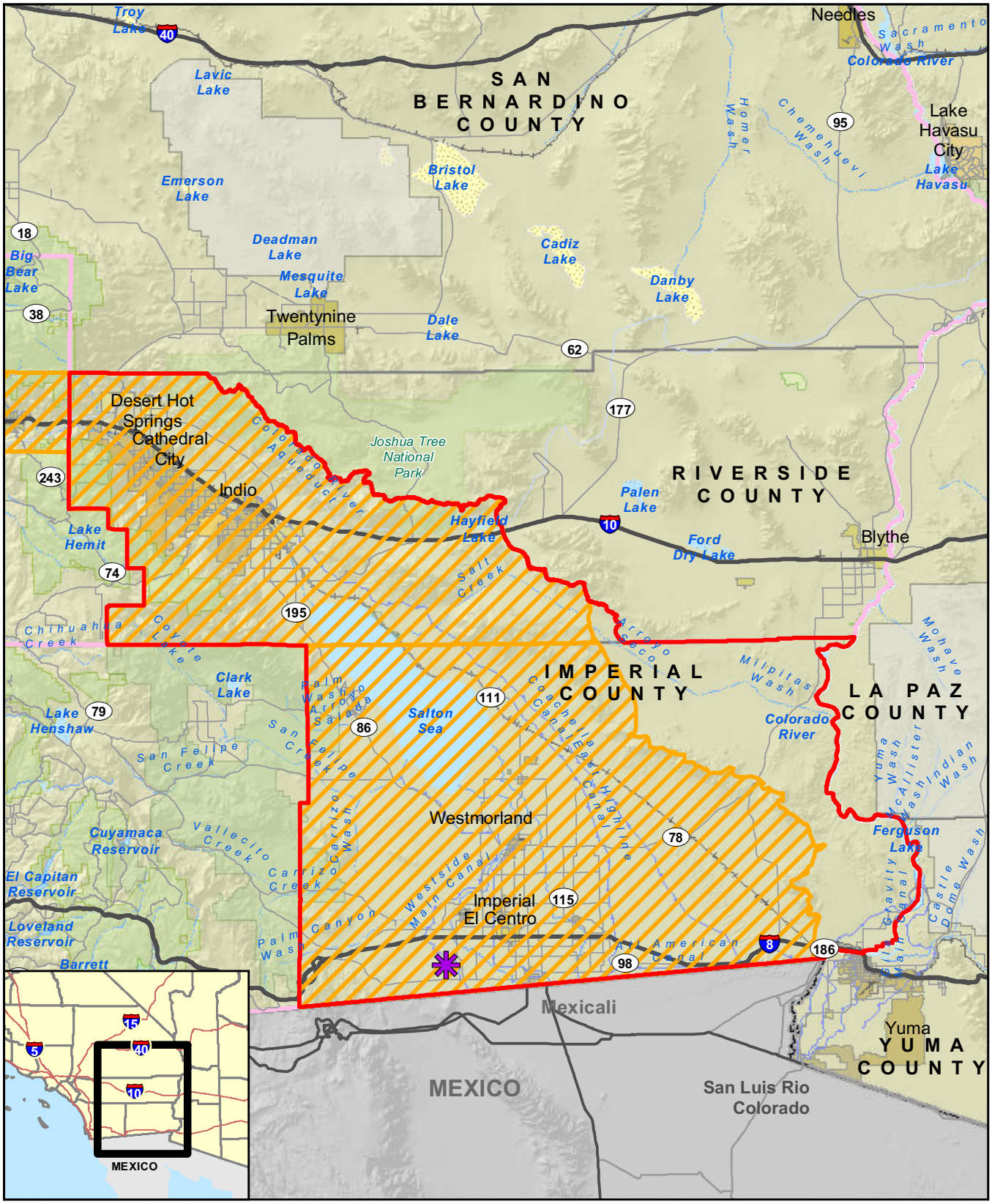


FIGURE 3.2-3

Imperial Valley Planning Area - Serious PM_{10} Nonattainment Area

RECON

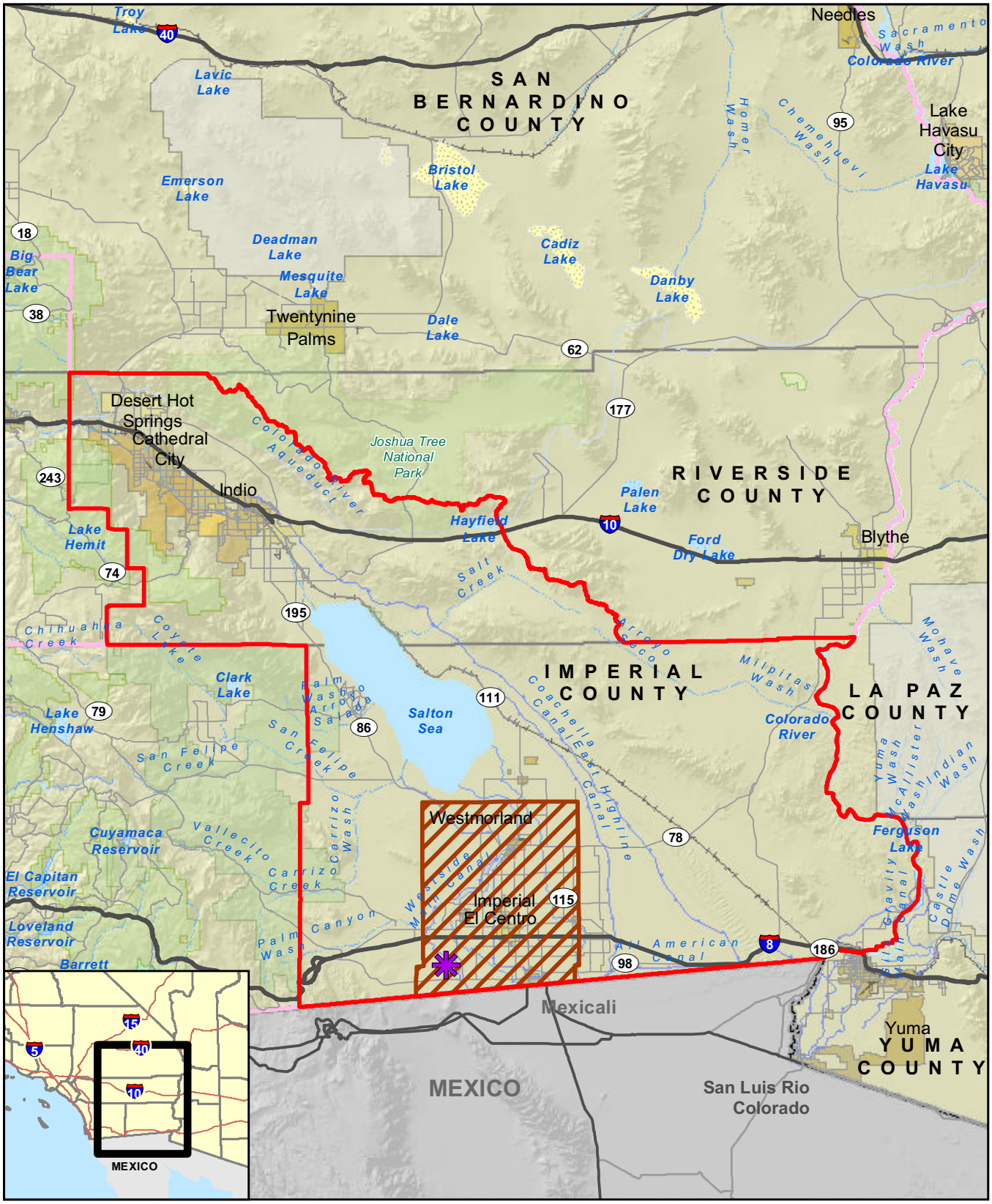
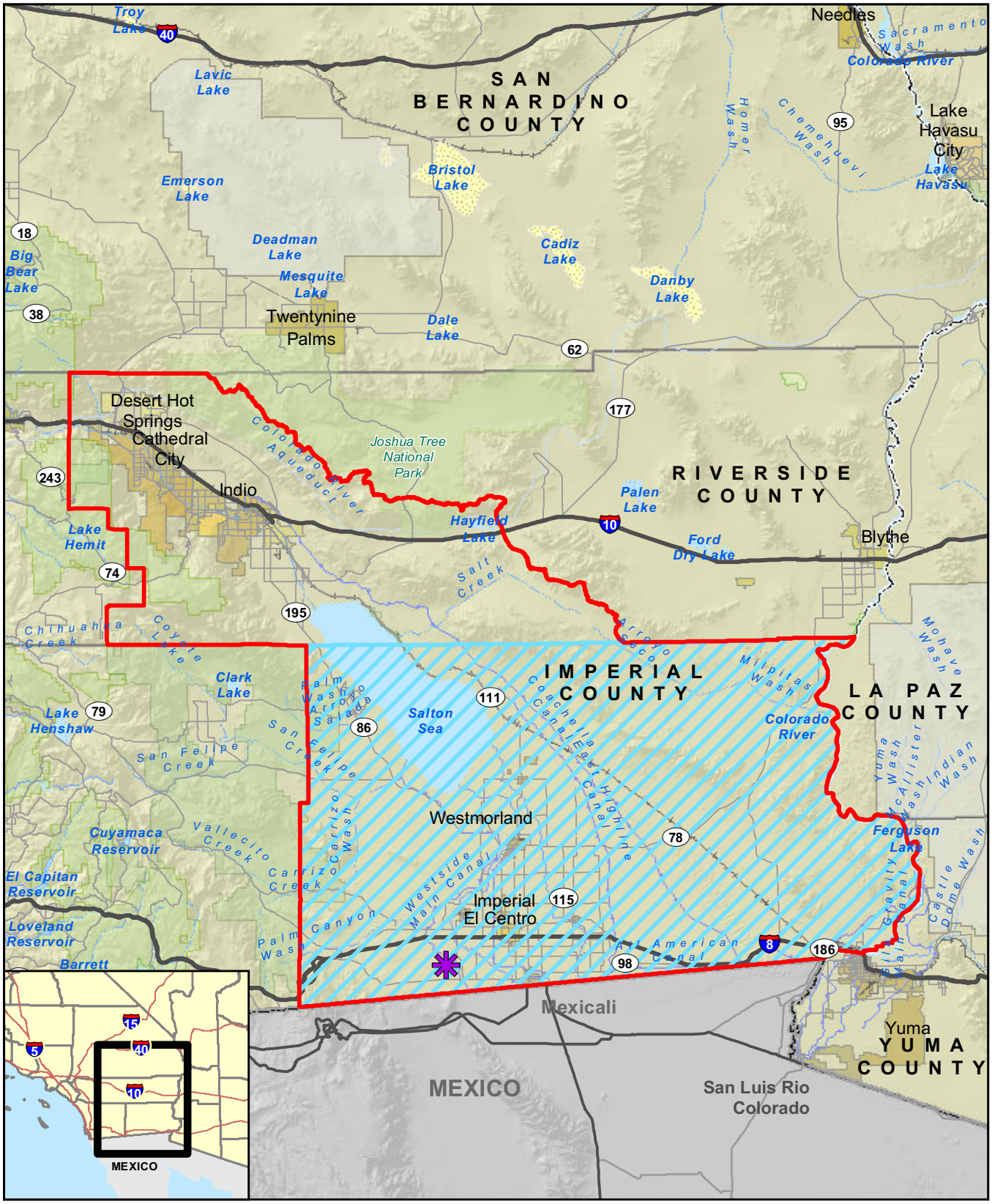


FIGURE 3.2-4
Imperial County - $PM_{2.5}$
24-hour Nonattainment Area

RECON



Project Location

Salton Sea Air Basin

Federal Ozone Nonattainment Area - 8Hr

Subpart 2/Moderate

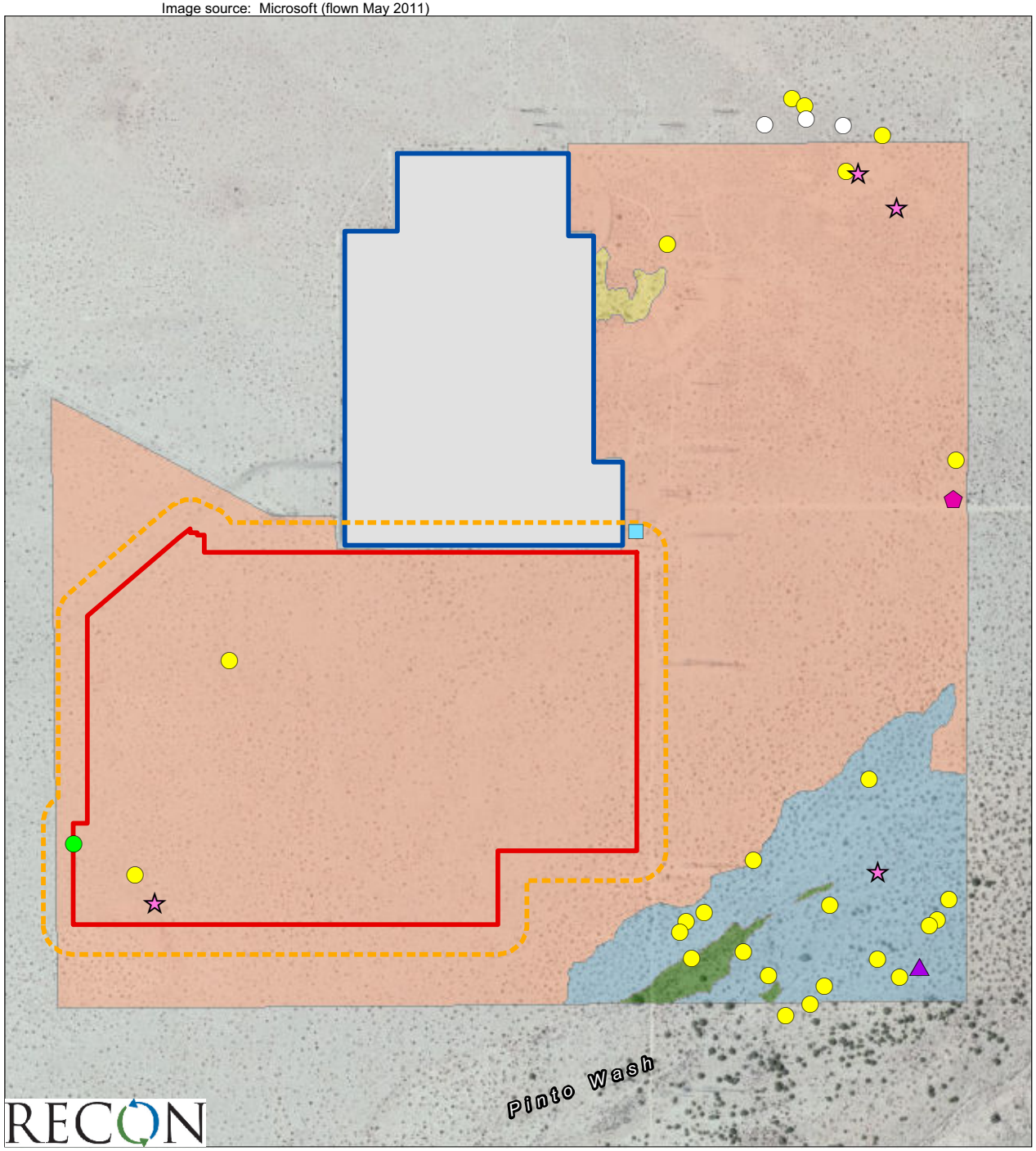
0 Miles 20

FIGURE 3.2-5

Imperial County - Moderate 8-hour Ozone Nonattainment Areas

RECON

Image source: Microsoft (flown May 2011)



Project Boundary
150ft Buffer of Project
Imperial Valley Substation

Focused Survey Results

- Thurber's Pilostyles
- Burrowing Owl Sighting (Non-breeding)
- Occupied Burrowing Owl Burrow
- Artificial Burrowing Owl Burrow
- Potential Burrowing Owl Burrow
- Raptor Nest
- Incidental Flat-tail Horned Lizard Sighting

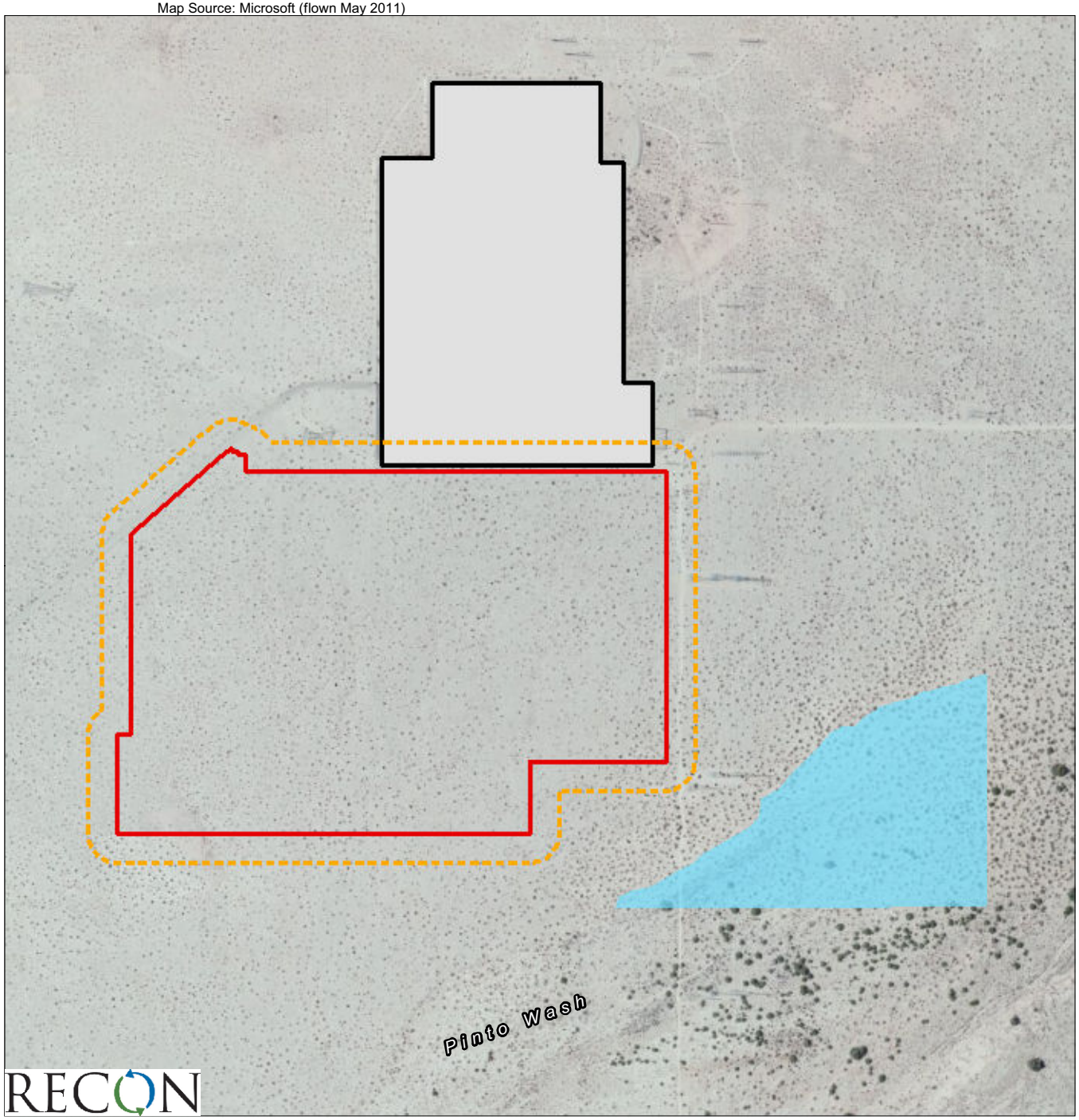
Vegetation Association

- *Tamarix aphylla* Semi-Natural Non-Native Stand
- *Larrea tridentata* Alliance
- *Larrea tridentata - Ambrosia dumosa* Alliance
- *Psorothamnus spinosus* Alliance

0 Feet 800

FIGURE 3.6-1
Biological Resources in the
Ocotillo Sol Project Survey Area

Map Source: Microsoft (flown May 2011)



Project Boundary
150ft Buffer of Project
Imperial Valley Substation
CDFG Riparian (LSA)

0 Feet 800

FIGURE 3.6-2

Jurisdictional Resources in Relation to the Ocotillo Sol Project Survey Area

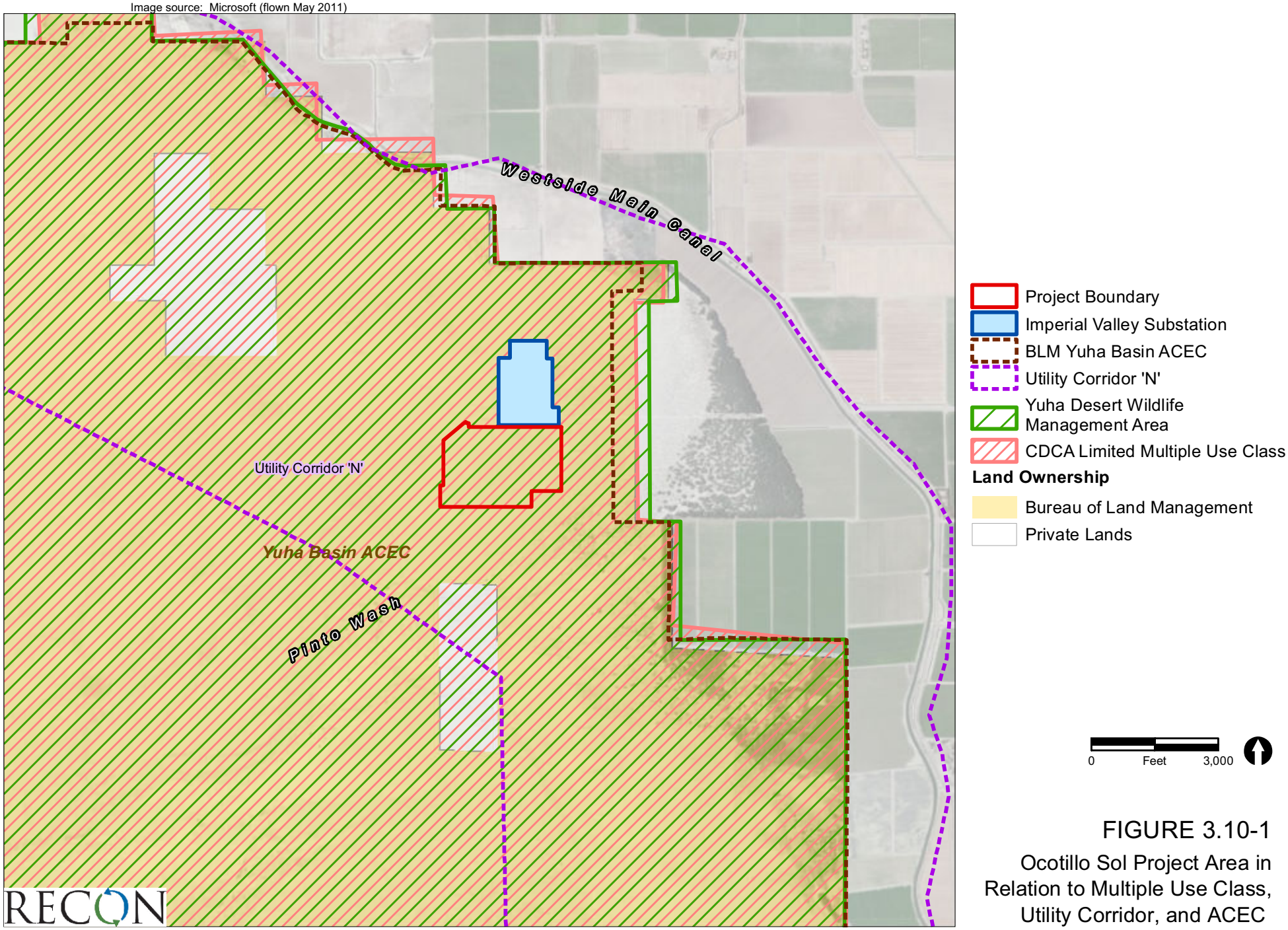
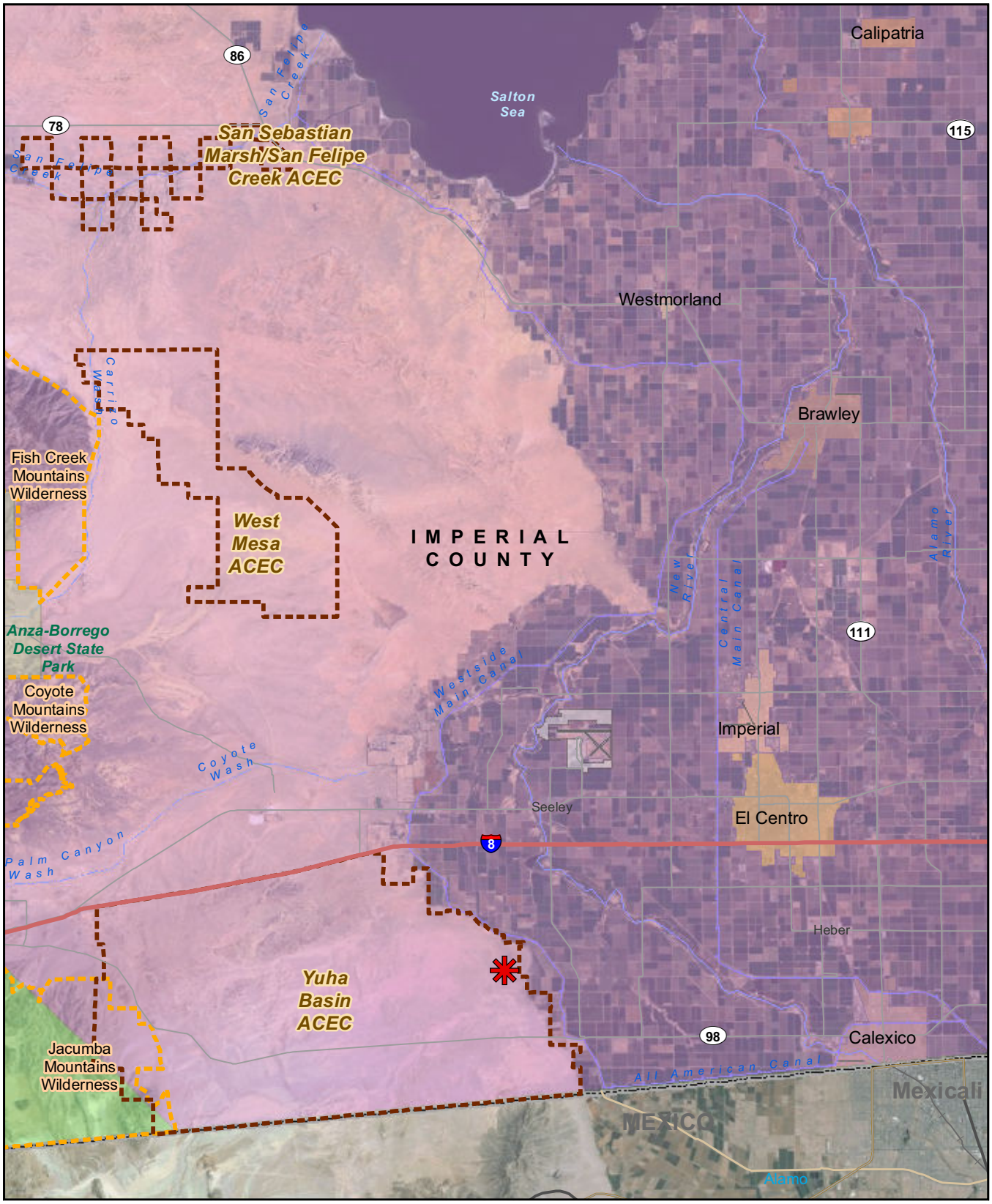


FIGURE 3.10-1

Ocotillo Sol Project Area in Relation to Multiple Use Class, Utility Corridor, and ACEC



Project Location

0 Miles 5

USGS Physiographic Region and Section

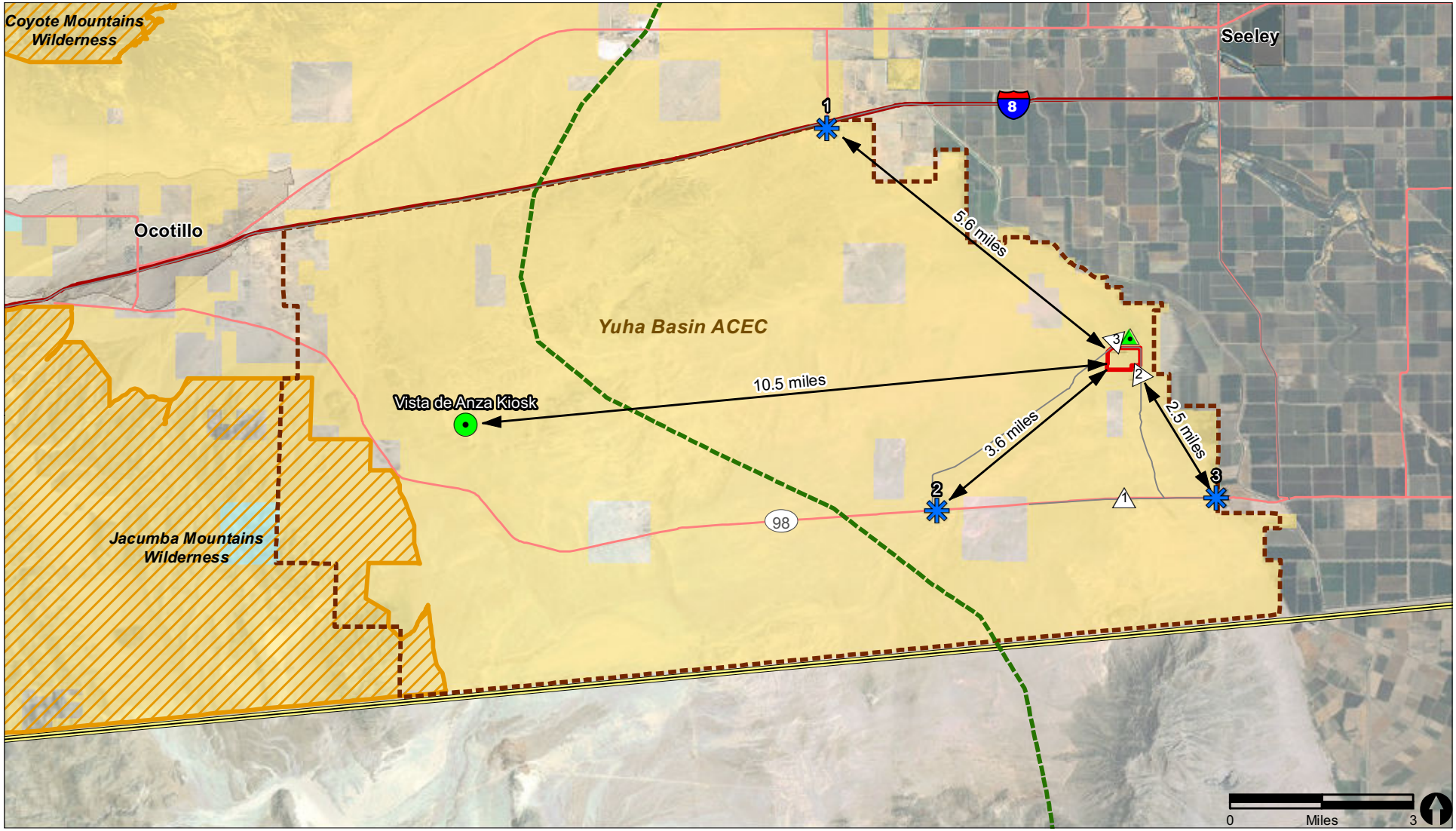
Basin and Range Region, Salton Trough Section

Lower California Region

RECON

FIGURE 3.14-1

Regional Landscape Character



Project Boundary
Primary Limited Access or Interstate
Primary US and State Highways
Secondary State and County
Project Access Routes
International Boundary
Imperial Valley Substation
Key Observation Point
Visual Simulation Point

Land Jurisdiction
Bureau of Land Management
State

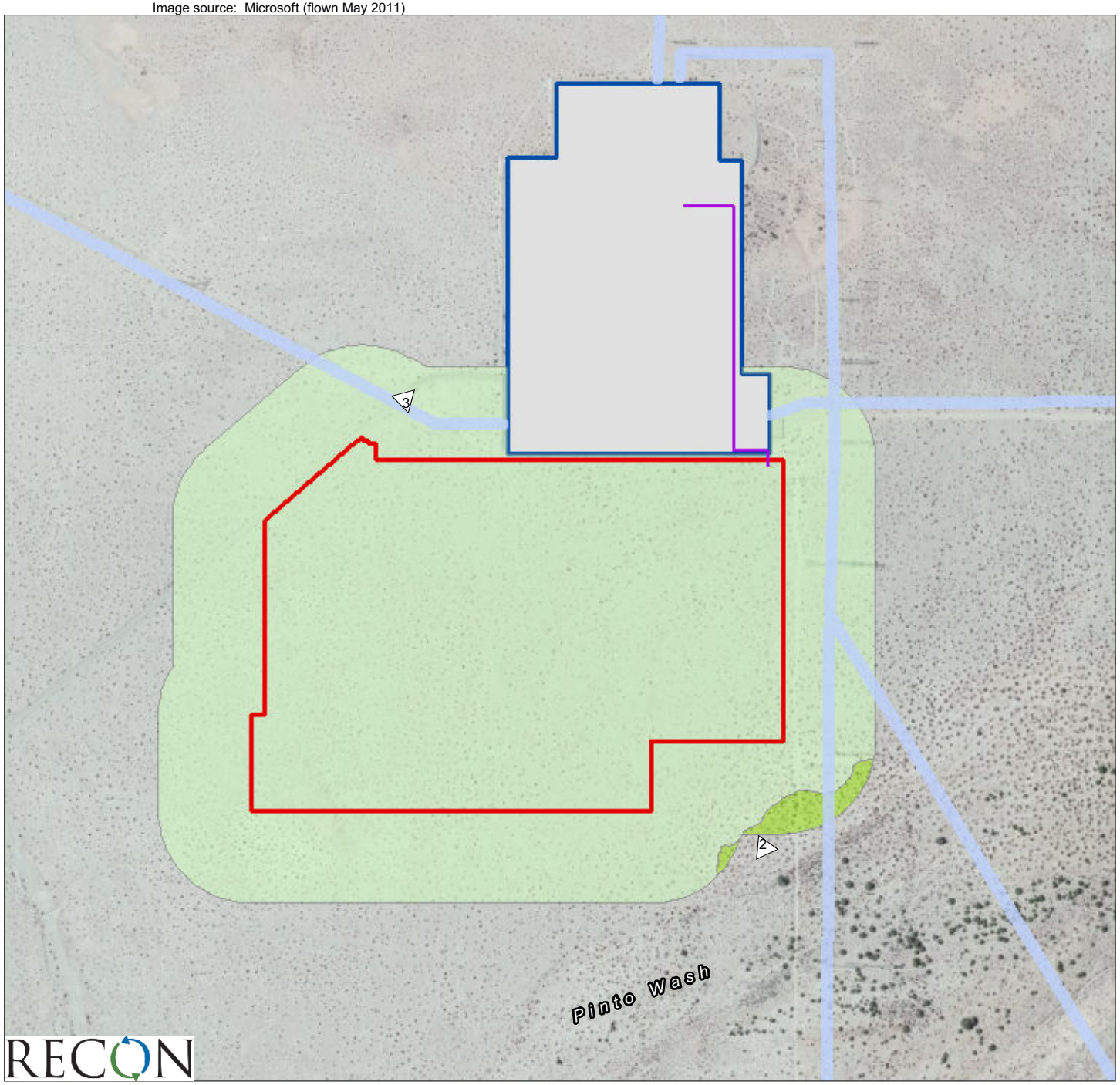
Federal Wilderness Areas
BLM ACEC
Juan Bautista de Anza National Historic Trail

RECON

FIGURE 3.14-2

Visual Project Vicinity

Image source: Microsoft (flown May 2011)



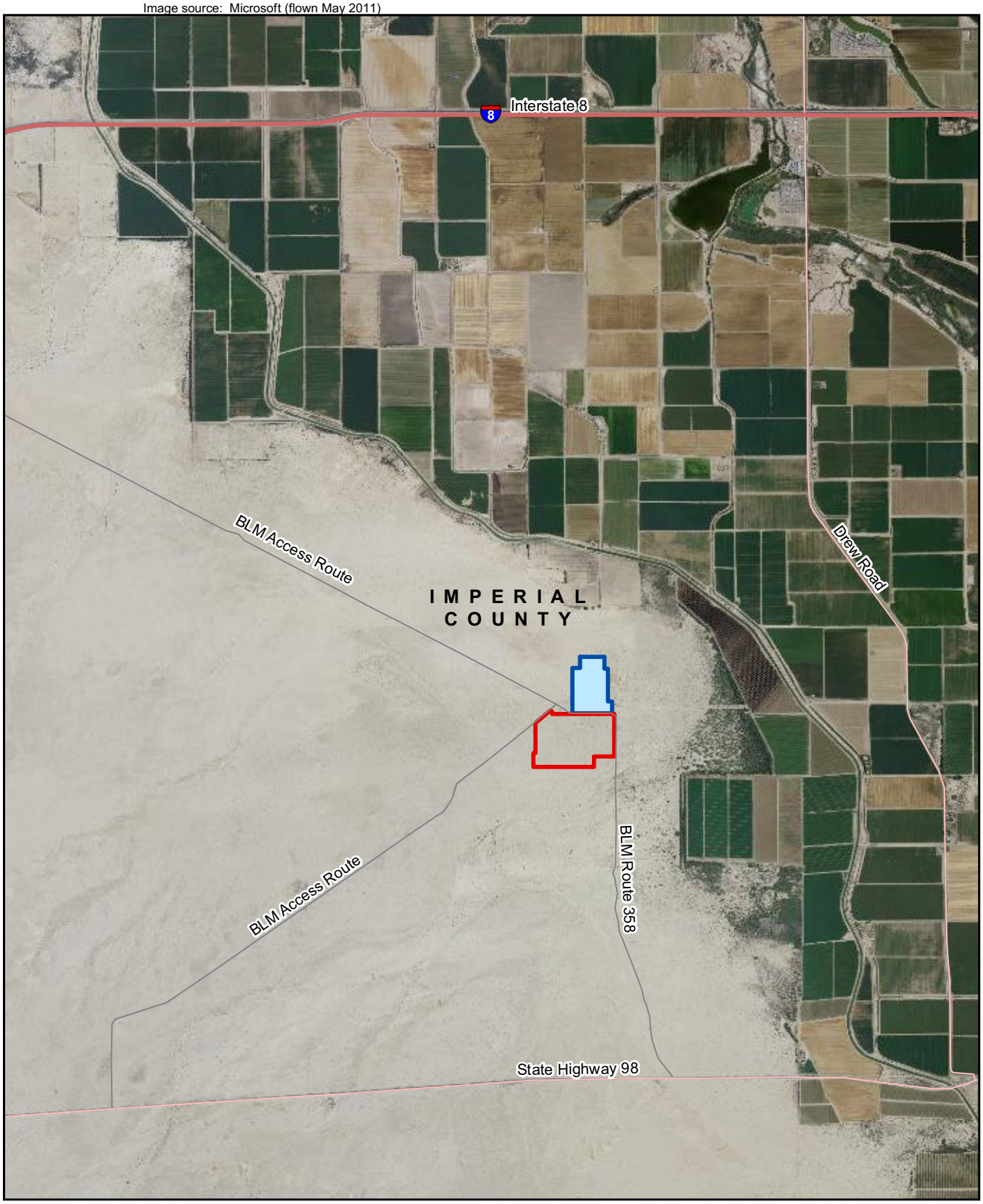
Project Boundary
Imperial Valley Substation
Scenic Quality Rating Units (SQRU)
SQRU 12a
SQRU 12b
New Transmission Line
Existing Transmission Corridor
Visual Simulation Point (See Appendix J)

0 Feet 800

RECON

FIGURE 3.14-3
Visual Resources in the Ocotillo Sol Project Area

Image source: Microsoft (flown May 2011)



0 Miles 1

Project Boundary

Imperial Valley Substation

FIGURE 3.15-1

Roadways in the Vicinity of the Ocotillo Sol Project Area

RECON

Image source: Microsoft (flown May 2011)

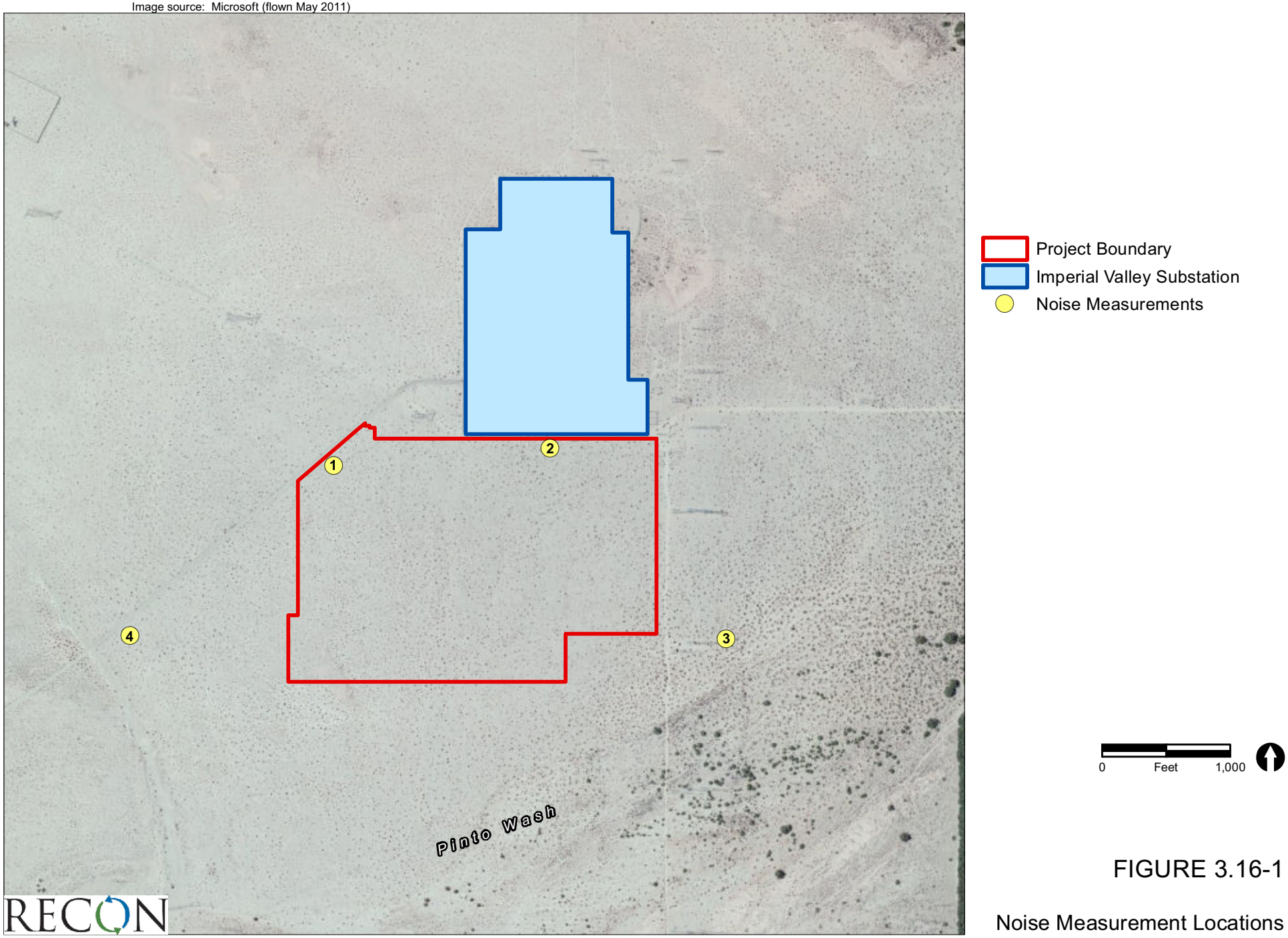
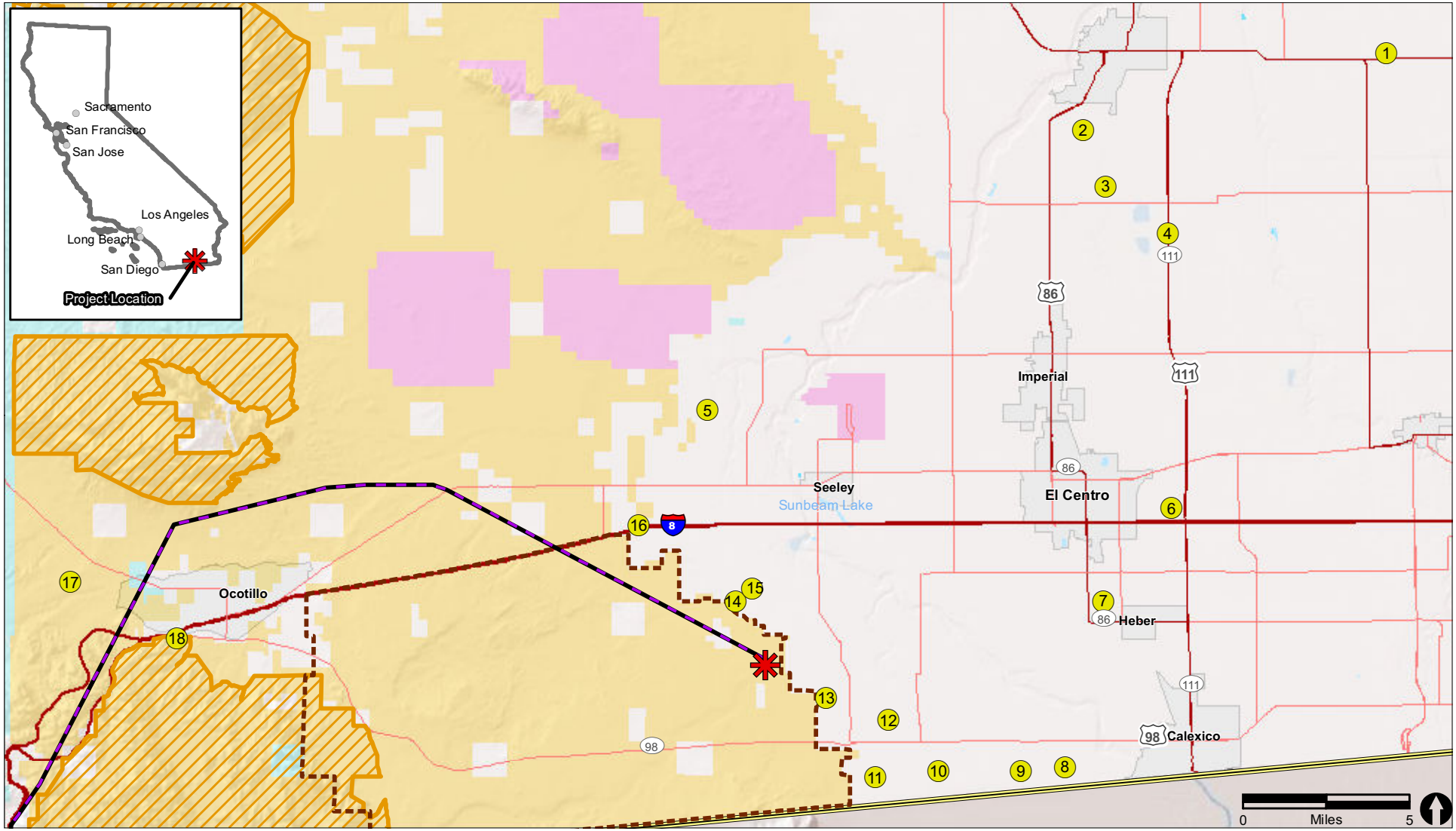


FIGURE 3.16-1

Noise Measurement Locations



Project Location
Cumulative Projects
Sunrise Powerlink
Primary Limited Access or Interstate
Primary US and State Highways
Secondary State and County
International Boundary
Land Jurisdiction
Bureau of Land Management
Military
State
Federal Wilderness Areas
Yuha Desert Wildlife Management Area

RECON

FIGURE 4.1-1

Cumulative Projects

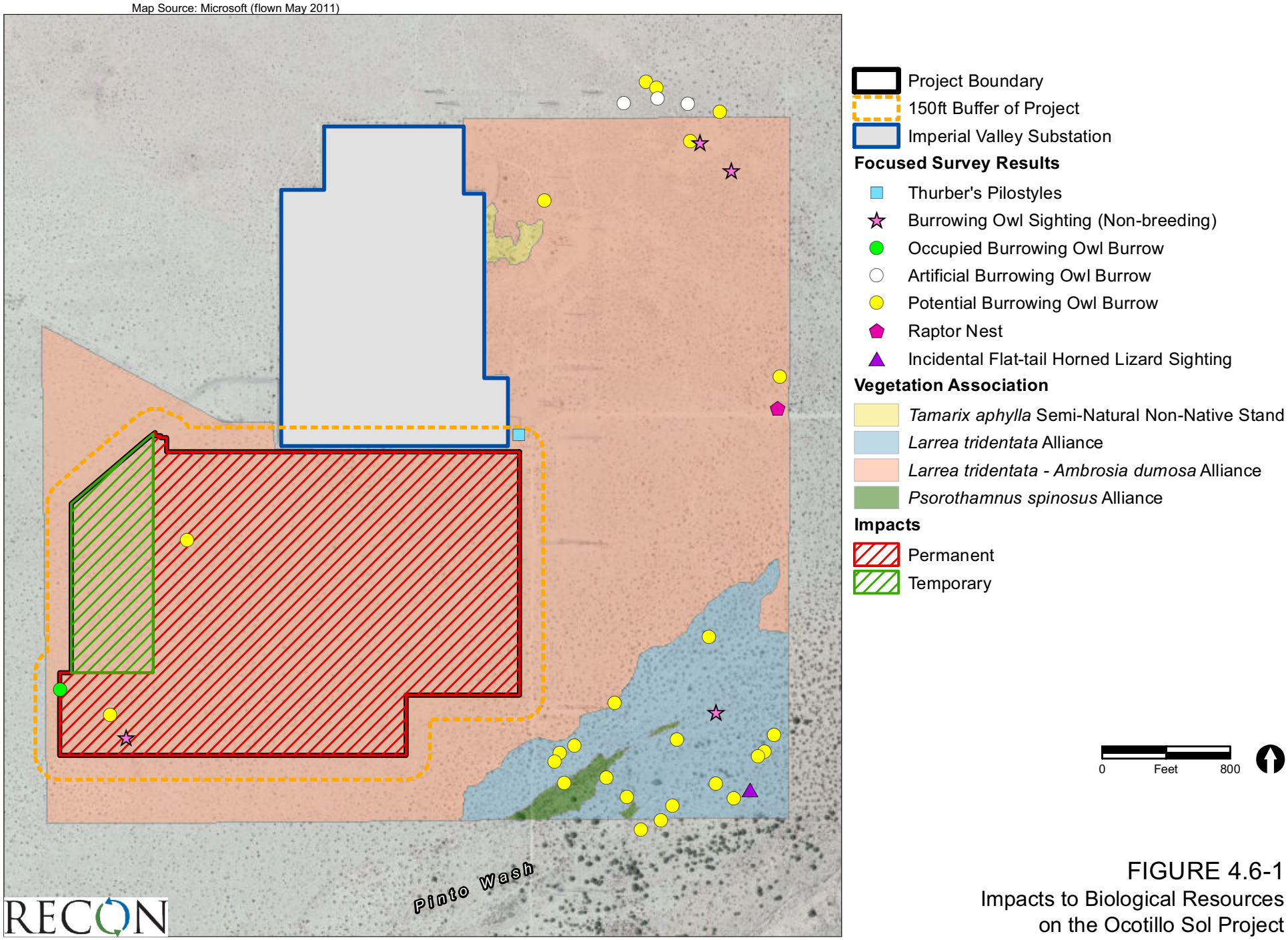


FIGURE 4.6-1
Impacts to Biological Resources
on the Ocotillo Sol Project

APPENDIX B

Ocotillo Sol Project
Decommissioning & Reclamation Plan

PREPARED FOR:
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EL CENTRO FIELD OFFICE
1661 SOUTH 4TH STREET
EL CENTRO, CA 92243-4561

RIGHT-OF-WAY APPLICATION CACA-51625

PREPARED BY: SAN DIEGO GAS & ELECTRIC

ASSISTED BY: BURNS & MCDONNELL ENGINEERING

March 2012

TABLE OF CONTENTS

CHAPTER I. PROJECT DESCRIPTION 3

I. PROJECT DESCRIPTION 4

A. INTRODUCTION 4

i. Type of Facility, Planned Uses, Generation Output 4

B. PURPOSE AND NEED FOR DECOMMISSIONING PLAN 5

C. GENERAL FACILITY DESCRIPTION, DESIGN AND OPERATION 5

i. Location and Site Description 5

ii. Land-Use Management 7

iii. Environmental Setting 7

iv. Site Topography and Hydrology 10

v. Site Drainage 10

vi. Foundations and Ground Mounting 11

vii. Power Plant Facilities/Process 11

viii. Equipment and Associated Facilities 12

ix. Temporary Laydown Area: Construction Workspace, Yards, Staging Areas 14

x. Ancillary Facilities 14

xi. Waste and Hazardous Materials Management 14

xii. Site Security and Fencing 15

CHAPTER II. TEMPORARY LAYDOWN SITE RESTORATION PLAN 16

II. TEMPORARY LAYDOWN SITE RESTORATION APPROACH 17

A. HABITAT PLAN 17

B. POST CONSTRUCTION ACTIVITIES 20

C. MAINTENANCE, MONITORING, AND REPORTING 21

D. COMPLETION OF HABITAT RECLAMATION 22

CHAPTER III. SOLAR FIELD DEMOLITION AND SITE RECLAMATION PLAN 23

III. SOLAR FIELD DEMOLITION AND SITE RECLAMATION 24

A FINAL CLOSURE STRATEGY 24

B. PLAN SUMMARY 24

C. SOIL MANAGEMENT AND RE-CONTOURING 25

D. RECLAMATION AND HABITAT RESTORATION 25

E. SOLAR FIELD DEMOLITION AND SITE RECLAMATIONWORKFLOW 26

CHAPTER IV. FINANCING OF DECOMMISSIONING AND RECLAMATION 29

IV. FINANCING OF DECOMMISSIONING AND RECLAMATION 30

A. STATEMENT OF RESPONSIBILITY 30

FIGURES:

Figure 1: Photograph of typical utility scale PV project 5
Figure 2: Photograph of the Ocotillo Sol Project Site 6
Figure 3: Project Location Map 9
Figure 4: Pinto Wash Watershed and Ocotillo Sol Site 10
Figure 5: Example PV Cell 11
Figure 6: Preliminary Site Layout with Aerial Plan 13
Figure 7: Demolition and Reclamation Schedule 28

CHAPTER I. PROJECT DESCRIPTION

I. PROJECT DESCRIPTION

A. Introduction

This Decommissioning and Reclamation Plan is being submitted to the United States Department of the Interior, Bureau of Land Management (BLM) as an appendix to the Environmental Impact Study (EIS) in connection with the right-of-way application (SF 299) CACA-51625 filed in December 2009, and revised in August 2010 for the design, construction, and operation of the Ocotillo Sol Project (Project). The plan will adhere to all applicable environmental and safety and health standards.

This Project will be a photovoltaic (PV) electric generation facility in Imperial County, California on undeveloped Federal land adjacent to the southern boundary of the San Diego Gas & Electric (SDG&E) Imperial Valley Substation, located on BLM managed land with a right-of-way to SDG&E. The proposed Project will generate a peak capacity of 15-20 megawatts (MW) of alternating current (AC) renewable energy.

SDG&E has proposed this site due to its proximity to existing transmission infrastructure (Imperial Valley Substation), access roads, the abundance of solar resources in the Imperial Valley region of southern California, and the ability to minimize potential impacts to natural and cultural resources. Locating the proposed facility adjacent to the Imperial Valley Substation allows SDG&E to consolidate the PV system with existing SDG&E operations, and minimizes the length of new 12.47 kilovolt (kV) transmission infrastructure required to interconnect with the existing transmission system.

The renewable energy generated from the proposed Project would be supplied to SDG&E's customers and included in the SDG&E state mandated renewable energy portfolio standard requirements.

i. Type of Facility, Planned Uses, Generation Output

Preliminary design of the proposed facility consists of a well established standardized design for a solar power plant using a PV system to generate a nominal peak 20 MW_{AC} of renewable electrical energy. The proposed PV system will require 100 acres of land for solar modules (Solar "module" and solar "panel" have been used interchangeably in the PV industry, but since "module" is a more precise term it will be used for the remainder of this document) grouped into a collection of multiple arrays in addition to inverters, transformers, and a maintenance building. Equipment location and orientation on the 100-acre site will be determined during final design. The electrical energy produced will tie into the adjacent Imperial Valley Substation at 12.47 kV.

The proposed facility's maintenance building will include storage for maintenance equipment, control electronics and a small gravel parking lot to accommodate up to 15 vehicles. The parking lot will generally be utilized by SDG&E personnel for routine maintenance and cleaning activities.

Figure 1 shows solar arrays from a typical utility scale PV plant.

Figure 1: Photograph of typical utility scale PV project

B. Purpose and Need for Decommissioning Plan

The purpose of the proposed Project is the generation of clean, renewable energy utilizing the abundant solar energy resources available in the Imperial Valley region of southern California and thus reduce greenhouse gas emissions consistent with California's needs and requirements. The plant is expected to produce clean power for a minimum of 25 years. The objective of project decommissioning and reclamation is to remove the installed power generation equipment and return the site to a condition as close to a pre-construction state as practical. The procedures outlined herein are formulated to ensure public health and safety, environmental protection, and compliance with applicable regulations. The procedures described identify the proposed activities to restore the site upon operation completion.

Reclamation activities will restore vegetative cover, hydrologic function, control erosion; and minimize habitat and landform alteration during and after the life of the facilities.

C. General Facility Description, Design and Operation

i. Location and Site Description

The proposed Project site, as shown in Figures 2 and 3, is located on Federal land in Imperial County, California, four miles south of Interstate 8 (I-8), nine miles southwest of El Centro, and 82 miles east of San Diego. All proposed components of the Project are located on BLM administered land subject to a right-of-way grant. The proposed project is within the Yuha Desert Management Area (MA).

The Project site will consist of 100 acres on BLM administered land, and will temporarily utilize an additional fifteen acres during construction for equipment laydown, construction trailers, staging areas and construction work force parking. The 100-acre parcel will include the PV modules and mounting structures, a maintenance building with an associated parking area, access road, internal roads, inverters, transformers, and the combining switchgear. An underground

12.47 kV interconnection line will be located in an approximately 1,000 foot trench from the combining switchgear located in the northern Project site boundary to a 12.47 kV bus and circuit breaker to be installed in the Imperial Valley Substation. An existing road to the Imperial Valley Substation will provide access for the proposed Project; however, new minor access roads between the module rows will be constructed. Once the facility has been constructed and commissioned, the fifteen acre construction laydown area will be returned to its near pre-construction state and ceded back to the BLM.

Figure 2: Photograph of the Ocotillo Sol Project Site Viewing North-Northwest

Access to the proposed Project site is provided by an existing SDG&E easement off Highway 98 that leads to the Imperial Valley Substation. A gravel access road leads to the project from the south, approaching the west side of the site. Any necessary upgrades to the Imperial Valley Substation where the PV plant will connect to the transmission system will be completed within the existing substation boundary.

Geotechnical Characteristics: The Project site is in an area of undeveloped low-lying desert with sparse vegetation. The Westside Main Canal runs generally north-south and is located to the east of the Project. The soils in the vicinity of the site are alluvial and contain much sand. South of the site, Pinto Wash transitions from channelized, stable flow to distributary flow and typically flows in a northeasterly to easterly direction.

Fine-grained clayey soils with expansion potential are present in the near surface in many areas of the site. Borings near the site encountered alluvial and lacustrine deposits. These deposits are layered and interlaced, consisting of alternating layers of clean sand, silty and clayey sand, silt, lean clay, and fat clay.

Groundwater was encountered at a depth of approximately 35 feet below existing grade. It is anticipated that groundwater will not affect development of the site.

ii. Land-Use Management

As part of the 1976 Federal Land Policy Management Act (FLPMA), the California Desert Conservation Area (CDCA) Plan was developed to guide land use management of BLM lands within this portion of California. The Project site is within and under the jurisdiction of the CDCA Plan. The CDCA Plan has four multiple-use classes. The Project site is located within the Multiple-Use Class L (Limited Use). The Limited Use classification is intended to protect sensitive, natural, scenic, ecological and cultural resource values. The CDCA Plan states that "public lands designated as Limited Use are managed to provide for multiple use of resources at a lower intensity, ensuring that sensitive values are not significantly diminished." The basic intent of this Plan, then, will be to restore the site to its limited use and natural, scenic, ecological, and cultural value.

iii. Environmental Setting

The project site is within the Yuha Basin Area of Critical Environmental Concern (ACEC), which is managed by BLM to protect sensitive cultural and wildlife resources while allowing for compatible public uses such as camping. This area consists primarily of undeveloped open space. The Yuha Basin ACEC includes the Yuha Desert Management Area, which was designated by BLM for management of flat-tailed horned lizard (*Phrynosoma mcallii*; FTHL) habitat, as outlined in the *Flat-Tailed Horned Lizard Rangewide Management Strategy* (FTHLRMS) (Flat-tailed Horned Lizard Interagency Coordinating Committee2003).

The project site is primarily surrounded by undeveloped, moderately disturbed desert scrubland, with the exception of SDG&E's Imperial Valley Substation located immediately to the north and associated power lines and access roads scattered throughout the area. Vegetation on the project site consists of Sonoran creosote bush scrub (Holland 1986). (*Larrea tridentata – Ambrosia dumosa* Alliance; CDFG 2007), the most common natural community in the region. The vegetation is somewhat disturbed as a result of various human-related activities. Pinto Wash is located south and southeast of the project site, with the Westside Main Canal and irrigated agricultural lands to the east and north.

Biological resource assessments surveys as well as focused surveys for rare plants, FTHL, burrowing owl (*Athene cunicularia*), and other bird species were conducted in accordance with the most recent BLM-accepted survey protocols. Surveys were conducted between fall 2009 and spring 2011 in order to identify and document botanical and wildlife species, map jurisdictional areas and natural communities, and evaluate suitability of habitat for various special status species.

No special status plant species were observed within the survey area. Based on the level of disturbance within the survey area and the results of the focused rare plant surveys, no special status plant species are expected to occur within the survey area, and none are expected to occur within the project impact area.

Protocol surveys for FTHL were conducted on September 23, 2009, FTHL is a California Species of Special Concern and a BLM Sensitive species. It has been recorded in high

numbers in Sonoran desert scrub habitat. Horned lizard scat was found within all ten study plots, and tracks were observed; however, no individuals of FTHL were observed during the focused surveys. Incidentally, during the focused rare plant surveys in late March 2010, a juvenile FTHL was observed in Pinto Wash adjacent to the project area and remnants of a FTHL carcass were observed near the center of the survey area at the mouth of a burrow with burrowing owl sign. The entire project site, however, is considered to be occupied with FTHL in accordance the protocol provided in the FTHLRMS for determination of FTHL presence.

Protocol-level burrowing owl surveys were conducted in accordance with the California Burrowing Owl Consortium's (BOC) *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993). Many potentially suitable burrows were mapped and at least two of the occupied burrows were within the project limits. In addition, during the focused plant survey in March 2010, a burrowing owl was incidentally observed in flight near the project area. Burrowing owls were not found during the four focused breeding season field visits in May 2010. The four burrows that were occupied at the time of the burrow survey were found to be inactive, and, although over 20 suitable burrows were investigated for sign, no additional active burrows were found. The results of the burrow survey and focused breeding season survey indicate that breeding owls were not present on site at the time of the survey, but that the site was utilized by wintering individuals. However, during the focused plant survey in late March 2010, a burrowing owl individual was observed near a burrow with owl sign near the center of the survey area.

In addition, focused avian point-count surveys were also conducted in accordance with the BLM Solar Facility Point Count Protocol (March 2009). Winter and spring surveys were conducted. Swainson's hawk (*Buteo swainsoni*), a California Threatened species, was observed as migrating individuals flying over the site.

Water Resource surveys were conducted in areas considered potentially jurisdictional by USACE pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA, or the Porter Cologne Act and the CDFG pursuant to Section 1600 et seq. of the California Fish and Game Code. No drainages, wetlands, or any other topographical or hydrological features with potential to be subject to USACE, RWQCB, or CDFG jurisdiction were observed within the 115-acre project limits. No evidence of streambed and banks as defined by CDFG was observed within the project limits, nor were any defined channels that would be subject to agency jurisdiction. Evidence of hydrology on site is limited to some bare spots and soil sorting due to sheet flow, which was observed throughout the project site, generally following the gentle slope of the terrain.

Figure 3: Project Location Map

iv. Site Topography and Hydrology

The Ocotillo Sol site is at an average elevation of about 12 feet above sea level (USGS). The ground surface of the site is relatively smooth and uniform with a northeasterly slope of approximately 0.5%. The site is undeveloped desert land with minimal vegetation (sparse desert scrub) and sandy soils.

The site receives off-site storm runoff from the west and south, from the Pinto Wash watershed. The Pinto Wash, as shown in Figure 4, is expected to be a stable wash, that will unlikely shift due to erosion, or migrate toward the site. The slopes of the watershed in this area are nearly flat alluvial deposits.

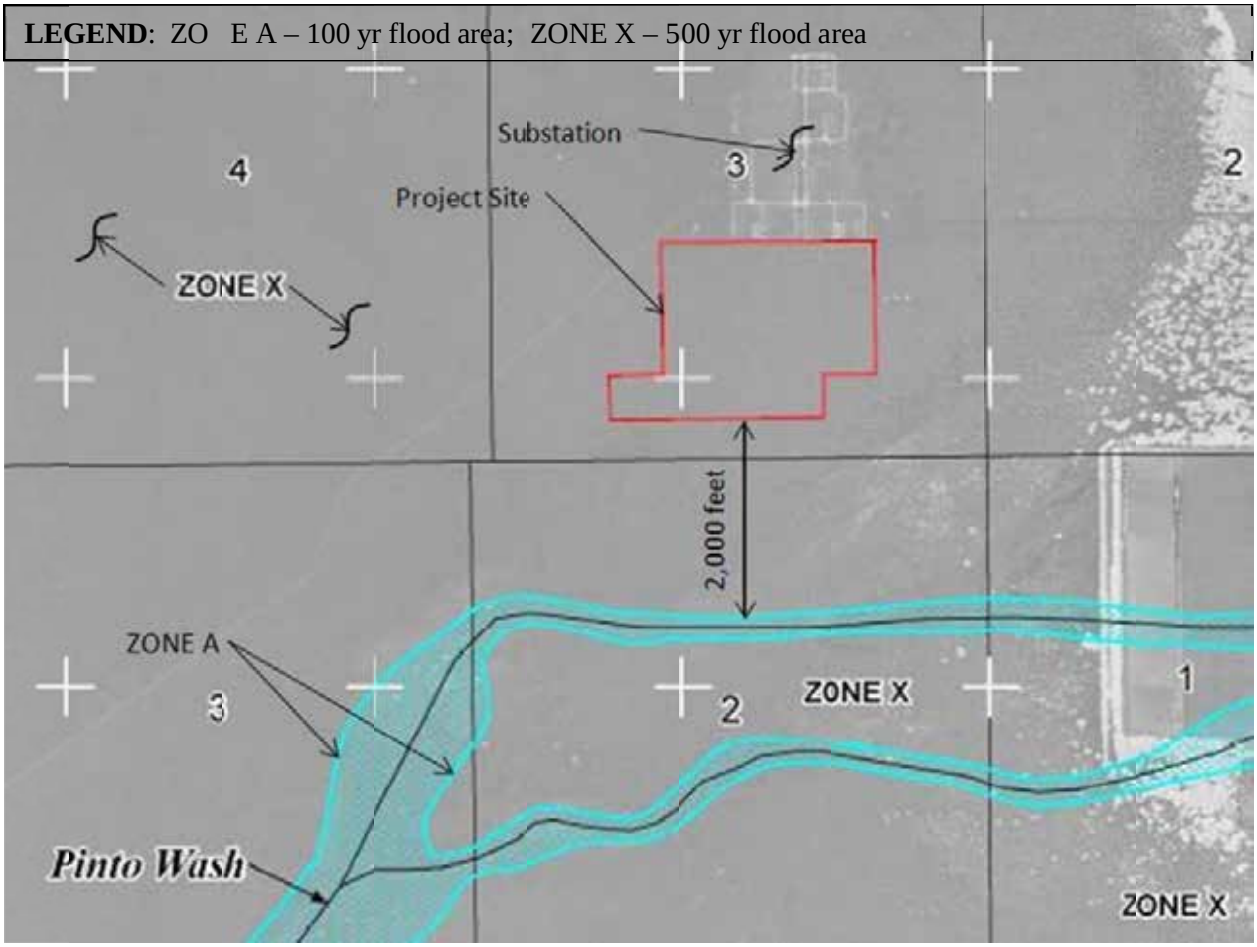


Figure 4: Pinto Wash Watershed and Ocotillo Sol Site

v. Site Drainage

The site has been selected to minimize grading requirements and allow the site hydrology to remain in a quasi natural state where sheet flow predominates. No drainage ditches or retention basins will need to be constructed on the site.

vi. Foundations and Ground Mounting

Site and solar field foundations will include:

- PV arrays supported on galvanized steel posts that are driven into the ground or something similar thereto.

- Concrete foundations will be required for the inverters, transformers, switchgear, and Operations and Maintenance (O&M) building. The foundations will likely vary in depth from 4" to 48". Final depth of concrete pours for building and equipment foundations will depend on the results of the geotechnical investigation

vii. Power Plant Facilities/Process

The PV generation plant will be designed to create electrical energy from the sun in the form of direct current (DC); it will convert that DC into a useable alternating current (AC), and place the power on the transmission grid. The power producing units for photovoltaic (PV) power plants are the solar modules which are constructed from semiconductor materials. The PV modules are mounted on structures called the racking system and generally referred to as racks. The PV cells are the generators of electrical energy by converting sunlight (photo) directly into electricity (voltaic). Figure 5 provides an example of a PV technology that could be used for the proposed Project.

Figure 5: Example PV Cell

Several solar cells are connected in series o make up a module. The modules are placed in series which are called module strings. The number of modules in a string is dependent upon the PV module technology and the operating voltage of the system and can vary between 8 modules and 33 modules. The module strings are wired and routed underground to a collection point called a combiner box. The combiner box collects the DC circuits from multiple module strings and combines them into one circuit that is then routed to the inverter.

The modules themselves are mounted in rows on the racking system. The rack mounted PV modules, termed arrays are spaced to avoid shading each other and to allow maintenance access between adjacent rows.

Inverters convert the DC energy generated by the PV arrays to useable AC power at a low voltage (300 to 400 volts). The low voltage AC output from the inverters will be stepped up to the required 12.47 kV by transformers located next to the inverters. This 12.47 kV output from the transformers is collected at a combining switchgear located just inside the fence line of the proposed PV power plant. This switchgear allows for a disconnect and a consolidation of circuits that go underground to the Imperial Valley Substation.

The maintenance building will house electronics to monitor the generation produced at the site, and will be used to store materials required for the maintenance of the power plant.

viii. Equipment and Associated Facilities

This nominal 20 MW_{AC} project proposes the use of ground mounted PV technology. The system type (silicon crystalline, thin film, fixed axis or tracking) will be determined as the Project develops. Though the project may utilize either thin film or crystalline PV modules, this does not change the means by which energy is produced, construction methods or activities nor the operation and maintenance activities. A preliminary site layout has been developed, Figure 6, showing the outline of the solar field consisting of twenty 1 MW_{AC} blocks to match typical inverter sizing available on the market today. According to the description above, the current generated by module strings in each one-MW_{AC} block will be collected in several combiner boxes throughout the block and will then be routed to the DC fuse box, inverters and transformer. The inverters and transformer will be sized to handle one MW_{AC} of capacity. The quantity of materials required for the project will be dependent on final design. It is estimated between 64,000 polysilicon or 200,000 thin film PV modules will be needed. Inverter quantities will range from 20 to 40 using today's technology. At this time, approximately twenty small transformers are expected to be utilized. Figure 6 also indicates a preliminary route for the interconnection between the Project and the existing Imperial Valley Substation.

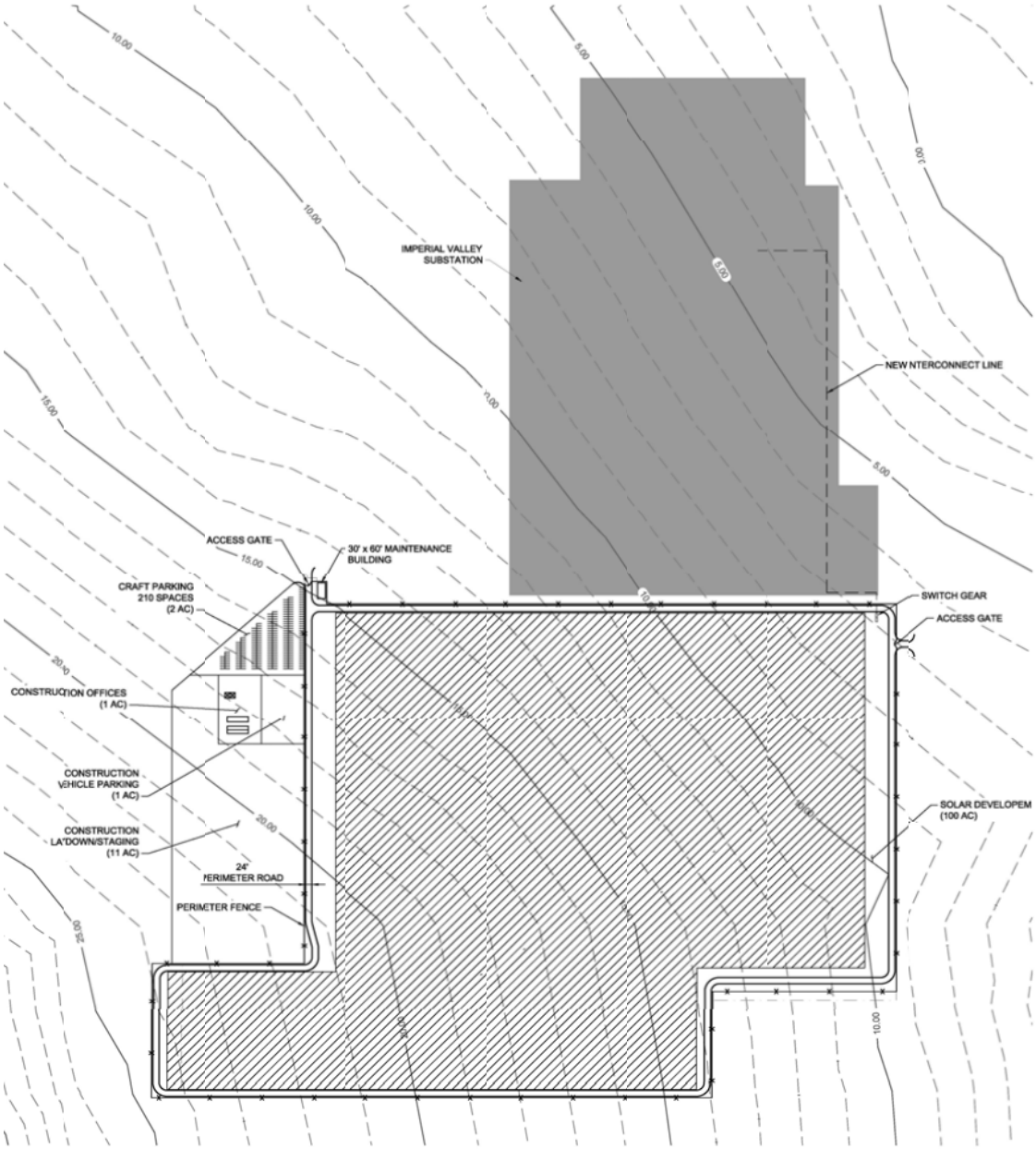


Figure 6: Preliminary Site Layout with Aerial Plan

ix. Temporary Laydown Area: Construction Workspace, Yards, Staging Areas

Construction workspace will consist of fifteen acres adjacent to the 100-acre Project site and will house construction offices, parking for the construction workforce and a temporary staging area for construction materials (refer to Figure 6). The term "laydown" is used herein to generally refer to these temporary activities collectively. The exact location of attributes is not known and will be a function of the construction approach undertaken by the construction contractor.

The laydown area would be directly east and adjacent to the existing site access road with temporary construction power provided from the Imperial Valley Substation. The site will be fenced and secured during non-construction hours. Temporary restroom facilities will be provided during construction, with water being trucked in and waste being trucked out.

x. Ancillary Facilities

An O&M building will be constructed on the north west end of the site adjacent to the existing access road. The building will have a gravel parking area suitable for up to 15 vehicles, and will house maintenance equipment, spare parts, and the electronic plant monitoring system. This pre-engineered, metal building is approximately 60 feet by 30 feet.

Underground 12.47 kV lines will be installed to transmit AC power from the step-up transformer arrays back to the combining switchgear at the northern property line adjacent to the substation.

An underground 12.47 kV interconnection line will be installed to bring the generated power to the existing substation for distribution on the combining switchgear.

xi. Waste and Hazardous Materials Management

During the life of the project, hazardous materials will not be drained onto the ground, or into streams or drainage areas. Totally enclosed containment will be provided for all trash. All construction, operation, and maintenance waste, including trash and litter, other solid waste, petroleum products, and other potentially hazardous materials, will be removed and transported to the nearest Type II landfill or to a nearby transfer station authorized to accept such materials. Spills are not expected, but, should they occur SDG&E will implement standard spill cleanup procedures, recycling and disposal at an approved facility. So, during final dismantling and reclamation of the site, handling hazardous materials will be minimal and spills will not be an issue.

Project-related hazardous materials will generally be limited to those uses occurring during construction. Operation, and maintenance activities will involve periodic and routine transport, use, storage, and disposal of minor amounts of chemicals routinely associated with these activities, such as petroleum products, gasoline, diesel fuel, lubricants, hydraulic fluid, and transmission fluid. These products will be used to fuel and lubricate vehicles and equipment but will be contained within fuel trucks or in approved containers...

A PV module technology that may be utilized for the proposed Project may contain encapsulated cadmium telluride (CdTe). Though CdTe release to the environment is highly unlikely since it is

manufactured into a stable material that is sealed in glass, care will be taken during final disassembly and recycling so as not to break modules, and SDG&E will prepare a fire safety plan to address potential exposure to hazardous materials.

Most PV technology uses silicon, and other inert, non-hazardous materials. Many companies also have a take-back policy after their 25 year warranty is up. SDG&E will choose a solar module vendor which provides this take-back policy.

xii. Site Security and Fencing

The Project site will be surrounded with an eight foot high security fence including three-strand barbed wire or razor wire. During operations, the Project will be equipped with a security system to monitor the facility. These features will be taken down and either salvaged or disposed of.

CHAPTER II. TEMPORARY LAYDOWN SITE RESTORATION PLAN

II. TEMPORARY LAYDOWN SITE RESTORATION APPROACH

Purpose

Once the Project is ready for commercial operation, the temporary construction area will be returned to near pre-construction conditions. This chapter describes the details of the efforts that will be undertaken to return this area to a condition similar to pre-construction conditions. Once completed, the area will be maintained and monitored for five years or until the BLM has agreed that the site has met its established success criteria.

Pre-construction Conditions

The laydown area consists of Sonoran creosote bush scrub (Holland 1986). (Larrea tridentata – Ambrosia dumosa Alliance; CDFG 2007), the most common natural community in the region. The vegetation is somewhat disturbed as a result of various human-related activities. This community is dominated by creosote bush (Larrea tridentata), burrobush (Ambrosia dumosa), Panamint cryptantha (Cryptantha angustifolia), desert Indianwheat (Plantago ovata), and common Mediterranean grass (Schismus barbatus).

This community has very low species diversity and cover values when established, and is expected to develop very slowly within reclamation sites. The xeric nature of this community results in slow growth, so the community is anticipated to remain extremely open with low diversity through the maintenance, monitoring, and reporting period. The seed palette for this community will contain many annual and perennial herb and shrub species.

Habitat Approach

The reclamation approach for desert scrub vegetation community will focus on coordination with the BLM reclamation staff to achieve the goals for desert reclamation on BLM lands, and achieving consistency with the desert bioregion revegetation/reclamation guidance. This includes decompaction of soils, recontouring impact areas to pre-impact topography and pitting or imprinting soils to aid in seed and water retention. The primary goal of the reclamation activities in desert scrub communities is to minimize and avoid soil disturbance to the maximum extent practicable, through any means required, as well as a thorough weeding program. Crown pruning or mowing of perennial plant species within temporary impact areas in order to preserve the root system and maximize the chance of re-sprouting will also be conducted to aid in re-establishment of impacted vegetation communities. Utilization of temporary construction mats, or installation of mulch, rock, or sand to minimize machinery impacts and the resulting area requiring reclamation after construction activities have ceased will be the primary goal in these delicate communities. The native desert scrub communities exhibit variable levels of plant species diversity, and are subject to infertile soils and extremes in average precipitation and temperature. Installation of suitable erosion control materials to control erosion during seasonal flooding events will also be important elements for successful reclamation in desert scrub communities.

A. Habitat Plan

Activities Before and During Construction

Pre-Impact Site Documentation

Data on existing biological conditions will be compiled at the temporary laydown area prior to the initiation of Project construction activities. The information will be compiled from site assessments conducted for the Project and will include but not be limited to:

- A plant species list (native and non-native plants);
- Distribution and characteristics of vegetation communities;
- Known locations and estimated size of special status plant populations;
- Weed survey results;
- Soil types, density, and conditions; and
- Site photos.

Seed Palette Design

A generalized seed palette for sonoran creosote bush scrub vegetation community is provided in Table 1 below. The palette was developed based on other desert scrub plant species observed in the general area. The seed palette is preliminary, and community-specific mixes with specified seed quantities and application rates per acre will be developed prior to completion of the project. A wide variety of native desert scrub plant species are included on the general palette to provide options for designing final seed palettes that will reflect the natural diversity, species composition, and relative abundance of species within the project area. Final seed palettes will be developed following collection of reference site data and similar undisturbed habitats adjacent to the project area.

Table 1. Sonoran Creosote Bush Scrub Generalized Seed Palette

Scientific Name	Common Name
Acacia greggii	Cat's-claw
Ambrosia dumosa	Burrowbush
Atriplex polycarpa	Allscale
Camissonia claviformis	Brown-eyed primrose
Chorizanthe rigida	Spiny chorizanthe
Cryptantha angustifolia	Narrow-leaf cryptantha
Encelia frutescens	Rayless encelia
Ephedra californica	California ephedra
Garaea canescens	Desert sunflower
Larrea tridentata[1]	Creosote
Oenothera deltoids	Desert primrose
Plantago patagonica	Desert plantain
Pleuraphis rigida	Big galleta
Tiqulia palmeri	Palmer's coldenia

Development of Performance Standards and Success Criteria

As the basis for the performance standards and success criteria in the site-specific reclamation plans, SDG&E or its reclamation contractor will work in coordination with the BLM to identify appropriate performance standards, success criteria and an appropriate reference site. Development of the standards and criteria will begin when data on the impact areas has been compiled and reference areas from which performance standards are to be based have been identified. Key issues to be considered include but are not limited to:

- Appropriate performance standards for reclamation that will not include irrigation systems; and
- Short- term and long-term standards for determining if a restored site is self-sustaining; To provide a consistent framework for evaluating reclamation, it is recommended that the

performance standards/success criteria focus on quantifiable cover attributes, including: percent bare ground, percent native cover, percent non-native cover, and overall species diversity based on the seed mix and volunteer species within the reclamation site

Seed Collection

Native plant seeds will be collected within the vicinity of the project site. All seed material will be collected by a professional contract seed-collector who is qualified and authorized to collect native seed from wild source populations. Species flowering periods, annual rainfall patterns, elevation, and general field variability of plant populations all influence the timing of seed set, so collection managers will inspect native seed sources prior to mobilizing crews to identify optimal collection times for the desired species and for efficiency, seed will be collected for multiple species concurrently when possible. Seed material will consist of locally endemic native seed to protect the regional biodiversity and evolutionary fitness of native plant populations from genetic contamination potentially introduced by seed material obtained commercially or from other bioregions.

Availability of seed may be limited by edaphic factors including drought during the collection period, so flexibility in species selection and application rates will be necessary. Actual amounts of seed necessary will ultimately be determined by the purity and germination rates of the collected seed. Seed utilized will not contain more than 0.5 percent weed (as defined by Cal-IPC, 2006) seed by volume. All seed material will be separated and clearly labeled with the date of collection, location, and species by scientific name. All seed material will also be weighed, cleaned, and tested for purity and germination values. Seed material will then be mixed for the appropriate acreage. Seeds will be stored in a cool, dry environment until delivery.

Vegetation Clearing and/or Plant Salvage

The temporary laydown area will be left in its native state to the fullest extent possible. The temporary construction workspace will only be graded, and compacted with a gravel overlay to mitigate unsuitable conditions only in the last resort. Those portions of the temporary laydown area where perennial shrubby vegetation is present will be pruned by hand, mowed, chained and/or mulched prior to the commencement of other construction activities. These activities will aid in preserving the underground biomass (roots, tubers, or caudex) of native perennial plant species as well as the mycorrhizal network and seed bank in the temporarily impacted location. These activities are of particular importance in desert scrub vegetation communities.

For the temporary laydown area, the focus will be on retaining plant nutrients around the bases of shrubs, (Soil nitrogen content decreases significantly as a function of radial distance from the center of the shrub canopy.) This type of soil material will be left in place in areas of temporary disturbance. Shrubs will be

trimmed to a low height or to the crown, and allowed to re-sprout using their existing mature root system. Additionally, annual plants should grow more quickly in the relatively undisturbed high-nutrient area under the canopy of a shrub. Sensitive plant species, if found, will be removed from an impact area prior to construction, stored onsite during construction, and transplanted into the site after construction has been completed.

Weed and Erosion/Sediment Control

During construction, control of noxious weeds within temporary impact areas will occur as prescribed in the Weed Control Plan, including use of herbicide. Erosion and sedimentation controls will occur as prescribed in the applicable SWPPP.

B. Post Construction Activities

Trash and Debris Removal

After completion of Project construction activities, the Contractor will remove any trash and debris from the temporary laydown area as well as the project site. This includes all man-made materials and construction debris (e.g., concrete washout, wire, hardware, metal, plastic, glass, ceramic, rubber, etc.) that may be left onsite. The Contractor will be responsible for removal of all trash and debris from the site to an approved waste disposal site (licensed landfill).

Weed Control

Weed control following construction will occur as prescribed in the Weed Control Plan. The temporary laydown area will be maintained in weed-free condition prior to seed installation, and the last application of weed controls will occur a minimum of 30 days before seeding activities are initiated and any weeds observed will be treated/controlled.

Soil Decompaction

Decompaction of soils following construction activities is anticipated to be required for portion of the laydown area. Decompaction of soils will improve water infiltration and allow for plant root growth in reclamation areas. Decompact will occur by ripping/cross ripping, to a depth of at least 12 inches when possible, with ripper teeth mounted to the back of a bulldozer, or disking and scarifying less compacted surfaces using farming implements including tillers and disks pulled by tractors. After the compacted soil surface is broken up, implements to smooth the rough surface and return it to its original contour (e.g., drag harrows with both spike-tines and flex-tines, or link-chain harrows) will be utilized. Care will be taken to not disturb the root systems of any resprouts.

Soil Re-contouring

Any portion of the laydown area that requires grading will be contour-graded to as close to the pre-impact condition as possible prior to the implementation of reclamation activities. Soil re-contouring will be planned and implemented so that the reshaped land matches surrounding landforms and the photos of pre-impact conditions. To return the topography of the graded laydown area to a condition that blends with the surrounding undisturbed areas the graded area will transition in a manner that appears natural (i.e., contours will be smoothed rather than end abruptly at existing contours).

Seed Application

Seed Application Timing
Seed material will be installed following the completion of all necessary soil preparation activities described above. To promote successful plant establishment, seeding will ideally occur late fall /early winter annually to take advantage of winter rains and cooler, moderate temperatures. If the area is disturbed after seed application, the SDG&E will reapply the seed mix between October 1 and March 15.

Potential Restoration Techniques

- Mycorrhizal Inoculation
- Broadcast Seeding
- Imprint Seeding
- Soil pits
- Access Restriction

C. Maintenance, Monitoring, and Reporting

Maintenance
The temporary laydown area will be maintained and monitored for a minimum of five years or until the BLM deems success which could take as much as ten years given the slow growth rate of this community. The time required to meet success criteria, and therefore the duration of the post-planting maintenance and monitoring period, will depend on the level of disturbance at the site. A specific schedule of pre- and post-planting maintenance, monitoring, and reporting activities will be included in the Final Reclamation Plan. Maintenance of the temporary laydown yard once the initial seeding has occurred will potentially include the following:

- *Weed Control*
- *Trash and Debris Removal*
- *Access Restriction*

Monitoring
Monitoring frequency will included in a schedule in the Final Reclamation Plan which will be approved by the BLM. The monitoring will consist of maintenance as well as a performance evaluation. A Restoration Specialist will conduct the monitoring to determine the effectiveness of maintenance activities on each reclamation site. The Reclamation Specialist shall prescribe any additional maintenance activities that may be required. Performance monitoring will also be completed by the Restoration Specialist to document reclamation site progress relative to the established performance criteria, and for the Reclamation Specialist to prescribe any remedial measures that may be required to ensure that each reclamation site meets the performance criteria established for the site.

Reporting
The data collected in a given year will be compiled and included in an annual monitoring report. Annual monitoring reports will be submitted to the BLM. The performance reports will describe the existing conditions of the reclamation sites derived from quantitative data collection. The reports will provide a comparison of annual success criteria with field conditions, identify any shortcomings, and recommend remedial measures necessary for the successful completion of the Plan. Each yearly report will provide a summary of the accumulated data.

Adaptive Management
Adaptive management will be implemented in the event of unforeseen or probable but unpredictable circumstances. Adaptive management is defined, for the purposes of this Plan, as a flexible, iterative approach to the long-term management of the site. It will be directed over time by the results of ongoing monitoring activities and direct observation of environmental stressors that are producing adverse results within the site. Adaptive management will include the utilization of regular quantitative assessments and rapid qualitative assessment data gathered in the field during the Plan to assess the health and vigor of all vegetation communities and reclamation sites. Following an event that causes damage to all or part of the site, these data will be used in part to drive management considerations for repair of the damaged areas. Achieving the performance criteria of the Plan through establishment of self-sustaining native vegetation communities in temporary project impact areas will be the focus of all adaptive management decisions. Individual environmental stressors such as flooding or prolonged drought could require additional measures be conducted to ensure success.

D. Completion of Habitat Reclamation

Notification to BLM
When Program performance criteria have been met, SDG&E will notify the BLM and any other applicable regulatory agencies via submitting the annual report, and request acceptance of the Program reclamation sites and release from the agency permit conditions.

Regulatory Agency Confirmation
Following receipt of the notification of completion, the BLM may have personnel visit the site to confirm the successful completion.

CHAPTER III. SOLAR FIELD DEMOLITION AND SITE RECLAMATION PLAN

III. SOLAR FIELD DEMOLITION AND SITE RECLAMATION

The following provides an overview of decommissioning and reclamation activities in concept. Refinement of these activities will be required to reflect the future best practices as improvements are discovered by the agencies and industry during the term of the lease/life of the project. The effort to update and finalize this demolition and reclamation plan should be initiated at least 2 years prior to anticipated end of commercial operation, and be in consultation with the BLM and/or other applicable agencies.

A Final Closure Strategy

The overall closure strategy shall consist of the following major elements:

- Pre-closure activities, such as final closure and reclamation planning, that identifies measures to be taken to restore the site to near pre-construction conditions or compatible with surrounding land.
- Set up and document a site specific health and safety plan and procedures to be followed; train personnel accordingly.
- Develop specifications for demolition and reclamation, which will serve as the basis for contractor bids for the decommissioning project and establish the scope of demolition and reclamation, including developing reclamation plans in compliance with local, state, and federal regulations and as may be required by the BLM lease;
- Demolishing and removing of above and below ground facilities as needed to meet the closure goals;
- Clean up of soils and site, as required, to ensure that clean closure is accomplished;
- Disposal of materials in appropriate facilities for treatment/disposal or recycling;
- Re-contouring the site to match existing grades and natural drainage patterns.
- Monitor and control the execution of the decommissioning and reclamation plan through project oversight and quality assurance; and
- Document implementation of the plan and compliance with environmental requirements.

B. Plan Summary

The useful life of Ocotillo Sol is expected to be at least 25 years or more. At the end of useful life, SDG&E will decommission the site to zero generating output, including necessary demolition and site reclamation. A portion of the demolition and reclamation costs will be offset by the salvage or scrap values of the equipment. Decommissioning will be undertaken using traditional heavy construction equipment including but not limited to front end loaders, cranes, track mounted and rubber tired excavators, bull dozers, and scrapers.

For the modules, a take back program which will collect and recycle the solar modules at the end of their useful life, will be employed. When SDG&E determines that Ocotillo Sol should be retired, the solar modules will be dismantled by SDG&E and shipped to the module

manufacturer's nearest storage facility based on module take back program. Meanwhile, all the above-grade racks and posts structures, and underground conductors, will be salvaged. Aside from dismantling the panels and all other above ground structures, SDG&E will be responsible for removal and disposal of other project facilities and for the reclamation of the site following the removal of salvageable equipment.

The combiner boxes, meteorological stations, transformers, inverters, switchgear, control equipment, and surrounding fencing will be removed and the demolition contractor will take ownership of the equipment. The salvage value of this equipment will be used to offset a portion of the demolition and reclamation costs. Transmission lines will be removed. AC and DC cabling below grade will be removed. Conductors at 4' below grade and above will be removed. Any conductors below this level will be left in place. Areas of removal will be backfilled with natural material and compacted. The salvage value of this material and equipment will be used to offset a portion of the demolition and reclamation costs.

All concrete foundations will be removed to a depth of four feet below grade. This will include the removal of the concrete foundations of the transformer and inverter skids and switchgear. The concrete will be demolished, loaded into a dump truck and hauled to a local landfill for disposal or recycling. The portions of the concrete foundations that are greater than four feet below grade will be abandoned in place. All rack posts in the ground will be removed and salvaged. Any voids left from the removal of foundations will be backfilled with surrounding subsoil and topsoil and fine graded to ensure suitable drainage and reclamation of natural grades.

To the extent required, crushed rock surfacing will be removed. Areas where crushed rock surfacing has been removed will be fine graded to ensure suitable drainage. The removed crushed rock will be loaded into a dump truck and the demolition contractor will take ownership of the crushed rock for reuse.

Finally, the site will be re-contoured using standard grading equipment to return the land to match the surrounding grade and natural drainage patterns. Grading activities would be limited to previously disturbed areas that may require recontouring. Efforts would be made to disturb as little of the natural drainage and vegetation as possible. Fills would be compacted by wheel or track rolling to avoid over-compaction of the soils.

C. Soil Management and Re-Contouring

Demolition operations will be conducted so as to minimize the surface area disturbance and implement the activities in the safest and most efficient manner. The site will be recontoured in order to leave it in smooth, regular, and natural contours – features that would create ponding or un-sightly features will be prohibited. Major earthwork is not anticipated as construction of the site will not alter the general grade across the site.

D. Reclamation and Habitat Restoration

Once the site has been completely decommissioned and the soil has been recontoured and decompacted, a Habitat Restoration Plan, developed for this specific site using the best available technologies, will be implemented. At this particular time it would seem prudent to use the restoration framework as developed for the restoration of the 15-acre laydown yard. The plan

should be updated to reflect the site conditions at the time of decommissioning. The Weed Control Plan should also be used a framework for preventing the spread of weeds during the decommissioning process

Long-term monitoring will be conducted to determine if reclamation and weed control are successful. Annual monitoring reports will document the status of the weed control and revegetation. Monitoring will include an assessment of the establishment of native versus invasive species and includes factors such as density, diversity, richness, cover, and seedling establishment. Monitoring will be conducted as required.

E. Solar Field Demolition and Site ReclamationWorkflow

The following summarizes the sequence of the main activities during decommissioning and reclamation:

- Demolition and site reclamation specifications will be developed to define the scope of the decommissioning and site reclamation activities.
- A pre-demolition meeting that includes safety and environmental training will be held on-site for pertinent project staff, all construction personnel and environmental monitors.
- The solar power plant will be de-energized completely disconnected from the substation per SDG&E safety procedures.
- The site will be surveyed and marked for demolition.
- Temporary construction fencing will be placed, if required, at the direction of biological and cultural monitors to keep construction crews out of sensitive environmental or cultural areas.
- With the combining switchgear isolated from the substation in standard lock out tag out procedures, it will then be electrically disconnected, unbolted from its foundation, and lifted onto a truck for removal from the site.
- PV modules will be disconnected from each other and removed from the racks. They will be returned to the PV manufacturer storage sites or recycling centers.
- DC string wiring from module arrays to combiner boxes that are connected to the racking will be removed and salvaged.
- Racks will be disassembled and removed from the site to recycling centers.
- Steel posts that support the PV racking system will be pulled out of the ground.
- Electrical cabling will be disconnected from combiner boxes, inverters, transformers, and overhead transmission poles.
- Inverter and transformer skids will be electrically disconnected, unbolted and lifted onto trucks for removal from the site.

- Foundations will be demolished and its rubble loaded onto dump trucks and transported to nearest land fill or recycling center.

- Underground cables will be removed, and salvaged. This will include grounding cabling. Installations of underground electrical systems are typically trenched to a depth of three feet with cables directly buried, i.e., no conduit is used.

    - DC Cables from the combiner boxes to DC fuse boxes and inverters will be removed and salvaged.

    - AC cables from inverter stations to switchgear will be removed and salvaged.

    - Underground DC cabling from module arrays to combiner boxes will be removed, and salvaged.

- Areas of excavation will be backfilled and recompacted to match surrounding compaction and grades.

- SCADA will be disconnected and removed, salvaged by the electrical demolition contractor.

- Electrical and Mechanical Systems will be properly isolated and demolished in the O&M Building. Walls, doors, and windows will be removed and salvaged. The parking lot gravel will be loaded into a dump truck and re-used or disposed of into the nearest land fill. All salvageable parts and parts to be disposed of will be removed from the site. Bathroom facilities are provided through use of porta-potties which will be removed by the leasing company.

- Any top gravel remaining on the site roads will be removed and transported away from the site.

- Fuel containers, if any remain, will be disposed of properly according to requirements for the handling and disposal of such materials. Any other materials which may be deemed hazardous will be removed from the site and disposed of according to the hazardous materials handling requirements pertaining to the site.

- The whole site re-graded as necessary to be compatible with surrounding land.

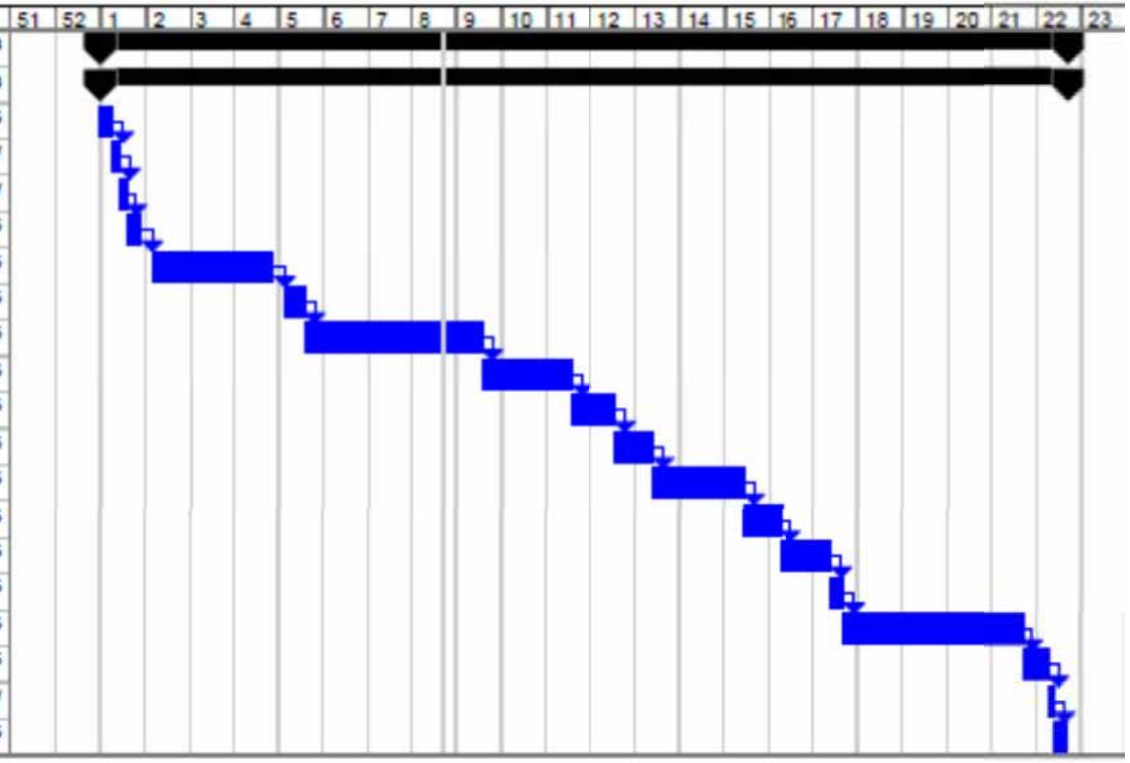
- Applicable areas will be re-seeded with native plant seed.

Timetable and Sequence of Demolition and Reclamation

Demolition and de-commissioning activities are anticipated to last up to four months, see Figure 7.

Figure 7: Demolition and Reclamation Schedule

Task Name	Duration
SDGE Ocotillo Sol	**110 days**
Decommisioning	**110 days**
De-energize site	2 days
Mark site	1 day
Environmental	1 day
Switchgear	2 days
Modules	15 days
Strring Wiring on Racks	3 days
Racks	20 days
Posts	10 days
Overhead Cables	5 days
Inverters and Transformers	4 days
Underground Cables	10 days
Foundations	4 days
Backfill and re-compact	6 days
SCADA	2 days
O&M Building	20 days
Gravel	2 days
Hazardous materials	1 day
Re-grade, Re-contour	2 days



CHAPTER IV. FINANCING OF DECOMMISSIONING AND RECLAMATION

IV. FINANCING OF DECOMMISSIONING AND RECLAMATION

A. Statement of Responsibility

The leasee, San Diego Gas & Electric, is a longstanding utility regulated by the California Public Utilities Commission (CPUC). The CPUC allows for the collection of funds via rates for the future decommissioning of utility assets. The CPUC mandates decommissioning at the end of an asset's useful life. As a regulated utility, SDG&E affirms its obligation to decommission and restore this site per this decommissioning plan. In the event of an assignment of the lease to a non-utility holder, SDG&E, as may be required by BLM, will require the purchase a performance bond or other similar security, which will be issued either by an insurance company or a financial institution to guarantee the satisfactory decommissioning and reclamation of the project site. The bond will be obtained as a condition precedent prior to any change in lease and will be structured so the security will be returned to the project owner upon completion of the decommissioning and reclamation activities (with an amount held in reserve until the reclamation monitoring is completed).

APPENDIX C

BIOLOGICAL RESOURCES TECHNICAL REPORT

OCOTILLO SOL PROJECT

IMPERIAL COUNTY, CALIFORNIA

LSA

May 2011

BIOLOGICAL RESOURCES TECHNICAL REPORT

OCOTILLO SOL PROJECT

IMPERIAL COUNTY, CALIFORNIA

Prepared for:

San Diego Gas & Electric
Attn: Ms. Edalia Olivo-Gomez, Senior Environmental Specialist
8315 Century Park Court, CP21E
San Diego, California 92123-1548

and

Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, California 92243

Prepared by:
LSA Associates, Inc.
703 Palomar Airport Road, Suite 260
Carlsbad, California 92011
(760) 931-5471

LSA Project No. SGE0905

LSA

May 2011

TABLE OF CONTENTS

EXECUTIVE SUMMARY iv

1.0 INTRODUCTION 1

1.1 PROJECT LOCATION 1

1.2 PROJECT DESCRIPTION 1

1.3 REGULATORY SETTING 3
1.3.1 National Environmental Policy Act (NEPA) 3
1.3.2 Federal Endangered Species Act 4
1.3.3 Migratory Bird Treaty Act 4
1.3.4 Federal Water Pollution Control Act (Clean Water Act), 1972 4
1.3.5 Jurisdictional Waters 5
1.3.6 Bald Eagle Protection Act 6
1.3.7 California Fish and Game Code 6
1.3.8 California Endangered Species Act 6
1.3.9 California Native Plant Protection Act 6
1.3.10 Porter-Cologne Water Quality Control Act 7
1.3.11 California Desert Conservation Area Plan 7
1.3.12 Special Status Species and Natural Communities 7
1.3.13 Wildlife Movement Corridors and Nursery Sites 8
1.3.14 Local Policies and Ordinances Protecting Biological Resources 8

1.4 PROJECT SETTING 8
1.4.1 Land Use and Vegetation 8
1.4.2 Topography and Soils 12
1.4.3 Climate 12

2.0 METHODOLOGY 13

2.1 LITERATURE REVIEW 13

2.2 SURVEY PROTOCOLS 14
2.2.1 General Biological Survey and Vegetation Mapping 16
2.2.2 Focused Rare Plant Survey 17
2.2.3 Focused Flat-Tailed Horned Lizard Survey 18
2.2.4 Focused Burrowing Owl Survey 18
2.2.5 Focused Avian Point-Count Survey 19
2.2.6 Jurisdictional Delineation and Mapping 19

3.0 SURVEY RESULTS 20

3.1 GENERAL BIOLOGICAL SURVEY AND VEGETATION MAPPING 20
3.1.1 Natural Communities and Flora 20
3.1.2 Wildlife 20

3.2 FOCUSED SPECIES SURVEY RESULTS 21
3.2.1 Rare Plant Survey 21
3.2.2 Flat-Tailed Horned Lizard Survey 21
3.2.3 Burrowing Owl Survey 22
3.2.4 Avian Point-Count Surveys 22
3.2.5 Golden Eagle Nest Survey 23
3.3 OTHER SPECIAL STATUS SPECIES 23
3.4 POTENTIAL JURISDICTIONAL WATERS AND WETLANDS 25
4.0 CONCLUSIONS 27
4.1 JURISDICTIONAL WATERS 27
4.2 SPECIAL STATUS NATURAL COMMUNITIES 27
4.3 THREATENED AND ENDANGERED SPECIES 27
4.4 NON-LISTED SPECIAL STATUS AND TARGET PLANT SPECIES 27
4.5 NON-LISTED SPECIAL STATUS ANIMAL SPECIES 27
4.6 HABITAT CONNECTIVITY AND WILDLIFE CORRIDORS 28
5.0 REFERENCES 29

APPENDICES

APPENDIX A: SPECIAL STATUS SPECIES TABLE
APPENDIX B: VASCULAR PLANT SPECIES OBSERVED
APPENDIX C: WILDLIFE SPECIES DETECTED
APPENDIX D: RARE PLANT SURVEY REPORT
APPENDIX E: FLAT-TAILED HORNED LIZARD SURVEY REPORT
APPENDIX F: BURROWING OWL SURVEY REPORT
APPENDIX G: WINTER AVIAN POINT-COUNT SURVEY REPORT
APPENDIX H: SPRING AVIAN POINT-COUNT SURVEY REPORT

FIGURES AND TABLES

FIGURES

Figure 1: Project Location 2
Figure 2: California Desert Conservation Area Plan 9
Figure 3A: Site Photographs 10
Figure 3B: Site Photographs 11
Figure 4: Biological Resources with Photograph Locations 15
Figure 5: California Department of Fish and Game Jurisdiction 26

TABLES

Table A: Survey Schedule and Personnel 16

EXECUTIVE SUMMARY

LSA Associates, Inc. (LSA) was retained by San Diego Gas & Electric (SDG&E) to prepare a general biological resources assessment report for the proposed approximately 100-acre Ocotillo Sol Project (project) and the associated approximately 15-acre temporary vehicle and equipment staging area. The purpose of the project is to provide electricity for public consumption via interconnection with the Imperial Valley Substation and the SDG&E electrical grid, representing an opportunity to provide a source of low-polluting energy from renewable sources to the region.

The proposed project consists of developing and operating a 12–14-megawatt (MW) photovoltaic (PV) electric generation facility on presently undeveloped lands adjacent to and south of SDG&E's Imperial Valley Substation located south of Interstate 8 and west of El Centro in an unincorporated portion of the Yuha Desert in Imperial County, California. The original survey area consisted of approximately 350 acres surrounding the majority of the substation. Based on biological and cultural resources constraints, the 115-acre project site was identified, allowing the reduction of the survey area to approximately 142 acres. The existing substation and proposed PV array site are located on land under the jurisdiction of the Bureau of Land Management (BLM).

LSA prepared this report to support analysis pursuant to the National Environmental Policy Act (NEPA), in support of the BLM review and approval process for assessing potential project-related impacts to biological resources. This report may also support project permitting from State and Federal biological resources agencies (e.g., U.S. Fish and Wildlife Service [USFWS] and the California Department of Fish and Game [CDFG]). All biologists were pre-approved by the BLM prior to conducting field surveys.

In October 2009, LSA biologists initiated general biological field surveys to assess existing biological resources and conduct habitat suitability assessments to determine the potential for special status plants and animals to occur within the initial 350-acre study area (also referred to herein as the spring survey area). Special attention was focused on special status plants and animals identified through a literature review conducted prior to the field surveys. Concurrently with these general biological surveys, additional LSA biologists conducted a formal jurisdictional delineation to determine the presence or absence of areas potentially subject to jurisdiction of the CDFG, Regional Water Quality Control Board (RWQCB), and U.S. Army Corps of Engineers (USACE) pursuant to the Federal Clean Water Act (CWA) Section 401, CWA Section 404, and Section 1600 et seq. of the California Fish and Game Code, respectively.

The project site is relatively flat and located in a primarily undeveloped portion of the Yuha Desert, with elevations ranging from approximately 30 feet above mean sea level (amsl) in the northwestern corner to approximately 10 feet amsl in the southeastern corner. No wetland or non-wetland waters of the U.S. potentially subject to USACE or RWQCB jurisdiction were observed in the project area; however, Pinto Wash, which consists of streambed and banks potentially subject to CDFG jurisdiction, is located in the southeast corner of the spring survey area, approximately 540 feet

outside of the proposed 115-acre project limits. No USFWS designated Critical Habitat for any plant or wildlife species occurs within the project area.

The vegetation within the project site consists of low- to moderate-quality Sonoran creosote bush scrub (Holland 1986) (*Larrea tridentata – Ambrosia dumosa* Alliance; CDFG 2007), which provides moderately suitable habitat for a variety of native and otherwise special status wildlife species. The *Larrea tridentata – Ambrosia dumosa* Alliance is not considered a special status natural community by the BLM.

From late September 2009 to late March 2011, LSA biologists conducted the following focused species surveys in accordance with accepted survey protocols: flat-tailed horned lizard (*Phrynosoma mcallii*; FTHL) survey,[1] burrowing owl (*Athene cunicularia*) survey, rare plant survey, and avian point-count surveys. Focused species surveys in the fall of 2009 and spring of 2010 were conducted throughout a 350-acre survey area (spring survey area), with the exception of the FTHL surveys, which were conducted within an approximately 300-acre survey area. Based on the results of biological and cultural resources surveys, the 115-acre project site was identified within the larger 350-acre study area, and the survey area for subsequent focused species surveys (fall survey area) included this 115-acre area plus a 150-foot buffer in adjacent undeveloped areas, for a total of approximately 142 acres.

One target plant species, Thurber's pilostyles (*Pilostyles thurberi*), a California Rare Plant Rank 4 species, was found within the 350-acre spring survey area, but outside of the 142-acre fall survey area. No State-listed or Federally-listed Threatened, Endangered, or Candidate plant species or any other special status plant species were observed during the surveys. Based on the level of disturbance within the survey area and the results of the focused rare plant survey, no special status plant species are expected to occur within the project site.

Horned lizard scat was found on all ten study plots during the focused FTHL survey; however, no individuals of FTHL were observed. A carcass and an individual FTHL were observed during later site visits associated with surveys for other resources. Suitable FTHL habitat is present throughout project site and the entire project site (115 acres) is considered to be occupied by FTHL in accordance the protocol provided in the *Flat-Tailed Horned Lizard Rangewide Management Strategy* (FTHLRMS; Flat-tailed Horned Lizard Interagency Coordinating Committee 2003) for determination of FTHL presence. FTHL is a BLM Sensitive species and a California Species of Special Concern.

Burrowing owls were observed on the project site during the fall burrow survey and during surveys conducted during winter 2009/2010, but not during the breeding season survey or during the spring avian point-count survey. However, a burrowing owl was subsequently observed on the project site during a focused rare plant survey in March 2010. It is likely that owls utilize the site primarily during the non-breeding season. The entire project site is suitable for burrowing owl. Burrowing owl is a BLM Sensitive species and a California Species of Special Concern.

[1] FTHL surveys were conducted prior to the general biological surveys due to survey timing requirements and known potential for the species to occur on the site; additionally, the survey area was limited to approximately 300 acres.

1.0 INTRODUCTION

At the request of San Diego Gas & Electric Company (SDG&E), LSA Associates, Inc. (LSA) has prepared this biological resources technical report for the Bureau of Land Management (BLM) to supplement the application for the development and operation of the proposed 115-acre Ocotillo Sol Project (project), a 12–14-megawatt (MW) photovoltaic (PV) electric generation facility located south of Interstate 8 (I-8) and west of El Centro in an unincorporated portion of the Yuha Desert in Imperial County, California (Figure 1).

This report describes the biological resources record searches and literature review, survey methodologies, and results of the general and focused surveys conducted on the project site to determine the presence or potential occurrence of State-listed or Federally-listed as Threatened, Endangered, and other special status plants, animals and natural communities. Potential impacts to biological resources within the study area are discussed.

1.1 PROJECT LOCATION

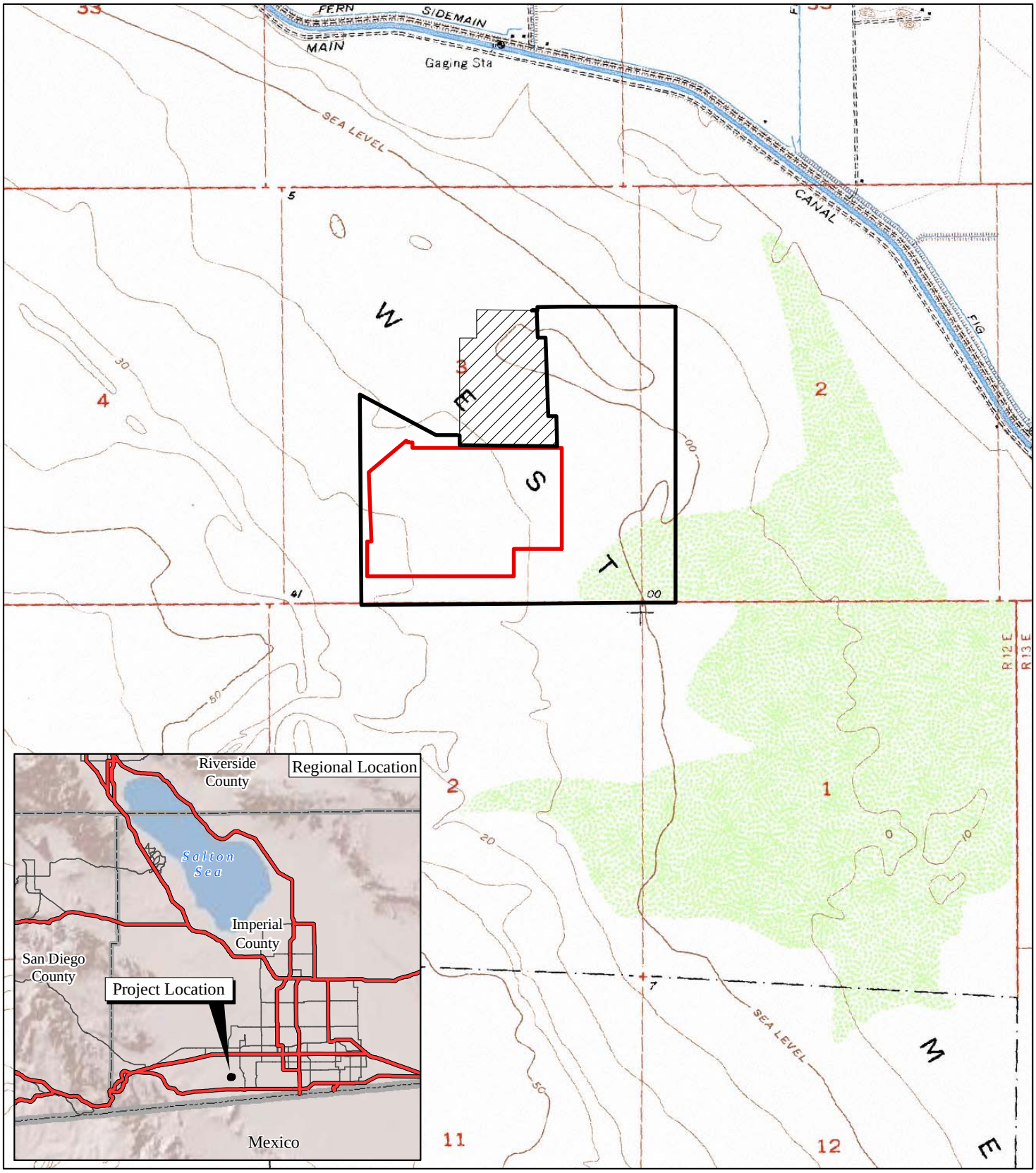
The proposed project is located on land managed by the BLM in the Yuha Desert of the lower Imperial Valley, south of I-8 and west of El Centro. The approximately 115-acre project site is within portions of Section 3 of Township 16.5 South, Range 12 East, as shown on the United States Geological Survey (USGS) *Mount Signal, California* 7.5-minute topographic quadrangle map (Figure 1).

The project location offers optimal atmospheric conditions for the type of project proposed. As a desert environment, the typical atmospheric conditions in the Yuha Desert allow for abundant sunshine on an annual basis, thereby representing a sustainable, renewable, and reliable source for solar energy production.

1.2 PROJECT DESCRIPTION

SDG&E proposes to develop, build, own, and operate a long-term PV electric generation facility in Imperial County, California, on primarily undeveloped Federal land surrounding the SDG&E Imperial Valley Substation. The project's purpose is to generate approximately 12–14 MW of low-polluting renewable energy utilizing the abundant solar resource available in Imperial County. The project will be located on approximately 100 acres south and southwest of, and adjacent to, SDG&E's Imperial Valley Substation, with an additional 15 acres to be used for temporary staging of equipment during construction.

The project will consist of ground-mounted PV systems containing PV panels, panel racking systems, system monitoring equipment, direct current collection wiring, direct-to-alternating current inverters, low-voltage alternating current wiring, step-up transformers, and interconnection wiring. Other structures and project features will include unpaved access/maintenance aisle ways, a small



LSA

FIGURE 1

LEGEND

Project Location

Original Study Area

Existing Imperial Valley Substation (not a part)

N

0 1000 2000

FEET

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Project Location Map

SOURCE: USGS 7.5' QUAD - Mount Signal ('57); CALIF.

R:\SGE0905\GIS\Fig1_Proj_Location.mxd (2/11/2011)

maintenance building, and security fencing. PV panels will be mounted on panel racking systems attached to ground-mounted posts. Rows of panels will be physically and electrically grouped together in blocks with the panels rows tilted upward and pointed to the south or southwest. The PV panel rows will be separated so they do not shade each other. Panels systems are low-profile with the highest portion of the tilted panel about 3–4 feet off the ground.

The project electrical system will consist of direct current wiring systems that emanate from panel rows and are routed underground to collection points that group rows of panels together. From the collection points, additional underground wiring will transmit direct current energy to inverters where the energy is converted to alternating current. From the inverters, the power is transmitted via underground cables to a step-up transformer. Interconnection wiring will transmit the power from the step-up transformer to the transmission bus in the Imperial Valley Substation for interconnection and transmission into the SDG&E electrical grid.

1.3 REGULATORY SETTING

1.3.1 National Environmental Policy Act (NEPA)

Since the project site is located on Federal lands, analysis pursuant to the National Environmental Policy Act (NEPA) is required. NEPA defines procedures for environmental review and impact analysis of projects that need approval by Federal agencies. NEPA requires that the potential environmental impacts of a proposed project be assessed, quantified, disclosed, minimized, and eliminated whenever possible.

Under NEPA, impacts to biological resources such as natural communities, plants, and wildlife must be analyzed. Direct, indirect, and cumulative impacts to biological resources protected under the Federal and California Endangered Species Acts (FESA and CESA, respectively), Migratory Bird Treaty Act (MBTA), Federal Clean Water Act (CWA), Bald Eagle Protection Act, and local policies and ordinances are included in the NEPA analysis.

Direct effects are impacts that occur at the same time and in the location of the actual construction work. The impacts associated with construction activities have the potential to result in the destruction, disturbance, and removal of plants, animals, watercourses, and natural communities.

Indirect effects are impacts caused by the project action but are later in time or farther in distance from the actual project construction. Indirect effects include growth inducement, changes in land use patterns, increased human intrusion, population growth, noise, and impacts to air quality, wind movements, water quality, hydrology, natural communities, wildlife movement, and regional ecosystems.

NEPA defines a cumulative impact as “the impact on the environment which results 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).

Cumulative impact assessments include the consequences triggered by the impacts affecting resources that function as part of a larger complex natural system, and effects which may be removed in time and space and may not be apparent when only considering the local and short-term direct impacts.

1.3.2 Federal Endangered Species Act

Under provisions of Section 7(a) (2) of FESA, a Federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that its actions would not jeopardize the continued existence of any Federally-listed as Threatened or Endangered species or destroy or adversely modify designated Critical Habitat. The USFWS designates as Threatened or Endangered species that are at risk of extinction and may also adopt recovery plans that identify specific areas that are essential to the conservation of a listed species. Critical Habitat areas that may require special management considerations or protections can also be designated.

1.3.3 Migratory Bird Treaty Act

The MBTA (U.S.C Title 16, Chapter 7, Subchapter II, Sections 703–712), as amended, governs take, possession, import, export, transport, selling, purchasing, or bartering of migratory birds, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). 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 harvests to be limited to levels that prevent over-utilization. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take but ensuring that take is compatible with the protection of the species.

Most native bird species are protected under the MBTA and under the California Fish and Game Code. It is unlawful to take, possess, or needlessly destroy any bird, nest, or egg of any bird species protected under the MBTA except as otherwise provided in California Fish and Game Codes and regulations. Disturbances at the active nesting territories should be avoided during the nesting season, typically February through August.

1.3.4 Federal Water Pollution Control Act (Clean Water Act), 1972

The Federal Water Pollution Control Act was first passed by Congress in 1948. The Act was later amended and became known as the Clean Water Act (CWA) (U.S.C Title 33, Chapter 26, Sub-Chapter I–VI). The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States. It gives the U.S. Environmental Protection Agency (EPA) the authority to implement pollution control programs, including setting wastewater standards for industry and water quality standards for contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, without a permit under its provisions. Section 404 of the CWA permits are issued by the USACE for dredge/fill activities within wetlands or non-wetland waters of the U.S. Certifications under Section 401 of the CWA are issued by the RWQCB or the EPA for activities requiring a Federal permit or license that may result in discharge of pollutants into waters of the U.S.

1.3.5 Jurisdictional Waters

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredged and/or fill material into "waters of the United States." The term "waters of the United States" is defined in 33 CFR Part 328 and currently includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all impoundments of waters mentioned above, (4) all tributaries to waters mentioned above, (5) the territorial seas, and (6) all wetlands adjacent to waters mentioned above.

In 2006, the Supreme Court in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (*Rapanos*) addressed CWA jurisdiction over wetlands adjacent to or abutting navigable, non-navigable, and ephemeral tributaries and jurisdiction over permanent and relatively permanent non-navigable tributaries (126. CT.2208 [2006], 33 USC § 1251 et seq.). While there was no single opinion commanding a majority of the Court, the decision provides two new analytical standards for determining whether water bodies that are not traditional navigable waters (TNWs), including wetlands adjacent to those non-TNWs, are subject to CWA jurisdiction.

The two analytic standards used for jurisdictional nexus determination are (1) RPW Standard: if the water body is relatively permanent and if the water body is a wetland that directly abuts a relatively permanent water (RPW) body, and (2) if the water body or wetland proposed to be impacted in combination with all wetlands adjacent to that water body has a significant nexus with a TNW.

For tributaries that are non-navigable and not relatively permanent, a "significant nexus" analysis must be performed to determine whether such waters and its adjacent wetlands are jurisdictional. A "significant nexus" may be found where waters, including adjacent wetlands, have more than an insubstantial effect on the chemical, physical, or biological integrity of TNWs. Application of this standard will involve a comprehensive review of the tributary flow characteristics, functions of the tributary, and functions of any adjacent wetlands. The analysis involves completion of a seven-page "Approved Jurisdiction Form." The USACE uses the standard to determine if the tributary or wetland significantly affects the hydrological, ecological, chemical, physical, and biological integrity of the downstream navigable water.

Pursuant to Division 2, Chapter 6, Sections 1600–1602 of the California Fish and Game Code, the CDFG is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFG. While seasonal ponds are within the CDFG definition of wetlands, if they are not associated with a river, stream, or lake, they are not subject to jurisdiction of CDFG under Section 1602 of the Fish and Game Code. The CDFG routinely asserts jurisdiction of irrigation ditches constructed on uplands and the addition of riparian habitat supported by a river, stream, or lake regardless of the riparian area's Federal wetland status. In addition, the lateral extent of streambed may, in some situations, extend to include broader cross-sectional widths of drainages and floodplains above and beyond the area contained within the ordinary high water mark (OHWM), depending on the hydrological regime of a stream or river.

The California RWQCB is typically responsible for the administration of Section 401 of the CWA in California, through water quality certification of any activity that may result in a discharge to

jurisdictional waters of the U.S. The RWQCB also regulates discharges to "waters of the State," including wetlands, under the Porter-Cologne Water Quality Control Act (described below).

1.3.6 Bald Eagle Protection Act

The Bald Eagle Protection Act of 1940 (U.S.C Title 16, Chapter 5A, Subchapter II, Sections 668 a-d), as subsequently amended, provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act. The 1978 amendment authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. (See also the Migratory Bird Treaty Act and the Federal Endangered Species Act.). A 1994 Memorandum (59 F.R. 22953, April 29, 1994) from President Clinton to the heads of Executive Agencies and Departments sets out the policy concerning collection and distribution of eagle feathers for Native American religious purposes.

1.3.7 California Fish and Game Code

The California Fish and Game (CFG) Code regulates the taking or possession of birds, mammals, fish, amphibians and reptiles, as well as natural resources such as wetlands and waters of the State. It includes CESA Sections 2050–2115 and Lake or Streambed Alteration Agreement regulations (Sections 1600–1616), as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife.

1.3.8 California Endangered Species Act

The CESA (CFG Code, Division 3, Chapter 1.5, Sections 2050–2115) is administered by the CDFG and prohibits the "take" of plant and animal species identified as either Threatened or Endangered in the State of California by the Fish and Game Commission. "Take" is defined as hunt, pursue, catch, capture, or kill. Sections 2091 and 2081 of the CESA allow CDFG to authorize exceptions to the prohibition of "take" of the State-listed Threatened or Endangered plant or animal species for purposes such as public and private development. The CDFG requires formal consultation to ensure that a proposed project's actions would not jeopardize the continued existence of any listed species or destroy or adversely affect listed species' habitats.

1.3.9 California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (CFG Code Sections 1900–1913) directs the CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as Endangered or Rare and to protect Endangered and Rare plants from take.

1.3.10 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7, Sections 13000–14958) provides for statewide coordination of water quality regulations. The Act established the California State Water Resources Control Board as the statewide authority and nine separate RWQCBs to oversee water quality on a day-to-day basis at the regional/local level.

1.3.11 California Desert Conservation Area Plan

The study area is within the BLM's California Desert Conservation Area (CDCA) Plan area. The CDCA Plan covers BLM-managed public lands throughout the California Desert. In 1981, the BLM designated 40,622 acres of the CDCA, known as the Yuha Basin, as an Area of Critical Environmental Concern (ACEC) because of the presence of archaeological sites and FTHL habitat. Management guidance for the proposed project site is provided through implementation of the Yuha Basin ACEC Management Plan (BLM 1981), which was prepared to provide additional protection for unique biological and cultural resources within portions of the Yuha Basin. In 1985, the Yuha Basin ACEC was expanded to 63,000 acres and included with adjacent ACECs and Natural Areas in the Yuha Desert Management Plan (BLM 1985). The project site is within an area designated as a Class L (limited) multiple use area. In a limited multiple use area, only low-intensity controlled activities are allowed.

In addition, the project site is located within the approximately 475,000-acre area covered by the WECO OHV Routes of Travel Designation Plan, an October 2002 amendment to the CDCA Plan. This plan covers approximately 2,320 miles of off-road vehicle routes in parts of Imperial and San Diego Counties, and designates routes of travel as open, limited, or closed on land managed by the BLM. The intent of this plan is to support recreational and general access uses of BLM-managed lands while reducing impacts to special status species such as FTHL as well as cultural resources.

1.3.12 Special Status Species and Natural Communities

Special status natural communities include "rare or unusual plant communities" as defined in *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM plant survey protocol; BLM 2009). Some special status natural communities are legally protected as wetlands or riparian areas subject to USACE or CDFG jurisdiction, while many others have no legal status.

Special status plant species, as defined in the BLM plant survey protocol, include plant taxa that are Federally listed as Threatened and Endangered, proposed for Federal listing, Candidates for Federal listing, State listed as Rare, Threatened, or Endangered, or BLM Sensitive species. All plant species that have a California Rare Plant Rank (CRPR) of 1B (CDFG 2011) are BLM Sensitive species, along with others that have been designated by the California State Director.

Special status animal species include animal taxa that are Federally or State listed as Threatened or Endangered, Proposed or Candidates for Federal or State listing, BLM Sensitive species, California Species of Special Concern, or California Fully Protected species.

1.3.13 Wildlife Movement Corridors and Nursery Sites

The California Environmental Quality Act (CEQA; PRC § 2100 et seq.) and the State CEQA Guidelines (CCR, §15000 et seq.) require consideration of impacts to wildlife movement corridors and nursery sites for projects that require discretionary approval by a State agency. No discretionary approvals by State agencies are anticipated to be required for the proposed project.

1.3.14 Local Policies and Ordinances Protecting Biological Resources

County and City general plans and development ordinances may include regulations or policies governing biological resources and may apply to projects that require discretionary approval by a local agency. For example, policies may include tree preservation, locally designated species survey areas, local species of interest, and significant ecological areas. No discretionary approvals by local agencies are anticipated to be required for the proposed project.

1.4 PROJECT SETTING

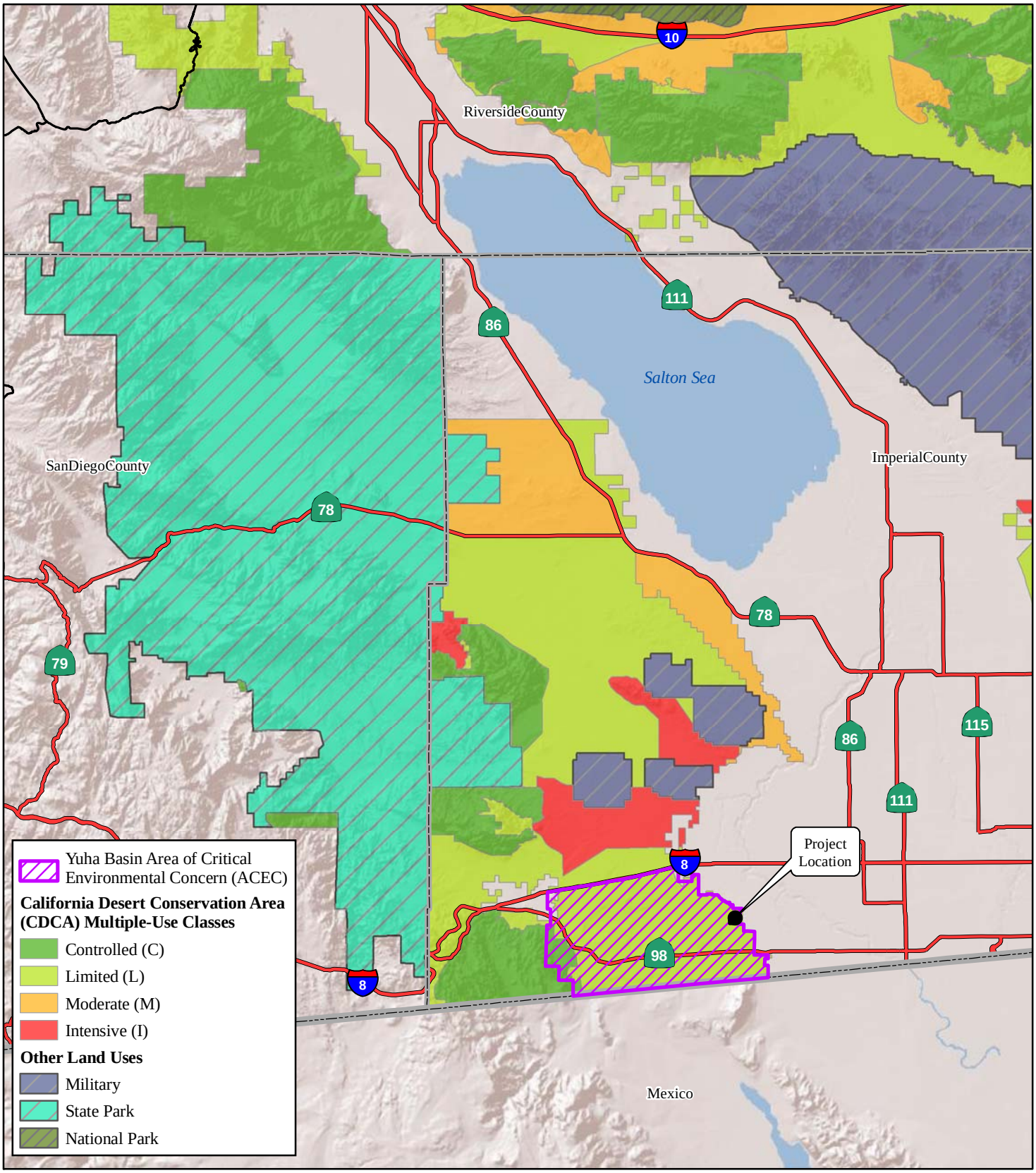
The proposed project site is located within the Sonoran Desert region of the Desert Province of California, which is separated from the Mojave Desert to the north by an unclear physiographic line, characterized by lower, flatter, warmer valleys and small hills.

The proposed project would be constructed along the eastern edge of the Yuha Desert (subarea of the Sonoran Desert Region) within previously undeveloped Federal land at the southern edge of the SDG&E Imperial Valley Substation. SDG&E transmission lines consisting of lattice tower structures extend away from the substation in various directions. An existing network of unpaved access roads, primarily associated with the operation and maintenance of SDG&E's transmission lines and with U.S. Border Patrol use, occurs throughout the project area.

The project site is located near the southern boundary of the California Desert Conservation Area (CDCA) and the southeastern portion of the Western Colorado (WECO) Off-Highway Vehicle (OHV) Routes of Travel Designation Plan area. The project site is within the Yuha Basin Area of Critical Environmental Concern (ACEC), which is managed by BLM to protect sensitive cultural and wildlife resources while allowing for compatible public uses such as camping (Figure 2). This area consists primarily of undeveloped open space. The Yuha Basin ACEC includes the Yuha Desert Management Area, which was designated by BLM for management of flat-tailed horned lizard (*Phrynosoma mcallii*; FTHL) habitat, as outlined in the *Flat-Tailed Horned Lizard Rangewide Management Strategy* (FTHLRMS) (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003).

1.4.1 Land Use and Vegetation

The project site is primarily surrounded by undeveloped, moderately disturbed desert scrubland, with the exception of SDG&E's Imperial Valley Substation located immediately to the north and associated power lines and access roads scattered throughout the area. Irrigation canals and agricultural fields are located farther to the east and north. Figures 3A and 3B show representative site photographs. Vegetation on the project site consists of Sonoran creosote bush scrub (Holland 1986)



LSA

LEGEND

Project Location

County Boundary

N

0 5 10

Miles

SOURCE: Bing Maps (2008); BLM (2010)

I:\SGE0905\GIS\CDCA_Plan.mxd (3/3/2011)

FIGURE 2

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

California Desert Conservation Area Plan

PHOTOGRAPH 1: *View of the project site, facing southwest.*

PHOTOGRAPH 2: *View of the project site, facing west, showing the Imperial Valley Substation.*

PHOTOGRAPH 3: *View of the project site, facing south.*

PHOTOGRAPH 4: *View of the project site, facing north, towards the Imperial Valley Substation.*

LSA

FIGURE 3A

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Site Photographs

I:\SGE0905\G\BTR\Site_Photos-a.cdr (2/23/11)

PHOTOGRAPH 5: *View of the* Psorothamnus spinosus *(smoketree) Alliance associated with the Pinto Wash, facing southeast.*

PHOTOGRAPH 6: *View of Pinto Wash, located over 500 feet outside of the project limits, facing south.*

PHOTOGRAPH 7: *Dark brown flowers of* Pilostyles thurberi, *a parasitic plant, on stems of* Psorothamnus emoryi *located just outside the northeast corner of the project limits.*

PHOTOGRAPH 8: Phrynosoma mcallii *in the Pinto Wash.*

LSA

FIGURE 3B

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California
Site Photographs

I:\SGE0905\G\BTR\Site_Photos-b.cdr (2/23/11)

(*Larrea tridentata – Ambrosia dumosa* Alliance; CDFG 2007), the most common natural community in the region. The vegetation is somewhat disturbed as a result of various human-related activities. Pinto Wash is located south and southeast of the project site, with the Westside Main Canal and irrigated agricultural lands to the east and north.

1.4.2 Topography and Soils

The project site consists of relatively flat topography in a primarily undeveloped portion of the Yuha Desert. Elevations within the project site range from approximately 30 feet amsl in the northwestern corner to approximately 10 feet amsl in the southeastern corner. No features (topographical or hydrological) potentially subject to regulatory jurisdiction were identified on the project site. Pinto Wash is located to the southeast approximately 540 feet outside of the proposed project limits.

The mapped soils on the project site are described as Rositas and Rositas-Superstition series based on the *Soil Survey for Imperial Valley, California, Imperial Valley Area* (Zimmerman 1981). Rositas series soils are described as somewhat excessively drained, very deep sand, fine sand, and silt loam formed in alluvial and eolian deposits. Rositas-Superstition series soils are described as somewhat excessively drained, very deep, loamy fine sand or fine sand formed in eolian or alluvial material. Rositas fine sand, 0 to 2 percent slopes (132), is the predominant mapped soil type on site; Rositas sand, 0 to 2 percent slopes (130), is mapped on the western and southeastern edges of the project site; and Rositas-Superstition loamy fine sand (138), is also mapped on the western edge. These soils are nearly level on floodplains, basins, and terraces, with permeability, slow surface runoff, and slight hazard of erosion. Soils observed on the site are sands and loamy sands.

1.4.3 Climate

The hottest of North American deserts, the Sonoran Desert has a climate characterized by hot summers and warm winters, with most areas rarely experiencing frost. Much of the area has a bi-seasonal rainfall pattern, although, even during the rainy seasons, most days are sunny. Winter frontal storms bring widespread, gentle rain to the northwestern areas, and the summer monsoons bring surges of wet tropical air and frequent but localized violent thunderstorms. Seasonal temperatures range from an average of 52° Fahrenheit (F) in the winter, to 86° F in the summer, with extreme lows nears freezing and extreme highs well over 100° F. Yearly precipitation in the Sonoran Desert averages from 3 to 16 inches of rain per year, with the eastern portion receiving more rain than the western portion. Based on the vegetative growth, seasonal precipitation appears to have been at or above average at the project site during the surveys.

2.0 METHODOLOGY

2.1 LITERATURE REVIEW

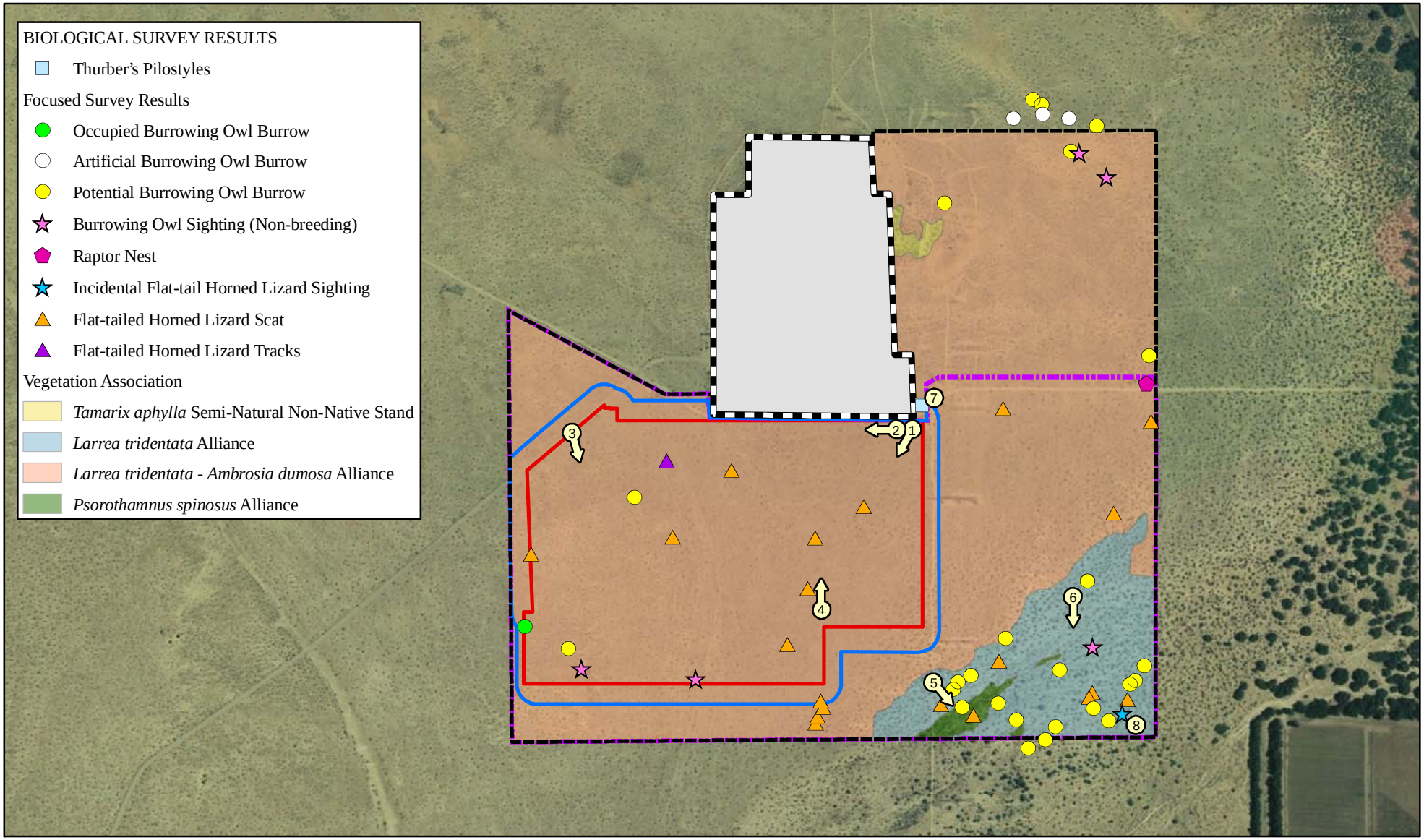
LSA conducted a literature review and database records search to identify the existence or potential occurrence of special status species and natural communities on or in the vicinity of the project site, to assist in evaluating the suitability of habitat on the project site for those species that are likely to occur, and to determine current nomenclature and legal and rarity status of each species. Literature review and database searches included the following:

- American Ornithologists' Union. 1998. *The A.O.U. Checklist of North American Birds*, Seventh Edition. American Ornithologists' Union, Washington D.C.
- Bureau of Land Management. 1980. *California Desert Conservation Area Plan 1980 as Amended*. (All plants in Table 3A of the BLM's CDCA Plan were considered as potential survey target species.)
- Calflora. 2009. *Calflora: Information on California Plants for Education, Research and Conservation*. Berkeley. http://www.calflora.org/ (Accessed: November, 2009).
- California Department of Fish and Game. 2007. *List of California Vegetation Alliances, October 22, 2007*. The Resources Agency, Sacramento.
- California Department of Fish and Game. 2009. *Rarefind 3* (Natural Diversity Data Base, version 3.1.0, dated November 4, 2009). The Resources Agency, Sacramento. (Plant species search covered Imperial County; animal species search covered USGS *Yuha Basin*, *Plaster City*, *Seely*, *El Centro*, *Heber*, and *Mount Signal*, *California* 7.5-minute topographic quadrangles.)
- California Department of Fish and Game. 2009. *Special Vascular Plants, Bryophytes, and Lichens List, April 2009*. The Resources Agency, Sacramento.
- California Department of Fish and Game. 2011. *Special Vascular Plants, Bryophytes, and Lichens List, January 2011*. The Resources Agency, Sacramento.
- California Department of Fish and Game. 2011. *Special Animals (898 taxa), January 2011*. The Resources Agency, Sacramento.
- California Native Plant Society. 2009. *Inventory of Rare and Endangered Plants* (online edition, v7). California Native Plant Society, Sacramento. http://www.rareplants.cnps.org/ (Accessed: November, 2009). (Plant species search covered USGS *Yuha Basin*, *Plaster City*, *Seely*, *El Centro*, *Heber*, and *Mount Signal*, *California* 7.5-minute topographic quadrangles.)
- Consortium of California Herbaria. 2009. Herbarium record data provided by the participants of the Consortium of California Herbaria. http://ucjeps.berkeley.edu/consortium/.
- Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. *Flat-Tailed Horned Lizard Rangewide Management Strategy, 2003 Revision*.
- Grinnell, J. 1933. Review of the Recent Mammal Fauna of California. *Univ. California Publ. Zool.* 40:71–234.

- Hall, E.R. 1981. *The Mammals of North America, Volumes I and II*. John Wiley and Sons: New York.
- Hickman, J.C., ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley.
- Patten, M.A., G. McCaskie, and P. Unitt. 2003. *Birds of the Salton Sea: Status, Biogeography, and Ecology*. University of California Press, Berkeley.
- Reid, FA, 2006. *A Field Guide to Mammals of North America. 4th Edition*. Houghton Mifflin Co., New York, NY.
- Shuford, W.D., and T. Gardali, editors. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. *Studies of Western Birds 1*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Sibley, D.A. 2003. *The Sibley Field Guide to Birds of Western North America*. Alfred A. Knopf, New York.
- The Weather Channel. 2010. Monthly weather for El Centro. *Weather.com*. http://www.weather.com/outlook/health/fitness/wxclimatology/monthly/graph/USCA0332 (Accessed: December 2010).
- Unitt, P. 2004. *San Diego County Bird Atlas.* San Diego Natural History Museum, San Diego.
- U.S. Fish and Wildlife Service. 2010. Species List for the Ocotillo Sol Solar Plant, Yuha Desert Management Area, Imperial County, California. Reference No: FWS-IMP-11B0053-11SL0088, January 6, 2011.
- Wildlife Research Institute, Inc (WRI). 2010. *Golden Eagle Surveys Surrounding Sunrise Powerlink Project Area in San Diego and Imperial Counties, California*. Prepared for San Diego Gas & Electric.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (eds.), 1990. *California's Wildlife. Vol. III. Mammals.* California Department of Fish and Game, Sacramento.
- Zimmerman, R.P. 1981. *Soil Survey for Imperial County, California, Imperial Valley Area.* U.S. Department of Agriculture, Washington D.C.

2.2 SURVEY PROTOCOLS

LSA biologists conducted on-site assessments to identify and document botanical and wildlife species, map jurisdictional areas and natural communities, and evaluate suitability of habitat for various special status species. Focused surveys were conducted for various special status species. The locations of special status plant and wildlife species previously documented in the vicinity of the project site were identified prior to initiating the surveys. Special status plant or animal encountered or detected by sign during the surveys were noted, and photographed if possible. Nest locations of special status species and raptors were mapped, as were locations of special status plants, FTHL, and potential burrowing owl (*Athene cunicularia*) burrows (Figure 4). Locations of foraging birds were generally not mapped because bird foraging habitat within the project site was more or less uniform.



LSA

FIGURE 4

LEGEND

Photograph Locations

Existing SDG&E Imperial Valley Substation

Project Site

Original (Spring) Survey Area

Reduced (Fall) Survey Area

Flat-Tailed Horned Lizard Survey Area

N

0 500 1000

FEET

SOURCE: Bing Maps (2008)

I:\SGE0905\GIS\Bio_Resources.mxd (3/3/2011)

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Biological Resources with Photograph Locations

From October 2009 through the spring of 2010, the study area consisted of approximately 350 acres (spring survey area; "original study area" in Figure 4) east, south, and west of the existing substation. Following project refinement with the intent of avoidance and minimization of impacts to biological and cultural resources, the survey area was reduced to approximately 142 acres (herein referred to as the fall survey area) primarily located south of the substation. The fall survey area consists of the project site surrounded by a 150-foot buffer in undeveloped areas. Field maps of the areas to be surveyed were prepared using a recent aerial photograph base. Biological surveys conducted, survey dates, and names of surveyors are listed in Table A. Cumulative lists of all vascular plant and wildlife species observed during the surveys are included in Appendices B and C, respectively. Résumés of all surveyors are on file with the BLM and SDG&E.

Table A: Survey Schedule and Personnel

Date	Survey Type	Surveyors*
October 26 and 27, 2009 November 30, 2009	General Biological Resources Survey and Vegetation Mapping	IQ, JH, MB, SB, SS, DR, JM
October 26, 2009	Jurisdictional Delineation	IQ, JH, MB, SB
March 22 and 23, April 29 and 30, and November 4, 2010	Focused Rare Plant Survey	DR, JR, SB, MW, SS, JM
September 22, 2009	Flat-Tailed Horned Lizard Habitat Suitability Assessment	PV
September 23, 2009	Focused Flat-Tailed Horned Lizard Survey	DW, JR, KK, TB
October 26 and 27, 2009	Focused Burrowing Owl Survey (Burrow Survey)	IQ, MB
May 10, 11, 13, and 14, 2010	Focused Burrowing Owl Survey	IQ, MB
November 11, 18, and 30 and December 7, 2010	Focused Winter Avian Point-Count Survey	DR, MB
March 2, 11, 18, and 25, 2011	Focused Spring Avian Point-Count Survey	DR, MB

* Surveyors: DR = Dan Rosie; DW = Denise Woodard; IQ = Ingri Quon; JH = Jim Harrison; JR = Jodi Ross; KK = Karen Kirtland; MB = Mark J. Billings; PV = Philippe Vergne; SB = Sarah Barrera; SS = Stanley Spencer

2.2.1 General Biological Survey and Vegetation Mapping

Reconnaissance-level field surveys of the spring survey area were conducted on October 26 and 27, and November 30, 2009, to evaluate habitat for special status species and to map natural communities. Natural communities were classified according to the *CDFG Biogeographic Data Branch Vegetation Classification and Mapping Program, List of California Vegetation Alliances* (CDFG 2007), and mapped using global positioning system (GPS) units and geographic information systems (GIS) software. Representative areas of each habitat type were surveyed on foot. Surveyors noted general site conditions, vegetation, potential USACE and CDFG jurisdictional areas, and suitability of habitat for various special status species. All plant and animal species observed or otherwise detected during this field survey were noted.

2.2.2 Focused Rare Plant Survey

As indicated in the BLM plant survey protocol (BLM 2009), the BLM is party to a Memorandum of Understanding with the CDFG to collect information for inclusion in the California Natural Diversity Database (CNDDB). Therefore, in addition to targeting special status plant species, focused plant surveys must also target all plant species on the CDFG *Special Vascular Plants, Bryophytes, and Lichens List* (special plants list; CDFG 2009a) that could occur on the project site. The special plants list includes all plant taxa monitored by CDFG through the CNDDB, regardless of their legal or protection status. At the direction of Andrew Trouette of the BLM El Centro Field Office, all plants on Table 3A of the BLM's *California Desert Conservation Area Plan 1980 as Amended* (BLM 1980) were also considered as potential survey target species. To determine which of these species could occur in the project vicinity, the CNDDB was searched for all plant records in Imperial County (CDFG 2009b). Calflora (Calflora 2009) and the California Native Plant Society's *Inventory of Rare and Endangered Plants* (CNPS 2009) were also consulted for species occurrence records from the project vicinity. Based on analysis of species ranges and habitat requirements, it was determined that the project site may provide potentially suitable habitat for the following species, which became the target species of the focused plant survey:[2]

- Chaparral sand-verbena (*Abronia villosa* var. *aurita*);
- Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*);
- Emory's crucifixion-thorn (*Castela emoryi*);
- Abrams' spurge (*Chamaesyce abramsiana*);
- Baja California ipomopsis (*Ipomopsis effusa*);
- Brown turbans (*Malperia tenuis*);
- Hairy stickleaf (*Mentzelia hirsutissima*);
- Slender woolly-heads (*Nemacaulis denudata* var. *gracilis*); and
- Thurber's pilostyles (*Pilostyles thurberi*).

Information regarding habitat, distribution, blooming period, and rarity status of each species is provided in Appendix A.

The focused rare plant surveys were conducted in accordance with BLM's plant survey protocol by biologists qualified to conduct botanical surveys. All plant taxa observed were documented and identified at least to the taxonomic level required to determine rarity status. The survey consisted of three survey periods in 2010. The survey area for the first two survey periods covered the approximately 350-acre spring survey area and the third survey period was limited to the approximately 142-acre fall survey area. Surveys consisted of walking along transects that provided for 100 percent visual coverage and detection of the smallest target species. The distances between transects averaged 15 meters (50 feet) during the first and third survey periods and 20 meters (65 feet) during the second survey period, and provided for 100 percent visual coverage of the site.

[2] Table B of the Focused Plant Survey Report (Appendix D) contains a list of evaluated plant taxa that are not expected to occur within the project area because of unsuitable habitat conditions or because the site is outside the range of the taxon; reasons for excluding each taxon are provided.

The first two survey periods (two days each) were conducted near the peak of the flowering season at the site. Survey timing was determined through consultation with Andrew Trouette of the BLM El Centro Field Office, who provided information related to on-the-ground conditions and recommendations related to timing. At the direction of the BLM, for species dependent on summer or early fall rain, a third survey period was conducted in November 2010, following substantial rain in early October 2010. These survey periods overlapped the expected blooming periods of all target species. The focused survey report is attached as Appendix D.

2.2.3 Focused Flat-Tailed Horned Lizard Survey

Protocol surveys for FTHL were conducted on September 23, 2009, by Natural Resources Assessment, Inc. (NRA) and LSA. Prior to the protocol survey (on September 22, 2009), NRA conducted a Habitat Suitability Assessment for FTHL. The surveys were focused on FTHL but included observations of general biological resources. Field surveys followed the revised FTHL survey (Appendix E) discussed with the BLM[3]. Each survey plot was 4 hectares in size and was surveyed on foot for two hours, with surveyors searching for FTHL and FTHL sign (scat, tracks, and animal remains). A total of ten plots were surveyed. The FTHL survey did not include the portion of the spring survey area that is east of the existing substation, but did encompass the proposed project site (Figure 2 in Appendix E). During the surveys, notes were made on the plant and animal species observed, the surface characteristics and topography of the project area, and the suitability of the habitat for FTHL. The focused FTHL survey report is attached as Appendix E.

2.2.4 Focused Burrowing Owl Survey

In October 2009 and May 2010, LSA conducted a total of six field visits to the 350-acre spring survey area. Protocol-level burrowing owl surveys were conducted in accordance with the California Burrowing Owl Consortium's (BOC) *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993), which included a preliminary burrow survey in 2009 followed by subsequent focused breeding season surveys in 2010. The site was surveyed for breeding owls under moderate to favorable weather conditions. A general burrow survey of the spring survey area was conducted on October 26 and 27, 2009, and included the entire survey area and areas within 150 meters (approximately 500 feet), with the exception of the existing Imperial Valley Substation. The burrow survey was conducted by two biologists walking parallel transects, allowing for 100 percent visual coverage of the ground. In October 2009, and again during visits on May 10, 11, 13, and 14, 2010, the biologists mapped the locations of all potential burrowing owl burrows, and all burrows that were not collapsed, ultimately narrowed in the back, or blocked by cobwebs or debris at the entrance were investigated during each of the four breeding season surveys. The letter report summary is attached as Appendix F. Because wintering burrowing owls were observed during the October 2009 burrow survey, and incidentally during other site visits, wintering owls were determined to be present and no additional winter protocol surveys were conducted.

[3] The project-specific protocol was developed through consultation with Andrew Trouette and Daniel Steward of the BLM, as documented in personal communication with LSA biologist Denise Woodard on September 11, 16, and 22, 2009.

2.2.5 Focused Avian Point-Count Survey

LSA conducted focused avian point-count surveys in accordance with the BLM Solar Facility Point Count Protocol (March 2009). Winter surveys were conducted on November 11, 18, and 30 and December 7, 2010. Spring surveys were conducted on March 2, 11, 18, and 25, 2011. The area under consideration is the project impact area plus a 150-foot buffer (approximately 142 acres). Point-count surveys were conducted between sunrise and up to four hours after sunrise at eight separate locations 250 meters apart for ten minutes each. The numbers of individuals of all bird species observed or otherwise detected (songs/calls, flight behavior, habit, etc.) during the survey were documented; however, only those observed within 100 meters of each survey point will be included in the point-count survey results. The winter and spring focused survey reports are attached as Appendices G and H.

2.2.6 Jurisdictional Delineation and Mapping

On October 26, 2009, LSA conducted a field survey of areas considered potentially jurisdictional by USACE pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA, or the Porter Cologne Act and the CDFG pursuant to Section 1600 et seq. of the California Fish and Game Code within the approximately 350-acre project study area. Areas of potential jurisdiction were evaluated according to current USACE and CDFG criteria. Measurements of jurisdictional areas were determined by direct measurements taken in the field and where necessary by use of a handheld GPS unit. USACE wetland delineation procedures, including excavation of sample pits and wetland data sheets, were not completed because no Federally-regulated waters of the U.S. were identified within the study area.

3.0 SURVEY RESULTS

3.1 GENERAL BIOLOGICAL SURVEY AND VEGETATION MAPPING

3.1.1 Natural Communities and Flora

The only natural community (CDFG 2007) on the 115-acre project site is the *Larrea tridentata – Ambrosia dumosa* Alliance (previously referenced Figures 3 and 4A). This community is dominated by creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), Panamint cryptantha (*Cryptantha angustifolia*), desert Indianwheat (*Plantago ovata*), and common Mediterranean grass (*Schismus barbatus*).

The predominant natural community in Pinto Wash is the *Larrea tridentata* Alliance, which is dominated by creosote bush, Panamint cryptantha, and common Mediterranean grass.

The *Psorothamnus spinosus* Alliance occupies a smaller portion of Pinto Wash, and is dominated by smoketree (*Psorothamnus spinosus*), cryptantha (*Cryptantha* sp.), common Mediterranean grass, and desert sand verbena (*Abronia villosa* var. *villosa*).

A *Tamarix aphylla* Semi-Natural Non-Native Stand occurs in the northern portion of the 350-acre spring survey area just east of the existing substation. This vegetation type is dominated by athel (*Tamarix aphylla*), cryptantha, creosote bush, and common Mediterranean grass.

The *Psorothamnus spinosus* Alliance in Pinto Wash (Figures 3 and 4B) is a “rare or unusual plant community” as defined in the BLM plant survey protocol. This natural community is located within the spring survey area, but is not located within the fall survey area or within the 115-acre project limits.

Creosote bush, as well as a few other native perennial shrubs such as burrobush, is common throughout most of the project site, but sparse in areas of greater disturbance. The shrub layer, which contains most of the plant biomass and vegetative cover suitable for wildlife use, is dominated by native shrubs, principally creosote bush. The herbaceous layer is generally sparse and dominated by annual species; primarily desert Indianwheat, Panamint cryptantha, and common Mediterranean grass. A total of 58 native and 7 non-native plant species were observed during the surveys. A list of all plant species identified within the survey area is attached as Appendix B.

3.1.2 Wildlife

Disturbed *Larrea tridentata – Ambrosia dumosa* Alliance, the primary natural community within the project site, provides suitable habitat for a variety of native wildlife species. Reptile species observed on the site are typical of open desert habitat and include side-blotched lizard (*Uta stansburiana*), sidewinder (*Crotalus cerastes*), desert iguana (*Dipsosaurus dorsalis*), western whiptail (*Cnemidophorus tigris*), and zebra-tailed lizard (*Callisaurus draconoides*). Bird species frequently observed on the site include turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*),

rock pigeon (*Columba livia*), greater roadrunner (*Geococcyx californianus*), black-tailed gnatcatcher (*Polioptila melanura*), and European starling (*Sturnus vulgaris*). The site also provides habitat for several common mammals, including black-tailed jackrabbit (*Lepus californicus*), kangaroo rat (*Dipodomys* sp.), desert kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), and round-tailed ground squirrel (*Spermophilus tereticaudus*). Other small and medium-sized mammals may also occur on the site. Eleven reptile species, 66 bird species (including three non-native species), and five mammal species were observed or otherwise detected during LSA's field surveys. A complete list of all animal species identified within the survey area is attached as Appendix C.

3.2 FOCUSED SPECIES SURVEY RESULTS

Focused surveys for rare plants, FTHL, burrowing owl, and other bird species were conducted in accordance with the most recent BLM-accepted survey protocols. The results of these surveys are summarized below. Focused survey reports, with detailed results, are attached as Appendices D through H.

3.2.1 Rare Plant Survey

One target species, Thurber's pilostyles (*Pilostyles thurberi*), was found within the 350-acre survey area, but outside of the 142-acre fall survey area (Figures 3 and 4B) and project site. Thurber's pilostyles is not a special status species (as defined in the BLM plant survey protocol) and is not considered sensitive, but is monitored by the CDFG as a CRPR 4 species. The other target species were not detected, and are determined to be absent at this time as summarized in the table in Appendix A. The focused plant survey report is attached as Appendix D.

No special status plant species were observed within the survey area. Based on the level of disturbance within the survey area and the results of the focused rare plant surveys, no special status plant species are expected to occur within the survey area, and none are expected to occur within the project impact area.

3.2.2 Flat-Tailed Horned Lizard Survey

FTHL is a California Species of Special Concern and a BLM Sensitive species. It has been recorded in high numbers in Sonoran desert scrub habitat. It also inhabits mixed desert scrub and saltbush scrub communities. Once thought to be restricted to windblown sand, it has been found in soil covers ranging from sandy flats or areas with a veneer of fine, windblown sand, to areas with little or no windblown sand. California populations occupy sandy flats and hills, badlands, salt flats and gravelly soils.

The proposed project lies within both the FTHL and desert horned lizard (*Phrynosoma platyrhinos*) ranges. Loose sands suitable to support both species are present within the 350-acre study area. Horned lizard scat was found within all ten study plots, and tracks were observed on Plot 2; however, no individuals of FTHL were observed during the focused surveys (Appendix E). Incidentally, during the focused rare plant surveys in late March 2010, a juvenile FTHL was observed in Pinto Wash (Figures 3B and 4) and remnants of a FTHL carcass were observed near the center of the survey area at the mouth of a burrow with burrowing owl sign.

Because FTHL and the desert horned lizard produce similar scat and tracks, and because the project site is located within the known range of both species, the observed sign could belong to either of the two species, or both. The entire project site, however, is considered to be occupied with FTHL in accordance the protocol provided in the FTHLRMS for determination of FTHL presence. Specifically, the project site is within the historical range of the FTHL, the project site is within two miles of a recorded FTHL population, habitat on site is contiguous throughout the project site and the surrounding area extending into areas known to support FTHL, no major habitat alteration or conversion has taken place in the project area since the species was detected, and there are no barriers between the project site and areas of known occupation by the FTHL. The focused FTHL survey report is attached as Appendix E.

3.2.3 Burrowing Owl Survey

The burrowing owl is California Species of Special Concern and a BLM Sensitive species. It frequents a wide range of open habitats, especially those with healthy populations of ground squirrels.

During the burrow survey in October 2009, many potentially suitable burrows were mapped and at least three adult burrowing owls were found occupying a total of four burrows within the 350-acre spring survey area. Two of the occupied burrows were within the project limits (Figure 4). In addition, during the focused plant survey in March 2010, a burrowing owl was incidentally observed in flight in the southeast portion of the spring survey area (Figure 4).

Burrowing owls were not found during the four focused breeding season field visits in May 2010. The four burrows that were occupied at the time of the burrow survey were found to be inactive, and, although over 20 suitable burrows were investigated for sign, no additional active burrows were found (Figure 4). Most suitably sized burrows in the survey area are clear of debris and cobwebs and are in marginally suitable foraging habitat. Most were being used by reptiles (i.e., lizards and snakes), rodents, or kit fox.

The results of the burrow survey and focused breeding season survey indicate that breeding owls were not present on site at the time of the survey, but that the site was utilized by wintering individuals. However, during the focused plant survey in late March 2010, a burrowing owl individual was observed near a burrow with owl sign near the center of the survey area. The focused burrowing owl survey report is attached as Appendix F.

3.2.4 Avian Point-Count Surveys

Four winter point-count surveys were conducted in November and December 2010, and four spring point-count surveys were conducted in March 2011. Twenty-one species of birds were observed, including loggerhead shrike (*Lanius ludovicianus*), a special status species. Swainson's hawk (*Buteo swainsoni*), a California Threatened species, was observed as migrating individuals flying over the site. The winter and spring focused survey reports are attached as Appendices G and H.

3.2.5 Golden Eagle Nest Survey

The golden eagle (*Aquila chrysaetos*) is a California Fully Protected Species. It is on the list of BLM Sensitive species for California, but is not a BLM Sensitive species for the BLM El Centro Field Office (BLM 2011). Golden eagles usually require cliffs or large trees for nesting, but forage over a wide range of open habitats. Golden eagles generally forage within 3.7 miles of their nests (Pagel et al. 2010), but in desert areas with poor habitat, their foraging territories typically encompass 100 to 120 square miles (Wildlife Research Institute [WRI] 2010), which corresponds to a foraging range of 5.6 to 6.2 miles from the nest.

From January to May 2010, on behalf of SDG&E, WRI conducted Phase 1 and Phase 2 surveys for golden eagles within 4 miles of the Final Environmentally Superior Southern Route of the San Diego Gas & Electric Sunrise Powerlink Project alignment (WRI 2010). The Sunrise Powerlink is an approximately 118-mile 230kV/500kV transmission line that is proposed for construction from SDG&E's Imperial Valley Substation (which is adjacent to the project site) to SDG&E's Sycamore Canyon Substation on Marine Corps Air Station Miramar in San Diego County.

These surveys complied with USFWS recommendations, and were conducted both by ground and helicopter to confirm activity, occupancy, breeding status of the pairs, and fledging success of the golden eagles. Nineteen territories between Sycamore Canyon Substation and Imperial Valley Substation were checked and nine were confirmed to be active during 2010; two additional territories were considered possibly active based on nest site evidence, and eight appeared to be inactive. Five of the active territories were seen with incubating females on the nests during the surveys. In total, 24 golden eagle adults and nestlings were observed.

The golden eagle nest nearest to the Ocotillo Sol project site is located approximately 20 miles to the west and was inactive at the time of the surveys, with the nearest known active nest located approximately 40 miles to the west. This distance is well beyond the expected foraging range of even desert-nesting golden eagles. This species was not observed during any of the site visits, and is unlikely to nest near the project site due to absence of typical nesting habitat. Thus, the project is not likely to have an adverse effect on nesting or foraging golden eagles.

3.3 OTHER SPECIAL STATUS SPECIES

Based on the level of disturbance within the survey area and the results of the focused rare plant surveys, no special status plant species are expected to occur within the survey area, and none is expected to occur within the project impact area.

The USFWS expressed interest in potential project impacts to three wildlife species (USFWS 2011): FTHL, mountain plover (*Charadrius montanus*, a Federally-proposed Threatened species), and burrowing owl. FTHL and burrowing owl were detected within the project site; mountain plover is not expected to forage or nest on the site due to the lack of suitable habitat.

Seven special status animal species have a moderate or greater probability of occurring within the project 350-acre study area (Appendix A):

- FTHL;
- Burrowing owl;
- Colorado Desert fringe-toed lizard (*Uma notata*);
- Loggerhead shrike;
- Palm Springs pocket mouse (*Perognathus longimembris bangsi*);
- Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*); and
- Western mastiff bat (*Eumops perotis californicus*).

FTHL and burrowing owl were discussed previously. The other five are discussed individually below and in Appendix A.

Colorado Desert fringe-toed lizard is a California Species of Special Concern and a BLM Sensitive species. It is found in sandy dunes, flats, and washes in some of the most arid parts of the desert; the same areas favored by FTHL. However, the fringe-toed lizard's habitat requirements appear to be more restrictive than those of the FTHL. This species was not observed on the site during any of the surveys, although habitat appears to be suitable.

Loggerhead shrike is a California Species of Special Concern. It occupies many open habitats, but has undergone population declines across much of its range. California desert populations appear to have been among the least affected to date. Loggerhead shrikes were observed on the project site during site visits, including the winter avian point-count survey (Appendix G). The species was most numerous during winter surveys, but might also nest on the site.

Palm Springs pocket mouse is a California Species of Special Concern and a BLM Sensitive species. It is found in desert scrub on fine sandy soils. Habitat on the project site appears to be suitable for the species, so there is a moderate potential for it to occur. However, no small mammal trapping was conducted on site.

Pallid San Diego pocket mouse is a California Species of Special Concern. It is found in a variety of arid scrub habitats. Habitat on the project site appears to be suitable for the species, so there is a moderate potential for it to occur. However, no small mammal trapping was conducted on site.

Western mastiff bat is a California Species of Special Concern and a BLM Sensitive species. It occurs in many open, semi-arid to arid habitats, but roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels. Western mastiff bats range widely while foraging, and are likely to forage high over the project site. Roosting habitat is not present on site.

Four additional special status species were observed as wintering or migrating individuals during surveys of the 350-acre study area. Three of these—Black swift (*Cypseloides niger*), olive-sided flycatcher (*Contopus cooperi*), and yellow warbler (*Dendroica petechia*)—are considered California Species of Concern during the nesting season, but not as wintering or migrating individuals. The project site is not within the breeding range of these species. As these three species are not expected to nest at or near the project site they are not discussed further. The fourth species, Swainson's hawk

(*Buteo swainsoni*), is a State-Threatened species. It was observed migrating over the site. The site is not within the nesting or wintering range of this species.

Le Conte's thrasher (*Toxostoma lecontei*) was also observed on the site. Only the San Joaquin Valley population of Le Conte's thrasher is considered a BLM Sensitive species or a California Species of Special Concern (Shuford and Gardali 2008). The remainder of the species, including populations in the project vicinity, is not. Le Conte's thrasher is thus not considered a special status species for this project.

3.4 POTENTIAL JURISDICTIONAL WATERS AND WETLANDS

The project site is relatively flat with only 20 feet elevation difference from the southwest corner of the spring survey area to the northeast corner, located nearly 3,500 feet away (Figure 5), producing an average slope of less than 1 percent. Pinto Wash, which is subject to CDFG jurisdiction, is located to the southeast approximately 540 feet outside of the proposed project limits but within the spring survey area.

No drainages, wetlands, or any other topographical or hydrological features with potential to be subject to USACE, RWQCB, or CDFG jurisdiction were observed within the 115-acre project limits. No evidence of streambed and banks as defined by CDFG was observed within the project limits, nor were any defined channels that would be subject to agency jurisdiction. Evidence of hydrology on site is limited to some bare spots and soil sorting due to sheet flow, which was observed throughout the project site, generally following the gentle slope of the terrain.

LSA

LEGEND

Project Location

Original Study Area

Existing SDG&E Imperial Valley Substation

California Department of Fish and Game Jurisdiction

N

0 500 1000

FEET

SOURCE: Bing Maps (2008); FEMA (2008)

I:\SGE0905\GIS\CDFG_Jurisdiction.mxd (3/3/2011)

FIGURE 5

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

California Department of Fish and Game Jurisdiction

4.0 CONCLUSIONS

4.1 JURISDICTIONAL WATERS

No drainages, wetlands, or any other topographical or hydrological features with potential to be subject to USACE, RWQCB, or CDFG jurisdiction were observed within the 115-acre project limits. No evidence of streambed and banks as defined by CDFG was observed within the project limits, nor were any defined channels that would be subject to agency jurisdiction. Evidence of hydrology on site is limited to some bare spots and soil sorting due to sheet flow, which was observed throughout the project site in a random, but general direction following the gentle slope of the terrain. Thus, no impacts to jurisdictional waters area expected.

4.2 SPECIAL STATUS NATURAL COMMUNITIES

The *Psorothamnus spinosus* Alliance observed in Pinto Wash within the spring survey area, but outside the fall survey area, is a "rare or unusual plant community" as defined in the BLM plant survey protocol. The only natural community found within the fall survey area and the 115-acre project site is the *Larrea tridentata – Ambrosia dumosa* Alliance, which is not a special status natural community. Thus, no impacts to special status natural communities are anticipated.

4.3 THREATENED AND ENDANGERED SPECIES

No State-listed or Federally-listed Threatened or Endangered plant species were observed within the spring or fall survey areas during the focused rare plant surveys. No State-listed or Federally-listed Threatened or Endangered animal species were observed within the survey area except for Swainson's hawk, which was observed migrating over the site.

No impacts to listed species are anticipated as a result of the project.

4.4 NON-LISTED SPECIAL STATUS AND TARGET PLANT SPECIES

One target plant species, Thurber's pilostyles, was found within the 350-acre survey area but outside the 142-acre fall survey area. This species is not a special status species (as defined in the BLM plant survey protocol) and is not considered sensitive, but is monitored by the CDFG as a California Rare Plant Rank (CRPR) 4 species. Based on the level of disturbance within the survey area and the results of the focused rare plant surveys, no special status plant species are expected to occur on the site. Thus, no impacts to special status plant species are anticipated.

4.5 NON-LISTED SPECIAL STATUS ANIMAL SPECIES

The project may affect up to 115 acres of breeding habitat of the following special status species:

- Flat-tailed horned lizard (BLM Sensitive, California Species Special Concern);
- Burrowing owl (BLM Sensitive, California Species of Special Concern);
- Colorado Desert fringe-toed lizard (BLM Sensitive, California Species of Special Concern);
- Loggerhead shrike (California Species of Special Concern);
- Palm Springs pocket mouse (BLM Sensitive, California Species of Special Concern); and
- Pallid San Diego pocket mouse (California Species of Special Concern).

The project may also affect up to 115 acres of foraging habitat of the following species:

- Western mastiff bat (BLM Sensitive, California Species of Special Concern).

4.6 HABITAT CONNECTIVITY AND WILDLIFE CORRIDORS

The project area is situated adjacent to an existing substation near the edge of open desert. It is not within any identified wildlife movement corridor or habitat linkage. Because of the project is situated in a relatively undeveloped area, habitat connectivity is not constrained and wildlife movement is expected to continue relatively unhindered with implementation of the proposed project.

5.0 REFERENCES

Bureau of Land Management (BLM). 1981. *Yuha Basin Area of Critical Environmental Concern (ACEC) Management Plan*. BLM, El Centro, CA.

Bureau of Land Management (BLM). 1985. *Yuha Desert Management Plan*. BLM, El Centro, CA.

Bureau of Land Management (BLM). 2009. *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species*.

Bureau of Land Management (BLM). 2009. Personal communication from Andrew Trouette and Daniel Steward to Denise Woodard (LSA Associates, Inc.) on September 9, 11, and 22, 2009 related to modified protocol for flat-tailed horned lizard survey.

Bureau of Land Management (BLM). 2009-2010. Personal communication from Andrew Trouette to Adrianne Beazley and Stan Spencer (LSA Associates, Inc.) on November 18 and 19, 2009 and on January 13 and 14, 2010, related to development of the protocol for focused rare plant surveys.

Bureau of Land Management (BLM). 2011. El Centro Sensitive Species 2011. BLM, El Centro, CA.

Calflora. 2009. Calflora: Information on California Plants for Education, Research and Conservation. Berkeley. http://www.calflora.org/ (Accessed: November, 2009).

California Burrowing Owl Consortium (BOC), The. 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines.*

California Department of Fish and Game (CDFG). 2007. *List of California Vegetation Alliances, October 22, 2007*. The Resources Agency, Sacramento, California.

California Department of Fish and Game (CDFG). 2009a. Special Vascular Plants, Bryophytes, and Lichens List, April 2009. The Resources Agency, Sacramento.

California Department of Fish and Game (CDFG). 2009b. Rarefind 3 (version 3.1.0, dated November 4, 2009). The Resources Agency, Sacramento. (Plant species search covered Imperial County; animal species search covered USGS Yuha Basin, Plaster City, Seely, El Centro, Heber, and Mount Signal, California 7.5-minute topographic quadrangles.)

California Department of Fish and Game (CDFG). 2011. Special Vascular Plants, Bryophytes, and Lichens List, January 2011. The Resources Agency, Sacramento.

Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003. *Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision*. 80 pp. plus appendices.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. The Resources Agency, Department of Fish and Game, Sacramento, California. 156 pp.

Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle technical guidance: inventory and monitoring protocols; and other recommendations in support of eagle management and permit issuance. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

U.S. Fish and Wildlife Service (USFWS). 2011. Species List for the Ocotillo Sol Solar Plant, Yuha Desert Management Area, Imperial County, California. Reference No: FWS-IMP-11B0053-11SL0088, January 6, 2011.

Wildlife Research Institute, Inc (WRI). 2010. *Golden Eagle Surveys Surrounding Sunrise Powerlink Project Area in San Diego and Imperial Counties, California*. Prepared for San Diego Gas & Electric.

Zimmerman, R.P. 1981. *Soil Survey for Imperial County, California, Imperial Valley Area*. U.S. Department of Agriculture, Washington D.C.

APPENDIX A

SPECIAL STATUS SPECIES TABLE[4]

The table below lists the plant and animal taxa that have the potential to occur within the project area.

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Plants				
Abronia villosa var. *aurita* **Chaparral sand-verbena**	US: – CA: 1B BLM: S	Sandy areas in chaparral and coastal sage scrub and improbably in desert dunes or other sandy areas, below 1,600 meters (5,300 feet) elevation. In California, reported from Riverside, San Diego, Imperial, Los Angeles, and Ventura Counties. Believed extirpated from Orange County. Also reported from Arizona and Mexico (Baja California). Plants reported from desert communities are likely misidentified.	Blooms mostly March through August (annual herb)	**Absent** – *Abronia villosa* var. *villosa* was observed on site in the spring survey area within the Pinto Wash. *A. v.* var. *aurita* is not expected to occur on site and was not observed during the focused rare plant surveys.
Astragalus insularis var. *harwoodii* **Harwood's milk-vetch**	US: – CA: 2 BLM: –	Desert dunes or open sandy flats, or less often in stony desert washes, mostly within creosote bush scrub, at 0 to 710 meters (0 to 2,300 feet) elevation. In California known only from the Sonoran Desert in San Diego, Imperial, and Riverside Counties. Also occurs in Arizona and Mexico (Sonora).	Blooms January through May (annual herb)	**Absent** – Marginally suitable habitat is present on the project site. However, no individuals of this species were observed during the focused rare plant surveys.
Castela emoryi **Emory's crucifixion-thorn**	US: – CA: 2 BLM: –	Non-saline dry lakes and less frequently along washes (especially among basalt flows) or similar non-saline seasonally wet sites where water accumulates, at 85 to 770 meters (280 to 2,530 feet) elevation in desert scrub. Occurs rarely if at all on upper alluvial slopes or rocky slopes. In California, known only from Imperial, Riverside, and San Bernardino Counties. Also occurs in Arizona and Mexico (Sonora).	Blooms mostly June through July (deciduous shrub)	**Absent** – No suitable habitat present on the project site. Perennial species not observed during focused rare plant surveys.
Chamaesyce abramsiana **Abrams' spurge**	US: – CA: 2 BLM: –	Sandy areas of desert scrub below 1,000 meters (3,300 feet) elevation. In California, known from Imperial, Riverside, and San Bernardino Counties. Also occurs in Arizona, Nevada, and Mexico (Baja California and Sonora).	Blooms mostly September through November following late summer rains (annual herb)	**Absent** – Marginally suitable habitat is present on the project site. However, no individuals of this species were observed during the focused rare plant surveys.

[4] Table B of the Focused Plant Survey Report (Appendix D) contains a list of evaluated plant taxa that are not expected to occur within the project area because of unsuitable habitat conditions or because the site is outside the range of the taxon; reasons for excluding each taxon are provided.

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Ipomopsis effusa **Baja California ipomopsis**	US: – CA: 2 BLM: –	Only a single occurrence is known from California, consisting of two plants observed in 1987 in Pinto Wash immediately north of Highway 98 in Imperial County, 2.5 miles north of the Mexican border. Not since documented despite searches for it there in 1992, 1995, 1996, and 2004. Habitat at the site is not typical, and it is very unlikely that this species would become naturalized in the creosote bush scrub vegetation occupying the site. Plants are believed to have been waifs from seeds carried in flood debris from higher elevations in Mexico where this species typically inhabits montane chaparral or coniferous forests.	Blooms April through June (annual herb)	**Absent** – No suitable habitat present on the project site. Not observed during focused rare plant surveys.
Malperia tenuis **Brown turbans**	US: – CA: 2 BLM: –	Primarily rocky slopes (less often other sandy places) in Sonoran Desert scrub at 15 to 335 meters (50 to 1,100 feet) elevation. In California, known from Imperial and San Diego Counties. Also occurs in Mexico.	Blooms March through April (annual herb)	**Absent –** No suitable habitat present on the project site. Not observed during focused rare plant surveys.
Mentzelia hirsutissima **Hairy stickleaf**	US: – CA: 2 BLM: –	Rocky sites, especially coarse rubble and talus slopes, washes, and alluvial fans, in Sonoran Desert scrub at -5 to 800 meters (-15 to 2600 feet) elevation. In California, known from Imperial and San Diego Counties. Also occurs in Mexico.	Blooms March through May (annual herb)	**Absent –** No suitable habitat present on the project site. Not observed during focused rare plant surveys.
Nemacaulis denudata var. *gracilis* **Slender woolly-heads**	US: – CA: 2 BLM: –	Coastal or desert dunes, sandy mesquite hummocks, or similar sandy sites at -50 to 400 (560) meters (-160 to 1,300 [1,800] feet) elevation. Known from Imperial, Riverside, San Bernardino, and San Diego Counties in California, and from Arizona and Mexico.	Blooms mostly late March to mid May (annual herb)	**Absent –** No suitable habitat present on the project site. Not observed during focused rare plant surveys.
Pilostyles thurberi **Thurber's pilostyles**	US: – CA: 4 BLM: –	Sandy alluvial plains and sandstone talus in Sonoran Desert scrub at up to 365 meters (1,200 feet) elevation, where it is a parasite of *Psorothamnus emoryi* (and of *Psorothamnus polydenius* in Nevada). Known in California from Riverside, San Diego, and Imperial Counties. Also occurs in Nevada, Arizona, and Mexico.	Blooms at various times, but old flowers remain visible for years (perennial parasitic herb)	**Present –** Species observed on *Psorothamnus emoryi* east of the substation (within the spring survey area) just outside of project site. No other *P. emoryi* observed (or expected) within the project site.
Reptiles				
Phrynosoma mcallii **Flat-tailed horned lizard**	US: – CA: SSC BLM: S	Restricted to desert washes and desert flats from central Riverside, eastern San Diego, and Imperial Counties to southwestern Arizona, northeastern Baja California, and northwestern Sonora. Critical Habitat element is fine sand, into which lizards burrow to avoid temperature extremes. Requires vegetative cover.	March through October. Hibernates mid-November to mid-February.	**Present** – Not detected during focused surveys, but detected on-site during other surveys.

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Uma notata **Colorado Desert fringe-toed lizard**	US: – CA: SSC BLM: S	Colorado Desert region, including southeastern California, southwestern Arizona, northeastern Baja California, and northwestern Sonora; in sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, or sparse desert scrub. Requires fine, loose, windblown sand (for burrowing); shrubs or annuals for arthropod production.	March through October.	**Moderate** – Suitable habitat, but not detected during site visits.
Birds				
Aquila chrysaetos (nesting and wintering) **Golden eagle**	US: – CA: CFP BLM: S (but not on El Centro Field Office list)	Generally open country of the Temperate Zone worldwide. Uncommon resident in much of southern California.	Year-round.	**Low** – Not seen during focused surveys, but the species is wide-ranging so foraging individuals may occur occasionally.
Falco peregrinus anatum (nesting) **American peregrine falcon**	US: – CA: CFP BLM: –	Widespread, but scarce and local throughout North America. Uncommon resident in much of southern California.	Year-round.	**Low** – Not seen during focused surveys, but the species is wide-ranging so foraging individuals may occur occasionally.
Charadrius montanus (wintering) **Mountain plover**	US: FPT CA: SSC (wintering) BLM: S	Nests in dry, open, prairies and grasslands in central North America; winters in bare open country and farmlands in the southwestern United States and northern Mexico.	Year-round.	**Absent** – No suitable habitat present on the project site.
Athene cunicularia (burrow sites) **Burrowing owl**	US: – CA: SSC (breeding) BLM: S	Open country in much of North and South America. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Year-round.	**Present** – Not detected during focused breeding season surveys, but detected in winter during burrow and other surveys. May forage on site during winter, but nest in more suitable habitat elsewhere.
Pyrocephalus rubinus (nesting) **Vermilion flycatcher**	US: – CA: SSC (breeding) BLM: –	Open country in much of southern North America and northern South America. In southern California, inhabits desert riparian adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas. Nests in cottonwood, willow, mesquite, and other large desert riparian trees.	Year-round.	**Absent** – No suitable habitat present on the project site.
Lanius ludovicianus (nesting) **Loggerhead shrike**	US: – CA: SSC (breeding) BLM: –	Open country in much of North America, but declining in many areas.	Year-round.	**Present** – Detected during site visits. May breed on-site, but more numerous in non-breeding season.

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Toxostoma bendirei **Bendire's thrasher**	US: – CA: SSC (breeding) BLM: S	Desert, primarily in areas with tall open vegetation; in the southwestern United States and northwestern Mexico, withdrawing from most northern areas outside the nesting season.	March through July.	**Low** – Habitat on site may be unsuitable, and the species is very rare in the region.
Toxostoma crissale **Crissal thrasher**	US: – CA: SSC (year round) BLM: –	Riparian thickets and arid scrub in the southwestern United States and northern Mexico.	Year-round.	**Low** – Habitat on site is probably too sparse for the species.
Mammals				
Perognathus longimembris bangsi **Palm Springs pocket mouse**	US: – CA: SSC BLM: S	California endemic. Inhabits fine sandy ground on the west side of the Colorado Desert from the Coachella Valley nearly to the Mexican border.	Primarily the warmer months.	**Moderate** – Site appears to be within the species' range and the habitat appears to be suitable.
Chaetodipus fallax pallidus **Pallid San Diego pocket mouse**	US: – CA: SSC BLM: –	Arid scrub along the southwestern edge of the Mojave Desert and the western edge of the Colorado Desert, from the Antelope Valley to approximately the Mexican border.	Year-round.	**Moderate** – Site appears to be within the species' range and the habitat appears to be suitable.
Macrotus californicus **California leaf-nosed bat**	US: – CA: SSC BLM: S	Western United States and northwestern Mexico. In California, primarily occupies low-lying desert areas, roosting in caves, mines, and old buildings with warm, stable temperatures. Rarely uses bridges for roosting.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Choeronycteris mexicana **Mexican long-tongued bat**	US: – CA: SSC BLM: –	Uses a variety of habitats from the southwestern United States through Central America. In California, this species has been observed in San Diego County, likely as a seasonal migrant. Feeds on nectar and pollen of night-blooming succulents; may visit hummingbird feeders. Roosts in caves, mines, and occasionally buildings. Not known to use bridges for roosting.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Leptonycteris curasoae yerbabuenae **Lesser long-nosed bat**	US: FE CA: SSC BLM: –	Occurs in Sonoran desert scrub, semi-desert grasslands and lower oak woodlands from Arizona and New Mexico to El Salvador, and has been recorded in southwestern California. Frugivorous and nectivorous; highly associated with plants such as agave, saguaro, and ocotillo as a source of food. Roosts in caves and mines; not known to use bridges for roosting. Capable of migrating long distances.	Primarily the warmer months.	**Low –**Outside normal range. No roosting sites available on site or vicinity.

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Eumops perotis californicus **Western mastiff bat**	US: – CA: SSC BLM: S	Ranged historically throughout much of the southwestern United States and northwestern Mexico. In California, most records are from rocky areas at low elevations. Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels throughout southwestern California. May roost in tall bridges.	Primarily the warmer months.	**Moderate –** No roosting sites available on site or vicinity. Site may provide foraging habitat as animals range widely when feeding.
Nyctinomops femorosaccus **Pocketed free-tailed bat**	US: – CA: SSC BLM: –	Varied habitats, but usually associated with high cliffs or rocky areas. Spotty distribution, ranging from southern California and southwestern Arizona through central Mexico. Roosts primarily in cliffs/rock crevices; may use buildings for roosting. Rarely roosts in bridges.	March through August.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Nyctinomops macrotis **Big free-tailed bat**	US: – CA: SSC BLM: –	Varied habitats, but usually associated with high cliffs or rocky areas. Spotty distribution, ranging from southern California and southwestern Arizona through central Mexico. Roosts primarily in cliffs/rock crevices; may use buildings for roosting. Rarely roosts in bridges.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Lasiurus xanthinus **Western yellow bat**	US: – CA: SSC BLM: –	Varied habitats from the southwestern United States to southern Mexico; often associated with palms and desert riparian habitats. In southern California occurs in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees, though they have also been documented to roost under the leaves of deciduous trees such as cottonwoods.	Primarily the warmer months.	**Low** – No roosting sites available on site. Site may provide foraging habitat.
Corynorhinus townsendii **Townsend's big-eared bat**	US: – CA: SSC BLM: S	Ranges from southwestern Canada through the western United States to southern Mexico. Requires caves, mines, tunnels, buildings or other similar structures for roosting. Occasionally roosts in hollow spaces of bridges or buildings. Will occasionally roost in hollow trees. Highly sensitive to disturbance.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Euderma maculatum **Spotted bat**	US: – CA: SSC BLM: S	Found at widely scattered localities in western North America from southern British Columbia to central Mexico. Occurs in a range of habitats from arid, low desert habitats to high elevation conifer forests. Roosts in crevices and caves, usually high in fractured cliff/rock faces; not known to use bridges or buildings for roosting. Can forage over wide distances.	Primarily the warmer months.	**Low –** Generally rare. No roosting sites available on site or vicinity. Site may provide foraging habitat.
Antrozous pallidus **Pallid bat**	US: – CA: SSC BLM: S	Varied habitats in western North America, including grasslands, shrublands, woodlands, deserts, and forest. Primarily day roosts in bridges, hollows or crevices of trees, or buildings. Occasionally roosts in mines, caves, and cliff/rock crevices. Night roosts may be more open sites, such as porches, open buildings, and bridges.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Myotis ciliolabrum **Western small-footed myotis**	US: – CA: SA BLM: S	Found across much of North America, primarily in relatively arid wooded and brushy uplands near water. Individuals are known to roost singly or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Myotis yumanensis **Yuma myotis**	US: – CA: SA BLM: S	Occurs in a variety of habitats in western North America, including riparian, arid scrublands and deserts, and forests. Optimal habitats are open forests and woodlands with sources of water over which to feed. Roosts in buildings, mines, caves or crevices; and under bridges. May occasionally roost in swallow nests.	Primarily the warmer months.	**Low –** No roosting sites available on site or vicinity. Site may provide foraging habitat.
Taxidea taxus **American badger**	US: – CA: SSC BLM: –	Occurs throughout much of North America. Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert.	Year-round.	**Low –** Marginally suitable habitat present on the project site. Not detected during surveys.
Bassariscus astutus **Ringtail**	US: – CA: CFP BLM: –	Woody and rocky areas of the southwestern United States and most of Mexico.	Year-round.	**Low –** Habitat on site may not be suitable.

LEGEND	
US: Federal Classifications	
FE	Taxa listed as Endangered.
FPT	Taxa proposed for listing as Threatened
FC	Candidate for listing as Threatened or Endangered
CA: State Classifications	
CFP	California Fully Protected Species
SSC	California Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.

SA	Special Animal. Refers to any other animal monitored by the Natural Diversity Data Base, regardless of its legal or protection status.
1B	California Rare Plant Rank 1B – rare, threatened or endangered in California and elsewhere.
2	California Rare Plant Rank 2 – rare, threatened or endangered in California, but more common elsewhere.
4	California Rare Plant Rank 4 – a watch list of plants of limited distribution.
BLM: Bureau of Land Management Status	
S	Sensitive. Identified as (1) under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing my become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats. Two conditions that must be met before a species may be considered as BLM Sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management. Does not include Federally listed species, proposed species, candidate species or State-listed species. It is BLM policy to provide sensitive species with the same level of protection that is given Federal candidate species.

APPENDIX B

VASCULAR PLANT SPECIES OBSERVED

Scientific Name	Common Name
PINOPHYTA	**GYMNOSPERMS**
Ephedraceae	**Ephedra family**
Ephedra trifurca	Longleaf jointfir
MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Apodanthaceae	**Stemsucker family**
Pilostyles thurberi	Thurber's pilostyles
Asteraceae	**Sunflower family**
Ambrosia dumosa	Burrobush
Ambrosia salsola	Burrobrush
Baileya pauciradiata	Laxflower
Chaenactis stevioides	Steve's dustymaiden
Encelia farinosa	Brittlebush
Encelia frutescens	Button brittlebush
Lactuca serriola (non-native species)	Prickly lettuce
Logfia sp.	Cottonrose
Malacothrix glabrata	Desert dandelion
Palafoxia arida var. *arida*	Desert palafox
Pectis papposa	Manybristle chinchweed
Psathyrotes ramosissima	Velvet turtleback
Rafinesquia neomexicana	Desert chicory
Sonchus oleraceus (non-native species)	Common sow thistle
Stephanomeria exigua	Small wreath-plant
Boraginaceae	**Borage family**
Cryptantha angustifolia	Panamint cryptantha
Cryptantha maritima	Guadalupe cryptantha
Cryptantha micrantha	Redroot cryptantha
Pectocarya heterocarpa	Mixed-nut pectocarya
Tiquilia palmeri	Palmer's crinklemat
Tiquilia plicata	Fanleaf crinklemat
Brassicaceae	**Mustard family**
Brassica tournefortii (non-native species)	Sahara mustard
Dithyrea californica	California shieldpod
Lepidium lasiocarpum	Shaggyfruit pepperweed
Streptanthella longirostris	Streptanthella

Scientific Name	Common Name
Cactaceae	**Cactus family**
Cylindropuntia echinocarpa	Silver cholla
Ferocactus cylindraceus	California barrel cactus
Opuntia basilaris var. *basilaris*	Beavertail prickleypear
Caryophyllaceae	**Pink family**
Achyronychia cooperi	Onyxflower
Chenopodiaceae	**Saltbush family**
Atriplex canescens	Fourwing saltbush
Atriplex polycarpa	Cattle saltbush
Chenopodium murale (non-native species)	Nettleleaf goosefoot
Euphorbiaceae	**Spurge family**
Chamaesyce polycarpa	Smallseed sandmat
Croton californicus	California croton
Stillingia spinulosa	Annual toothleaf
Fabaceae	**Pea family**
Acacia greggii	Catclaw
Lupinus arizonicus	Arizona lupine
Prosopis glandulosa var. torreyana	Honey mesquite
Psorothamnus emoryi	Dyebush
Psorothamnus schottii	Schott's dalea
Psorothamnus spinosus	Smoketree
Fouquieriaceae	**Ocotillo family**
Fouquieria splendens	Ocotillo
Hydrophyllaceae	**Waterleaf family**
Emmenanthe penduliflora	Whispering bells
Nama hispidum	Bristly nama
Loasaceae	**Loasa family**
Petalonyx thurberi ssp. *thurberi*	Thurber's sandpaper plant
Nyctaginaceae	**Four-o'clock family**
Abronia villosa var. *villosa*	Desert sand verbena
Onagraceae	**Evening primrose family**
Camissonia claviformis	Browneyes
Camissonia californica	Mustard-like evening primrose
Oenothera deltoides	Birdcage evening primrose
Plantaginaceae	**Plantain family**
Plantago ovata	Desert Indianwheat
Polemoniaceae	**Phlox family**
Loeseliastrum schottii	Schott's calico

Scientific Name	Common Name
Polygonaceae	**Buckwheat family**
Chorizanthe brevicornu	Brittle spineflower
Chorizanthe rigida	Devil's spineflower
Eriogonum deflexum	Flatcrown buckwheat
Eriogonum thomasii	Thomas' buckwheat
Resedaceae	**Mignonette family**
Oligomeris linifolia	Lineleaf whitepuff
Solanaceae	**Nightshade family**
Lycium cf. *andersonii*	Anderson's desert thorn
Tamaricaceae	**Tamarisk family**
Tamarix aphylla (non-native species)	Athel
Tamarix ramosissima (non-native species)	Mediterranean tamarisk
Zygophyllaceace	**Caltrop family**
Larrea tridentata	Creosote bush
Liliaceae	**Lily family**
Agave desertii	Desert agave
Hesperocallis undulata	Desert lily
Poaceae	**Grass family**
Bouteloua barbata	Sixweeks grama
Schismus barbatus (non-native species)	Common Mediterranean grass

APPENDIX C

WILDLIFE SPECIES DETECTED

This is a list of the conspicuous aerial insects (i.e., dragonflies and butterflies), reptiles, birds, and mammals noted in the spring and/or fall survey areas by LSA biologists. Presence may be noted if a species is seen or heard, or identified by the presence of tracks, scat, or other signs.

Scientific Name	Common Name
ODONATA	**DRAGONFLIES AND DAMSELFLIES**
Libellulidae	**Skimmers**
Sympetrum corruptum	Variegated meadowhawk
Tramea lacerata	Black saddlebags
LEPIDOPTERA	**BUTTERFLIES AND MOTHS**
Nymphalidae	**Brushfooted Butterflies**
Vanessa cardui	Painted lady
REPTILIA	**REPTILES**
Eublepharidae	**Eyelid Geckos**
Coleonyx variegatus	Western banded gecko
Iguanidae	**Iguanas and Allies**
Dipsosaurus dorsalis	Desert iguana
Crotaphytidae	**Collared and Leopard Lizards**
Gambelia wislizenii	Long-nosed leopard lizard
Phrynosomatidae	**Phrynosomatid Lizards**
Callisaurus draconoides	Zebra-tailed lizard
Uta stansburiana	Common side-blotched lizard
Phrynosoma mcallii	Flat-tailed horned lizard
Teiidae	**Whiptails and Allies**
Aspidoscelis tigris	Great Basin whiptail
Colubridae	**Colubrids**
Coluber flagellum	Red racer
Chionactis occipitalis	Western shovel-nosed snake
Viperidae	**Vipers**
Crotalus atrox	Western diamond-backed rattlesnake
Crotalus cerastes	Sidewinder
AVES	**BIRDS**
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Callipepla gambelii	Gambel's quail
Ardeidae	**Herons, Egrets, and Bitterns**
Bubulcus ibis	Cattle egret

Scientific Name	Common Name
Cathartidae	**New World Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Hawks, Kites, Eagles, and Allies**
Accipiter striatus	Sharp-shinned hawk
Buteo jamaicensis	Red-tailed hawk
Buteo regalis	Ferruginous hawk
Buteo swainsoni	Swainson's hawk
Falconidae	**Caracaras and Falcons**
Falco sparverius	American kestrel
Falco columbarius	Merlin
Falco mexicanus	Prairie falcon
Charadriidae	**Plovers and Lapwings**
Charadrius vociferus	Killdeer
Columbidae	**Pigeons and Doves**
Columba livia (non-native species)	Rock pigeon
Zenaida asiatica	White-winged dove
Zenaida macroura	Mourning dove
Streptopelia decaocto (non-native species)	Eurasian collared dove
Cuculidae	**Cuckoos, Roadrunners, and Anis**
Geococcyx californianus	Greater roadrunner
Strigidae	**Typical Owls**
Bubo virginianus	Great horned owl
Athene cunicularia	Burrowing owl
Caprimulgidae	**Goatsuckers**
Chordeiles acutipennis	Lesser nighthawk
Phalaenoptilus nuttallii	Common poorwill
Apodidae	**Swifts**
Cypseloides niger	Black swift
Aeronautes saxatalis	White-throated swift
Trochilidae	**Hummingbirds**
Archilochus alexandri	Black-chinned hummingbird
Calypte anna	Anna's hummingbird
Picidae	**Woodpeckers**
Picoides scalaris	Ladder-backed woodpecker
Tyrannidae	**Tyrant Flycatchers**
Contopus cooperi	Olive-sided flycatcher
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	Western kingbird

Scientific Name	Common Name
Laniidae	**Shrikes**
Lanius ludovicianus	Loggerhead shrike
Vireonidae	**Vireos**
Vireo cassinii	Cassin's vireo
Vireo gilvus	Warbling vireo
Corvidae	**Crows and Jays**
Corvus corax	Common raven
Alaudidae	**Larks**
Eremophila alpestris	Horned lark
Hirundinidae	**Swallows**
Tachycineta bicolor	Tree swallow
Petrochelidon pyrrhonota	Cliff swallow
Hirundo rustica	Barn swallow
Remizidae	**Penduline Tits and Verdins**
Auriparus flaviceps	Verdin
Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	House wren
Cistothorus palustris	Marsh wren
Sylviidae	**Old World Warblers and Gnatcatchers**
Polioptila caerulea	Blue-gray gnatcatcher
Polioptila melanura	Black-tailed gnatcatcher
Mimidae	**Mockingbirds and Thrashers**
Oreoscoptes montanus	Sage thrasher
Toxostoma lecontei	Le Conte's thrasher
Sturnidae	**Starlings**
Sturnus vulgaris (non-native species)	European starling
Ptilogonatidae	**Silky-flycatchers**
Phainopepla nitens	Phainopepla
Parulidae	**Wood Warblers**
Oreothlypis celata	Orange-crowned warbler
Vermivora ruficapilla	Nashville warbler
Dendroica petechia	Yellow warbler
Dendroica coronata	Yellow-rumped warbler
Dendroica townsendi	Townsend's warbler
Oporornis tolmiei	MacGillivray's warbler
Wilsonia pusilla	Wilson's warbler
Emberizidae	**Emberizines**
Pipilo chlorurus	Green-tailed towhee
Melozone aberti	Abert's towhee

Scientific Name	Common Name
Spizella breweri	Brewer's sparrow
Zonotrichia leucophrys	White-crowned sparrow
Cardinalidae	**Cardinals, Grosbeaks and Allies**
Piranga ludoviciana	Western tanager
Pheucticus melanocephalus	Black-headed grosbeak
Passerina amoena	Lazuli bunting
Icteridae	**Blackbirds, Orioles and Allies**
Sturnella neglecta	Western meadowlark
Quiscalus mexicanus	Great-tailed grackle
Molothrus ater	Brown-headed cowbird
Icterus sp.	Oriole
Fringillidae	**Fringilline and Cardueline Finches and Allies**
Carpodacus mexicanus	House finch
Carduelis psaltria	Lesser goldfinch
Spinus pinus	Pine siskin
MAMMALIA	**MAMMALS**
Heteromyidae	**Pocket Mice and Kangaroo Rats**
Dipodomys sp.	Kangaroo rat
Leporidae	**Rabbits and Hares**
Lepus californicus	Black-tailed jackrabbit
Sciuridae	**Squirrels**
Spermophilus tereticaudus	Round-tailed ground squirrel
Canidae	**Foxes, Wolves, and Allies**
Canis latrans	Coyote
Vulpes macrotis	Kit fox

Taxonomy and nomenclature are based on the following:

Damselflies and dragonflies: Paulson, D. (2009, *Dragonflies and Damselflies of the West*, Princeton University Press, Princeton, New Jersey).

Butterflies and moths: North American Butterfly Association (2001, *North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies, Second Editio*n, North American Butterfly Association, Morristown, New Jersey; see http://www.naba.org/pubs/checklst.html).

Amphibians and reptiles: Crother, B.I. ed. (2008, Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico. *Herpetological Circular* 37) for species taxonomy and nomenclature; Stebbins, R.C. (2003, *A Field Guide to Western Reptiles and Amphibians*, third edition, Houghton Mifflin, Boston) for sequence and higher order taxonomy.

Birds: American Ornithologists' Union (1998, *The A.O.U. Checklist of North American Birds, Seventh Editio*n, American Ornithologists' Union, Washington D.C.; and supplements; see http://www.aou.org/checklist/north/index.php).

Mammals: Wilson, D.E. and D.M. Reeder, eds. (2005, *Mammal Species of the World, 3rd ed.*, Johns Hopkins University Press, Baltimore, Maryland; see http://vertebrates.si.edu/mammals/msw/).

Wilson, D. E., and D. M. Reeder (eds). 2005. Mammal Species of the World: A Taxonomic and Geographic Reference (3rd ed). Johns Hopkins University Press, 2,142 pp.

APPENDIX D

RARE PLANT SURVEY REPORT

Refer to Appendix F of Ocotillo Sol Project
Final Environmental Impact Statement and Proposed CDCA Plan Amendment

APPENDIX E

FLAT-TAILED HORNED LIZARD SURVEY REPORT

Refer to Appendix I of Ocotillo Sol Project
Final Environmental Impact Statement and Proposed CDCA Plan
Amendment

APPENDIX F

BURROWING OWL SURVEY REPORT

Refer to Appendix J of Ocotillo Sol Project
Final Environmental Impact Statement and Proposed CDCA Plan
Amendment

APPENDIX G

WINTER AVIAN POINT-COUNT SURVEY REPORT

Refer to Appendix G of Ocotillo Sol Project
Final Environmental Impact Statement and Proposed CDCA Plan
Amendment

APPENDIX H

SPRING AVIAN POINT-COUNT SURVEY REPORT

Refer to Appendix H of Ocotillo Sol Project
Final Environmental Impact Statement and Proposed CDCA Plan
Amendment

APPENDIX D

Final
Weed Management Plan for the Ocotillo Sol Project

Prepared for

San Diego Gas & Electric
8315 Century Park Court
San Diego, CA 92123-1548

Prepared by

RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101-2358
P 619.308.9333 F 619.308.9334
RECON Number 6129
June 22, 2012

Michael Nieto, Biologist

TABLE OF CONTENTS

1.0 Executive Summary 1

2.0 Project Description 1

3.0 Weed Management Plan Approach 4

3.1 Weed Management Plan Goals 4

4.0 Preconstruction Survey 6

4.1 Methods 6

4.2 Preconstruction Survey Results 7

5.0 Weed Control 7

5.1 Preconstruction Weed Abatement 8

5.2 Construction Measures 9

6.0 Long-term Monitoring 9

7.0 Long-term Adaptive Weed Management Measures 10

7.1 Management Tools 11

7.1.1 Prevention 11
7.1.2 Manual Removal 12
7.1.3 Competition and Restoration 12
7.1.4 Chemical Control 13

7.2 Species-specific Weed Control Plans 17

7.2.1 Saharan Mustard (*Brassica tournefortii*) 19
7.2.2 Mediterranean grass (*Schismus barbatus*) 23
7.2.3 Athel tamarisk (*Tamarix aphylla*) 25
7.2.4 Saltcedar (*Tamarix ramosissima*) 27

7.3 Reporting 30

8.0 Conclusion 30

9.0 References Cited 31

TABLE OF CONTENTS (CONT.)

FIGURES

1:	Project Location	2
2:	Exotic Plant Species Observed	3

TABLES

1:	Exotic Species Density Categories	7
2:	Non-native Species Observed in the Project Area	7
3:	Glyphosate Toxicity to Wildlife	15
4:	Triclopyr Toxicity to Wildlife	17
5:	Chemical Treatment Recommendations	18

PHOTOGRAPHS

1:	Saharan Mustard (*Brassica tournefortii*) Rosette and Inflorescence in Project Area	19
2:	Saharan Mustard Growing on Access Road East of Project Area Saharan Mustard Growing within Localized Depressions within Project Area	20
3:	Mediterranean Grass Observed in Low Densities throughout the Project Area	23
4:	Treated Saltcedar North of the Project Area, Immediately East of the Imperial Valley Substation	27

APPENDIX

A: Potential and Observed Weeds within the Project Area and Local Region (0.5-mile Radius)

1.0 Executive Summary

This weed management plan has been prepared for the proposed Ocotillo Sol Project (Project) in Imperial County, California (Figure 1). The preparation of this plan is in compliance with the Ocotillo Sol Draft Environmental Impact Statement (EIS) and the Best Management Practices and Guidance: Desert Renewable Energy Projects (Renewable Energy Action Team 2010).

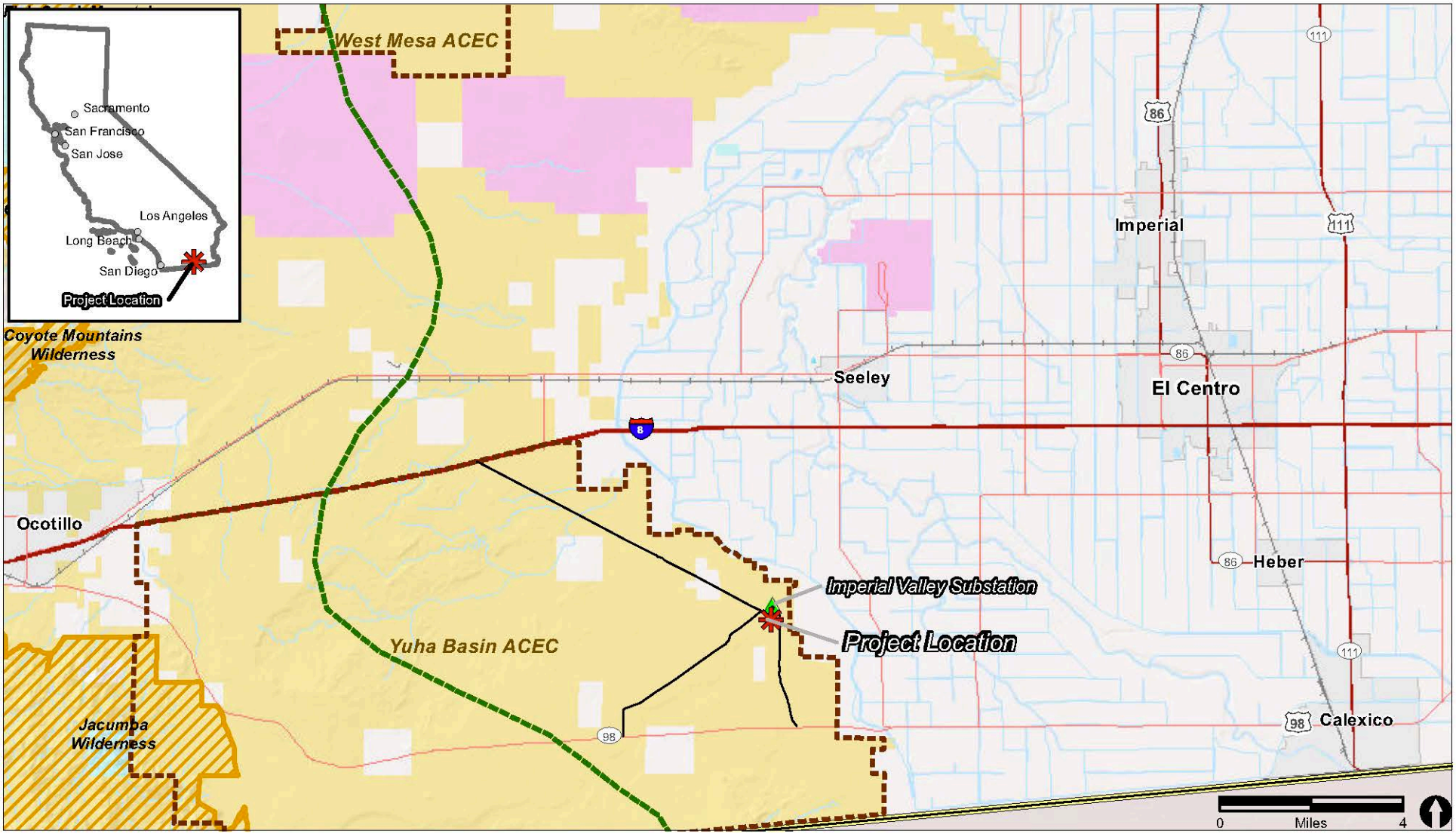
As outlined in the Project Draft EIS, this document provides a comprehensive, adaptive weed management plan for preconstruction and long-term invasive weed abatement for the Ocotillo Sol Project. This plan includes the results of the preconstruction weed inventory, an assessment of weeds on adjacent lands, outlines appropriate preconstruction weed control measures, identifies required short- and long-term monitoring and adaptive management procedures, and identifies operation and maintenance requirements related to weed control including a site-specific analysis of effects of proposed herbicide use on-site. This plan is intended to be adaptive in order not only to control weed species that are currently known to exist on-site, but also to provide a framework to control unknown weed species that may occur in the future.

For the purpose of this document, “weeds” are noxious, non-native, invasive plant species that have been specifically identified by the California Invasive Plant Council [Cal-IPC] in 2012 (Appendix A).

A total of two weed species, Saharan mustard (*Brassica tournefortii*) and Mediterranean grass (*Schismus barbatus*), were observed within the Project Area and buffer area. Two additional weed species, saltcedar (*Tamarisk ramosissimum*) and athel tamarisk (*Tamarix aphylla*) were observed in the vicinity of the Project Area (Figure 2). Saharan mustard and Mediterranean grass will be initially treated as a part of Project weed control. The two tamarisk species in the area will be treated long-term if they become established within the Project Area.

2.0 Project Description

The proposed Ocotillo Sol Project would construct, operate, maintain, and decommission a 100-acre, up to 20-megawatt solar photovoltaic (PV) generation facility on Bureau of Land Management (BLM) managed lands. In addition, the proposed Project includes a 15-acre temporary right-of-way (ROW) for use as a laydown area during construction of the solar facility. This project would also include a 12.47 kilovolt, 2,000-foot underground generation tie line from the generation facility to the adjacent Imperial Valley Substation, and interconnection facilities within the Imperial Valley Substation consisting of breakers, switches, racking systems, and cabling. Within the



Primary Limited Access or Interstate
Primary US and State Highways
Secondary State and County
Project Access Routes
Railroads
International Boundary
Rivers and Canals
Substation

Land Jurisdiction
Bureau of Land Management
Military
State

Federal Wilderness Areas
BLM ACEC
Juan Bautista De Anza Trail

RECON

fig1_weed 3/21/2012

FIGURE 1

Project Location

Site Boundary
Project Buffer
Survey Area
Imperial Substation

Exotic Plant Species Cover

Brassica tournefortii (0-1%)
Brassica tournefortii (1-5%)
Schismus barbatus (1-5%)

RECON

fig2_weed 3/26/2012

FIGURE 2

Exotic Plant Species Observed

proposed ROW, the solar field, operations and maintenance building, laydown area, and the switchyard would occupy the majority of the site. About 75 percent (86 acres) of the 115-acre ROW would be used for the solar panels; of the remaining area, approximately 15 acres would be used for the temporary laydown area; and approximately 14 acres would be used for internal access roads, power lines, switchgear, a step-up transformer, and an operations and maintenance building.

The 15-acre construction laydown area would be restored and released back to the BLM upon BLM certification that the site has been reclaimed to BLM standards..

3.0 Weed Management Plan Approach

The Project and ancillary facilities (the ROW and work areas, known in this document as the Project Area) occur on land administered by the BLM within Imperial County.

The 115-acre Project Area includes all proposed temporary and permanent impact areas. Permanent and temporary impacts of the Project include solar panels, transformers, underground transmission lines, maintenance buildings, perimeter roads, project fencing, staging areas, work areas, and vehicle parking areas.

Weed management approaches for the Project are designed to be concurrent with three conceptual construction timeframes: (1) pre-construction, (2) construction, and (3) post-construction. A key part of long-term management of weeds on the Project will be to perform initial weed abatement prior to construction (pre-construction), installation of best management practices (BMPs) (construction), and performing monitoring and annual weed treatments throughout the lifetime of the Project (post-construction).

3.1 Weed Management Plan Goals

As outlined in the Draft Ocotillo Sol EIS, the goals of the Project weed management plan are to:

- Identify and map all exotic plant species, as defined by the Cal-IPC (2012), within the Project Area.
- Develop monitoring and preventative management strategies for weed control during construction activities at the Project.
- Provide a framework for control and management of noxious weeds in areas temporarily disturbed during construction. Native seeding will aid in site revegetation.
- Develop annual weed control treatment methods for the lifetime of the Project.

- Provide a long-term strategy for noxious weed control and management during the operation of the project.

Weed control treatments will include all chemical, manual, and mechanical methods applied with the authorization of the BLM. The application of herbicides will comply with all applicable state and federal laws and regulations. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the BLM and Imperial County Agriculture Commissioner. The timing of the weed control treatment will be implemented with the goal of controlling populations before they start producing seeds. Timing and conduct of weed treatment activities must be compliant with construction and mitigation measures for sensitive species outlined in section 4.6.4.2, Mitigation for Impacts to Wildlife Resources, in the Ocotillo Sol Project Environmental Impact Statement (EIS).

As weeds within the local region are widely and uniformly distributed and extremely difficult to isolate and eradicate within the Project Area, this plan has been drafted to control existing invasive species within the Project Area to a density at or below current levels and to limit the expansion of additional regional invasive species into the Project Area.

Responsible Parties

Project Proponent

The Ocotillo Sol Project Applicant (Project proponent) will be responsible for funding and implementing this weed management plan. The Project proponent will be responsible for contracting with personnel qualified in implementation, maintenance, and monitoring of noxious, non-native, invasive plant removal practices described in this plan. Upon contracting with a qualified person or organization to implement this plan, the Project proponent will designate a person or group as the Weed Control Manager (WCM).

Weed Control Manager

A Weed Control Manager shall be hired to implement this plan. The WCM can be either an individual or an organization as long as the person(s) actively managing the Project meet(s) the qualifications outlined below to the satisfaction of the Project proponent. If the selected WCM is an organization, the project manager shall be licensed in the state of California to perform pest control activities and capable of managing large-scale weed eradication projects. The WCM will be responsible for the day-to-day implementation of this plan and will carry out the requirements and objectives described herein. All pest control activities performed shall be under the prescription of a state of California Pest Control Advisor (PCA) or California Qualified Applicator License (QAL).

The individual or project manager identified by the organization contracted to implement this plan must meet the following criteria:

- Have a B.S. or B.A. degree in ecology, botany, biology, landscape maintenance, range management, or related field.
- Have at least two years of experience in native or horticultural landscaping including weed control in southern California, preferably San Diego and Imperial Counties.
- Have a California PCA or QAL license.
- Have demonstrated experience in similar projects or in projects including similar skills.

4.0 Preconstruction Survey

RECON biologist Michael Nieto conducted pre-construction weed surveys within the Project Area and an additional 150-foot buffer area on March 2, 2012. A summary of survey methodology and results follow. An overview of weed species' densities within and adjacent to the Project Area is provided in Figure 2.

4.1 Methods

The Project Area was traversed on foot by a biologist walking meandering transects. The majority of survey time was spent within impact areas (Project Area) and project buffers. Additional survey time was spent within the local area on access roads (0.5-mile radius of project) recording observations of additional weed species and noting infestation trends of adjacent lands.

All weeds present within or adjacent to the Project Area were noted. A complete list of weed species with potential to occur in the Project Area is presented in Appendix A.

The surveyor recorded the locations of all target weed species when encountered using Global Positioning System (GPS) handheld unit (Trimble GeoXT). Additional location information was recorded in surveyors' field notebooks. Survey data were downloaded from the GPS units into a geographic information system (GIS) database. Following the survey, the data in the GIS database were updated and refined with the information contained in the surveyor's field notes.

Each weed species population located within the Project Area was categorized into one of five density classes. Density categorization was based on qualitatively derived ocular cover estimates of the population. The density categories assigned are presented in Table 1.

TABLE 1
EXOTIC SPECIES DENSITY CATEGORIES

Description	Density
Trace	Individual(s), less than 1% cover
Low	>1–5% cover
Medium	>5–25% cover
Dense	>25–50% cover
Dominant	>50–100% cover

4.2 Preconstruction Survey Results

A total of two weed species (Saharan mustard and Mediterranean grass) were observed within the impact area (Project Area) and buffer. Two additional weed species (saltcedar and Athel tamarisk) were observed in the vicinity of the Project Area. These additional species were included in the weed assessment as they have a long-term potential to colonize the Project Area.

A list of weed species identified and observed during the preconstruction survey is presented in Table 2. A map of observed noxious weeds within the Project Area is included in Figure 2. A description of the species observed and proposed control methods are presented in Section 7.2.

TABLE 2
NON-NATIVE SPECIES OBSERVED IN THE PROJECT AREA

Species	Common Name	Cal-IPC Rating	BLM Noxious Weed List
Brassica tournefortii	Saharan mustard	High	Yes
Schismus barbatus	Mediterranean grass	Limited	Yes
Tamarix aphylla	Athel tamarisk	Limited*	Yes
Tamarix ramosissima	saltcedar	High*	Yes

*These species were observed within the region (<0.5 miles), but not within proposed Project impact area. These species were recorded as they have the long-term potential to encroach into project boundaries.

5.0 Weed Control

Weed control and prevention procedures are required prior to initiation of construction and during active construction. These requirements are outlined below.

5.1 Preconstruction Weed Abatement

All weed species will be treated and controlled within the Project Area, including temporary staging areas and vehicle access routes. All species must be treated prior to construction or when treatments would be most effective based on the species phenology (see Section 7.2).

All project features within the project footprint will undergo preconstruction weed abatement. Weeds will be treated during and after construction within the impact area, including the 15-acre temporary laydown area.

Weed control treatments shall include all chemical, manual, and mechanical methods applied in compliance with BLM and the Imperial County Agriculture Commissioner, where appropriate. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a PCA and implemented by a QAL. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by BLM and the Imperial County Agriculture Commissioner. No deviation from the plan shall occur without prior written approval by SDG&E and BLM. It is the PCA's responsibility to address guidelines administered by regulatory agencies in the written recommendation.

The primary suggested means of control of these target weed species during preconstruction is through the application of herbicides. Herbicides kill or inhibit plant growth and can be very effective in controlling many weed species. Different weed species may require alternate herbicides, application rates, and time of application for effective treatment (see Section 7.2).

Using herbicides to control weeds requires careful planning and a professional staff familiar with the application areas and herbicides they are using. The use of herbicides should be under the direction of a professional pesticide applicator (QAL). Prior to application, the applicators should be aware of all safety regulations and applicable environmental regulations and familiar with target versus native plants. The WCM is responsible for meeting these requirements and approving any trained staff or certified pesticide applicators that will handle herbicides.

The method of application varies greatly from one species to the next and also with the degree of infestation. The application method ultimately chosen should minimize risks of harming non-target plants. The herbicide used should be appropriate for the given species, environmental condition, and regulatory environment. The environmental risks of using herbicides include drift, volatilization, persistence in the environment, and groundwater contamination.

Species descriptions and management measures are included in Section 7.2, Species-specific Weed Control Plans.

5.2 Construction Measures

As part of the environmental training program, field crews will be trained to recognize the importance of weed species control and informed of the measures designed to control the spread of weed species. Deliberate introduction of noxious, non-native, invasive plants or animals into the Project Area is prohibited. Heavy equipment will be commercially washed prior to entering the project site and, consequently, shall arrive at the work site weed free. All seeds and straw materials used during operation and maintenance activities will be weed free, as will all gravel and fill material, as commercially available.

A log will be kept for all vehicle/equipment/tool off-site washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log will include the signature of a responsible party. Logs will be available to the BLM, wildlife agencies, and biological monitor for inspection at any time and will be submitted to the BLM on a monthly basis during construction.

6.0 Long-term Monitoring

The 115 acre portion of the Project Area will be surveyed for weed species annually for the life of the project to monitor previously identified and treated populations and to identify new weed populations. Based on the species observed during pre-construction surveys and the species with potential to infest the Project Area in the future, surveys should generally be conducted in late winter/early spring of each year to capture all potentially invasive species. The exact timing will be determined by the WCM based on rainfall and other environmental conditions. If evidence of late or early season weed species is noted, timing of annual surveys may be shifted to account for these species.

Surveys should focus on (1) areas where target weed species have previously been mapped; (2) areas where target species have previously been treated; and (3) areas that are being actively disturbed by operation and maintenance activities. Prior to each survey, the target species list should be reevaluated to include new species that may be introduced to the area over time and weed species that may be classified into elevated Cal-IPC categories.

It is anticipated that those species listed in Table 2 will be of greatest concern. All surveys must be conducted by biologists or weed control specialists knowledgeable of noxious, non-native, invasive species to identify infestations of existing or new species.

Survey areas will be traversed on foot, with biologists walking meandering transects through the solar field, work areas, and ancillary facilities. Surveyors will record the location of all weed species when encountered using handheld GPS units and field maps. Each weed species population should be categorized into one of the five density classes (based on qualitatively derived ocular cover estimates of the population) listed in Table 1.

7.0 Long-term Adaptive Weed Management Measures

Long-term maintenance measures are described to keep the Project Area within the Low category in Table 1 (Section 4.1) for species that were removed during preconstruction weed removal efforts, and to prevent or control species that are not yet established but could potentially infest the site in the future. These long-term weed control measures are intended to be adaptive, to address new threats as they occur, and to prevent future infestations. Weed treatment and control shall occur on a minimum annual basis unless otherwise approved by the BLM, Pest Control Advisor, and Project proponent.

The Project Area is part of a larger Sonoran Desert ecosystem that includes neighboring desert scrub and agricultural lands. Many weed species are dispersed by wind, water, or transport by animals (including humans). The movement of weeds from adjacent areas may pose a long-term challenge and therefore there is a need for monitoring for other noxious species including those listed in Appendix A. The strategy for the weed management plan is to be adaptive. This strategy can be broken down into several steps:

- Identify the weeds present on the site that the Project proponent is required to control. This includes adding or removing target weed species as conditions change.
- Select the appropriate weed control options.
- Monitor and assess impacts from operation and maintenance activities on weed species. Work with the Project proponent to address actions that may be detrimental to weed control where practical without interfering with required activities.
- Evaluate the effectiveness of control methods applied each year and use this information to refine control priorities, methods, and goals. These data can provide useful information for improved management practices and, in turn, may increase the overall quality of habitat surrounding the Project Area.

7.1 Management Tools

The species, location, and extent of weed species infestation will largely determine the management tools used to control populations. Consideration will also be given to the difficulty of controlling a particular weed species. Control efforts will follow an integrated pest management approach. This approach balances cost, overall effectiveness, and environmental risk in selecting the best treatment(s) to use for any given target at any location in the Project Area.

All options of control will be considered by the WCM before action is taken. These methods may include removal by hand or machine, passive management in appropriate areas (allowing native species to become established and outcompete invasive species), and/or application of herbicides. Each of these management tools has advantages and disadvantages, and often the best approach is a combination of methods (Hoshovsky and Randall 2000). In addition, optimum timing of invasive species management strategies can vary by the type of plant in question. During the lifetime of the required long-term weed control, several strategies may be implemented.

7.1.1 Prevention

The most effective, efficient, and low-cost weed species control strategy is to prevent weed invasions from ever occurring and quickly detect invasions that do occur so that weeds can be eradicated or contained before they spread (Hoshovsky and Randall 2000). This requires not only knowing where existing infestations occur through regular survey and mapping events, but also incorporating meaningful BMPs into construction activities that are aimed at containment of infestations. Management tools to prevent the establishment of weeds within a given area include annual monitoring (as outlined in Section 6.0) and eradicating weeds immediately upon detection. If it is not feasible to remove a particular weed species in its entirety, preventative measures may include cutting off target species' flower and seeding stalks (inflorescences) and removing them from the site.

Specific BMPs used in each area will be coordinated between the contractor and WCM. The following list presents examples of BMPs that would be incorporated into construction or maintenance activities to prevent the spread of weeds:

- Avoid impacts to native vegetation.
- Avoid and minimize ground disturbance. Consider impacts of different types of equipment and when possible choose equipment that will result in the least disturbance to soil and vegetation.

- Determine whether weed control efforts should be conducted before, during, and/or after construction or maintenance activities, and incorporate into the project schedule.
- Wash vehicles, machinery, and tools off-site in a commercial facility prior to entering the work area to minimize the potential introduction of additional weed species. Use only barren fill and gravel.

A worker education program is recommended to inform construction and maintenance workers how to implement the BMPs.

7.1.2 Manual Removal

Physical control often involves hand dethatching, pulling, cutting, or removal by mechanical means. These methods are labor intensive and may be used for smaller populations of weed infestations or around sensitive habitats. Physical methods of weed control may provide an advantage in these situations where desirable species may be left in place, while surrounding weeds may be removed. Dethatching is a useful tool that removes the dead or dying plant material from the soil surface. Dethatching also removes weed seed that may still be attached to the plant and will also increase the effectiveness of subsequent herbicide applications.

When weed material is transported away from the removal area, care must be taken to confine the material and ensure that seeds or vegetative material do not escape and infest new areas. Whenever possible and for all small infestations, seed and vegetative material will be secured in appropriate bags and double bagged. For large weed removal efforts, all material will be placed in a refuse bin (dumpster). The vegetative material placed in the bin will not exceed the top, and the bin will be appropriately covered so that plant material cannot be blown out of the bin during transport to a landfill. All invasive weeds from the project site must be disposed of within Imperial County at Imperial County Landfill Company and/or Mesquite Regional Landfill.

7.1.3 Competition and Restoration

Competition and restoration involves the seeding and care of installed native species so they may outcompete weeds. Although the creosote scrub found on and near the Project Area is generally considered a low-cover vegetation community, native plants can still offer competitive disadvantages to weeds in the form of allelopathy (creosote) and water sequestration (Mahall and Callaway 1991). Seeding will often involve a maintenance period where weeding will be necessary at least monthly during the growing season. This method of weed management should be implemented in conjunction with another form of weed control, such as dethatching or herbicide use.

7.1.4 Chemical Control

The *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS) was released to the public on June 29, 2007. The Record of Decision (ROD) for the PEIS includes standard operating procedures for applying herbicides (summarized in Appendix B, Table B-2; pages B-9 to B-14 of the ROD) and mitigation measures (summarized in Table 2; pages 2-4 to 2-6 of the ROD) that were adopted to ensure that all practicable means to avoid or minimize environmental harm are implemented in these vegetation treatment projects. The Human Health Risk Assessment (PEIS, Appendix B) and Ecological Risk Assessment (PEIS, Appendix C) include an analysis of impacts to resources and human health. The Ocotillo Sol Weed Management Plan tiers to the human health and ecological risk assessments, the resource analyses related to the standard operating procedures, and resource analyses related to the mitigation measures in the PEIS.

Only adjuvants and herbicides approved by BLM in California will be used on BLM lands. Herbicide application can only occur on BLM lands with an approved Pesticide Use Proposal with consultation with a PCA. The chemical means of controlling weeds is the application of herbicides. Herbicides kill or inhibit plant growth and can be very effective in controlling many weed species. Different weed species may require alternate herbicides, application rates, and times of application.

Using herbicides to control weeds requires careful planning and a professional staff familiar with the application areas and herbicides they are using. The use of herbicides should be under the direction of a professional pesticide applicator with either a QAL or PCA in the state of California. Before applying any herbicides, the applicators should be aware of all safety regulations and applicable environmental regulations and be familiar with target versus native plants. The WCM is responsible for meeting these requirements and approving any trained staff or certified pesticide applicators that will handle herbicides.

The method of application varies greatly from one species to the next and also with the degree of infestation, time of year, and environmental conditions. The application method ultimately chosen should minimize risks of harming non-target plants. The environmental risks of using herbicides include drift, volatilization, persistence in the environment, groundwater contamination, edge effects on sensitive wildlife, and harmful effects on animals.

Herbicide application should always include marker dyes to make the herbicide visible. Higher visibility is desirable, because it:

- allows personnel to more effectively protect themselves against contamination;

- prevents unintended multiple application to a particular area or plant;
- ensures complete coverage of target area and plants; and
- informs personnel of overspray and wind-drift issues, which protects non-target plants.

7.1.4.1 Chemical Control Environmental Effects

Care must be taken to ensure that herbicide applications used to control weed species do not impact wildlife species, sensitive or otherwise, near the Project. This plan proposes the use of two types of herbicide: glyphosate and triclopyr. An analysis of potential environmental effects of the selected herbicides follows.

7.1.4.1.1 Glyphosate

Glyphosate is a very widely used broad-spectrum, non-selective herbicide that will control most plant species (Tu et al. 2001a). The most common brand name is Roundup®, but as the patent for glyphosate has expired, it is manufactured under a wide variety of brand names. Glyphosate can effectively control monocots and dicots, but may have trouble penetrating woody bark (Forney and Davis 1981). Few glyphosate formulations are approved for aquatic use, as adjuvants added to a formulation for increased effectiveness can be toxic to aquatic wildlife (EXTOXNET 1996).

Degradation and Mobility

The most significant contributor to glyphosate degradation is microbial metabolism. Rates of degradation by microbes vary by soil texture and the particular microbial community at the application site (Malik et al. 1989). The average half-life of glyphosate in soil is 47 days (Tu et al. 2001a). Photodegradation of glyphosate has been observed, but its significance is not currently known (Lund–Hoie and Friestad 1986). It is not readily degraded by hydrolysis or other spontaneous chemical processes (Zaranyika and Nyandoro 1993).

Although glyphosate can persist in the soil for several months, its extremely high ability to bind to clay particles (“adsorption”) makes it effectively inert and immobile once it contacts soil (Feng and Thompson 1990).

Known Environmental Effects

Waters: As glyphosate binds so strongly to soils after application, it is highly unlikely to become motile from exogenous water flows unless the parent soils are washed out. Even so, glyphosate bound to soil particles suspended within water flows is not bioavailable and has little to no capacity for herbicidal action (Malik et al. 1989). Glyphosate oversprayed directly into waters is known to dissipate rapidly due to

adsorption, dilution, and degradation (Folmar et al. 1979; Feng et al. 1990; Paveglio 1996).

Wildlife: As glyphosate targets enzymes which are found only in plants, it is thought to be relatively innocuous to wildlife (Tu et al. 2001a). As shown in Table 3, glyphosate has a relatively low toxicity to birds and mammals and moderate toxicity to fish (Evans and Batty 1986; Neskovic et al. 1996). In general, chemicals with the lowest LD/LC 50 ratings are considered to be the most toxic. Deer grazing on treated foliage did not show any signs of reduced food intake or treated vegetation avoidance (Sullivan and Sullivan 1979). That being said, weight gain and some pancreatic damage to mammals have been noted at high dosages in laboratory studies (EPA 1993). Glyphosate does not appear to affect the ability of bird (chicken) eggs to hatch after total immersion in a 5 percent solution (Batt et al. 1980).

TABLE 3
GLYPHOSATE TOXICITY TO WILDLIFE

Class	Application	LD_{50}/LC_{50}
Rabbits	Dermal	>5,000 mg/kg
Rats	Oral	5,600 mg/kg
Bluegill sunfish	In solution	120 mg/L

Source: Tu et al. 2001a
LC_{50}/LD_{50} = lethal concentration/dose of a chemical for 50% of an animal test population

Although, in general, glyphosate is moderately toxic to fish species, toxicity can vary significantly depending on formulation. For example, formulations not approved for public use (such as Bronco®) are toxic to fish and have a relatively low lethal concentration LC_{50} value (chemical concentration which causes 50 percent mortality of test animals in a given time). Rodeo®, a separate formulation approved for aquatic use, has a relatively high LC_{50} and consequently low toxicity to aquatic life.

Although glyphosate has a low to moderate toxicity to aquatic life, some surfactants and adjuvants commonly used in combinations with glyphosate have a high toxicity to aquatic life and are not approved for aquatic use (Tyler 1997a,b).

As this project does not contain aquatic resources and the potential motility of the herbicide is extremely limited due to adsorption, glyphosate is not expected to impact aquatic resources on-site or downstream.

Sensitive Species Analysis

According to previous avian (adult and egg) toxicity studies (see discussion of wildlife above), glyphosate should not directly affect the burrowing owl. Indirect effects to the

burrowing owl may include a decrease in prey species (rodents and lizards) within the Project Area due to the disappearance of weeds as a food source and source of cover.

Although studies of glyphosate on harvester ants (*Pogonomyrmex* spp.) and/or flat-tailed horned lizard (*Phrynosoma mcalli)* have not been conducted, in general, glyphosate formulations have been shown to have a low or negligible effect on terrestrial and aquatic insect life (Folmar et al. 1979; Gardner and Grue 1996; Simenstad et al. 1996; Peterson and Hulting 2004; Bohan et al. 2005). Indirect effects of glyphosate on insect populations may include the disappearance of weed seeds as a food source (Kerry et al. 2006).

7.1.4.1.2 Triclopyr

Triclopyr is a widely used herbicide that is particularly effective against broadleaved herbs and woody plant species (WSSA 1994). It has little to no ability to control grasses and other monocots. It has two common formulations: a triethylamine salt (Garlon® 3A) and a butoxyethyl ester (Garlon® 4 and Pathfinder® II). Each formulation can have significant differences in plant absorption, application method, water solubility, and degradation (Tu et al. 2001b).

Degradation and Mobility

Both formulations of triclopyr (salt and ester) can be degraded by sunlight, microbes, and hydrolysis. In general, triclopyr binds to soil particles well and is not likely to become mobile after application (Tu et al. 2001b). However, the salt formulation is highly soluble in water and can be mobilized by exogenous water flows. The ester formulation can be highly volatile at high temperatures (Tu et al. 2001b).

Photodegradation appears to be the most significant contributor to herbicide breakdown in the environment. Studies have shown the half-life of triclopyr on soil in full sun to be two hours (McCall and Gavit 1986). In addition, Triclopyr can be chemically degraded by hydrolysis and microbial action. The half-life of the ester formulation of triclopyr in water is approximately three hours (McCall and Gavit 1986). Microbial rates of degradation of triclopyr vary with soil moisture, sunlight exposure, and organic content (46 days to 199 days) (Johnson et al. 1995).

Known Environmental Effects

Waters: Trace amounts of triclopyr will likely become motile following rain events (McCall and Gavit 1986). However, studies have shown that long-distance overland flow and sub-surface leaching of triclopyr have a negligible effect on nearby streams and do not pose a threat to non-target organisms or downstream users (Newton et al. 1990; Stephenson et al. 1990; Thompson et al. 1991; Norris et al.1987).

Wildlife: Over the short term, triclopyr has been shown to be minimally toxic to both birds and mammals (Table 4). In addition, it will not likely be present in adequate concentrations to impact wildlife indirectly foraging on sprayed vegetation or to persist long enough to bioaccumulate up the food chain (Newton et al. 1990). The salt formulation of triclopyr can cause severe eye damage to mammals and should not be sprayed on or near wildlife (Tu et al. 2001b). The long-term effects of triclopyr on terrestrial wildlife are not known.

TABLE 4
TRICLOPYR TOXICITY TO WILDLIFE

Class	Application	LD_{50}/LC_{50}
Rabbits	Dermal	>2,000 mg/kg
Rats	Oral	716 mg/kg
Mallard duck	Oral	1,698 mg/kg
Bluegill sunfish (Salt)	In solution	148 mg/L
Bluegill sunfish (Ester)	In solution	0.87 mg/L

Source: Tu et al. 2001
LC_{50}/LD_{50} = lethal concentration/dose of a chemical for 50% of an animal test population

The two formulations of triclopyr have different effects on fish and aquatic species (see Table 4). The salt formulation has been shown to be minimally toxic to fish (Tu et al. 2001b). The ester formulation, due to its hydrophobic chemical properties, can be highly toxic to fish species (EPA 1998). As this project does not contain aquatic resources and the motility of the herbicide is limited, triclopyr (in either formulation) is not expected to impact aquatic resources on-site or downstream. The long-term effects of triclopyr on aquatic resources are not known.

Sensitive Species Analysis

According to previous avian toxicity studies (see discussion of wildlife above), triclopyr should not directly affect the burrowing owl. Indirect effects to the borrowing owl may include a decrease in prey species (rodents and lizards) within the Project Area due to the disappearance of weeds as a food source and source of cover.

The effects of triclopyr on FTHL are not known. Its short half-life and low persistence indicate that its direct effect on FTHL may be minimal. Triclopyr has been found to be non-toxic to insects and will not directly affect FTHL food sources (EPA 1998). Indirect effects of triclopyr and other herbicides on insect populations may include the disappearance of weed seeds as a food source (Kerry et al. 2006).

7.2 Species-specific Weed Control Plans

Species profiles and management strategies have been developed and compiled for all weed species observed within the Project Area or buffer, and are presented below. A summary of recommended chemical treatments is presented in Table 5.

TABLE 5
CHEMICAL TREATMENT RECOMMENDATIONS

Species	Common Name	Herbicide	Dosage	Timing and Notes
Brassica tournefortii	Saharan mustard	glyphosate	4%, low volume directed spray	Late winter and early spring, prior to flowering.
		triclopyr	2%, foliar spray	Ambient temperature greater than 55 degrees at noon.
Schismus barbatus	Mediterranean grass	glyphosate	2%	
Tamarix aphylla	Athel tamarisk	triclopyr	5% or undiluted Pathfinder II	Late fall. Cut and paint stumps with herbicide. Foliar spray to resprouts.
Tamarix ramosissima	saltcedar	triclopyr	5% or undiluted Pathfinder II	Late fall. Cut and paint stumps with herbicide. Foliar spray to resprouts.

7.2.1 Saharan Mustard (*Brassica tournefortii*)

Photograph 1: Saharan mustard (*Brassica tournefortii*) rosette and inflorescence in Project Area.

Weed Designations: Cal-IPC High rating, BLM Noxious Weed

Description: Saharan mustard is a Mediterranean species native to North Africa, the Middle East, and southern Europe. Currently, this plant is found throughout the low-elevation deserts of the southwest—southern Nevada, southern California, Arizona, New Mexico, and west Texas. It prefers sandy or gravelly soil, although it is also able to grow

on alluvial fans and rocky hillsides. Unlike many invasives, this plant does not require disturbed soil to become established.

Photograph 2: Saharan mustard growing on access road east of Project Area (left).
Saharan mustard growing within localized depressions within Project Area (right).

This plant is a robust, fast-growing winter annual with a basal rosette of leaves with stinging hairs. The basal rosette of leaves grows up to 3 feet in diameter in favorable environments (University of Nevada Cooperative Extension [UNCE] 2002). Saharan mustard rosettes within the Project Area average 6–10 inches in diameter. The erect stem can be 4–40 inches in height, and it branches extensively, forming a “tumbleweed” once the plant dries up and the stem breaks. The leaves smell like cabbage when they are crushed.

Plants flower as early as December or January, immediately following the first winter rains, and may set seed as early as February. The flowers are small and dull yellow, making them inconspicuous compared to most other true mustards (Sanders and Minnich 2000). Fruits are long pods that contain between 750 and 9,000 tiny seeds each.

Saharan mustard forms dense stands that crowd out native wildflowers. It has a competitive edge with its early phenology, which allows it to usurp soil moisture from native species which develop later (Sanders and Minnich 2000). It appears that this plant may carry fire, especially when there are other low-growing invasive species (such as Mediterranean grass) present underneath.

Current Distribution in the Project Area: Sahara mustard was observed in varying densities within the Project Area. The highest densities were observed along the access road on the eastern edge of the 115-acre Project Area (Photograph 2). Within the Project Area, Sahara mustard appears to be associated with subtle drainage features and local depressions (see Photograph 2). Locally, Sahara mustard can be found in relatively high densities within the large drainage south of the Project and surrounding the Imperial Valley substation immediately north of the Project.

Control Options

All efforts to control this species within the Project Area will be conducted as outlined in this plan. The following are options that can be utilized as determined by the WCM.

Prevention: Vehicle and human transit should be limited through infested areas once this plant has gone to seed, especially following a rain event, as the mucilaginous coating on the seeds allow them to stick onto objects and travel to new places. Repeated treatments and monitoring on small areas are preferable to diffuse treatments over wide areas, which may inadvertently increase the density of this plant (Trader et al. 2006).

Physical Control: If an infestation is small, it is possible to remove the plants by digging them out of the ground or hand-hoeing. This is especially effective if the invasion is new and there is not a seed bank existing in the soil. It is important to do this prior to seed set and also to bag and remove the plants from the site. A site should be revisited weekly in order to catch later-germinating plants, especially if there have been multiple rainfall events. Weed whipping is not recommended as the plants will simply regrow (UNCE 2002).

Chemical Control: Saharan mustard is often the first winter annual to germinate in an area, making effective herbicide treatment possible while minimizing impacts to non-target species. Triclopyr, a BLM approved herbicide, has been effective at killing young rosette/early flowering plants at Lake Mead National Recreation Area (UNCE 2002). According to the National Park Service, Saharan mustard can also be controlled with BLM approved 2, 4-D, dicamba, or glyphosate (Mau–Crimmins et al. 2005). If glyphosate is selected, recent experience in the Colorado Desert has shown that treatments are most effective at a 4 percent solution in a low-volume directed spray when ambient temperatures exceed 55 degrees Fahrenheit (R. Hobbs pers comm.). Ambient temperature and lifecycle stage (younger plants are more sensitive to treatment) likely effect the uptake of glyphosate into Sahara mustard root structures, and consequently its ability to control individual plants. In addition, as the key to controlling Sahara mustard is to control the local seed bank, inflorescences and seed heads should be removed and bagged prior to herbicide application.

Treatment Schedule: Apply treatments in late winter to very early spring. All cut vegetative material should be bagged, carried off-site, and disposed of in a responsible and legal manner to prevent the spread of weeds. Care should also be taken during transport of the materials to ensure they are secure (and do not, for example, fly out of the back of a truck).

7.2.2 Mediterranean grass (*Schismus barbatus*)

Photograph 3: Mediterranean grass was observed in low densities throughout the Project Area.

Weed Designations: Cal-IPC Limited, BLM Noxious Weed

Description: Mediterranean grass is a small, basal, and tufted annual grass that typically occurs in dry, open, and generally disturbed areas (Baldwin et al. 2012; Photograph 3). This grass grows up to one foot high, has linear leaves, and an inflorescence that is composed of dense, appressed spikelets (Lightner 2011). Mediterranean grass can be common and abundant in the open spaces between shrubs in the desert, often producing a dense mat of green that fades to a light straw color once dead (Bossard et al. 2000).

Mediterranean grass is native to southern Europe, northern Africa, and southwestern Asia, and spread to California in the 1930s. The plant is spread long distances by grazing, off-road vehicle use, and construction of linear corridors. The seeds disperse short distances by sheet flooding and by wind (Bossard et al. 2000).

Mediterranean grass germinates in early winter following rain events of approximately 0.4 inch. It can grow in two weeks and remain until early spring, when rainfall is reduced and temperatures are higher. In less than two weeks, the grass can go to seed from its flowering stage. It typically flowers from March through May (Bossard et al. 2000).

As the grass can create dense mats, it competes effectively for limiting nutrients with native annual plants that also occupy the spaces between shrubs. Mediterranean grass may be contributing to the increasing frequency and extent of fire in California deserts. Fire can be carried readily across the desert by the dead Mediterranean grass stems, which remain in the ground for up to two years (Bossard et al. 2000).

Current Distribution in the Project Area: Mediterranean grass was observed in low densities, relatively evenly dispersed, throughout the Project Area and adjacent lands. Densities of Mediterranean grass appeared to be slightly correlated with drainages and roadsides, but were found throughout the area.

Control Options

All efforts to control this species within the Project Area will be conducted as outlined in this plan. The following are options that can be utilized as determined by the WCM.

Physical Control: Burning is not recommended, as it can enhance the survival of the species (DiTomaso et al. 2007). As the grass is small, it is impractical to hand pull. In addition, disruption of the soil surface when plants are removed may promote further weed establishment. Plowing, disking, or scraping is not recommended, as soil disturbance and reduced shading are favorable conditions for Mediterranean grass (Bossard et al. 2000).

Chemical Control: Herbicide, including glyphosate, can control Mediterranean grass, but application should be precise as the grass has a small leaf and culm surface area (Bossard et al. 2000).

Treatment Schedule: Application of herbicide should occur late winter to very early spring. Care should be taken during application of herbicide so as not to affect non-target species.

7.2.3 Athel tamarisk (*Tamarix aphylla*)

Weed Designations: Cal-IPC Limited rating, BLM Noxious Weed

Description: Athel tamarisk is an evergreen tree that can grow up to 12 meters tall (DiTomaso et al. 2007). Its bark is thick and reddish brown to gray. The twigs are long, drooping, and appear jointed. The leaves are grey, scalelike, and do not overlap (Lightner 2011).

Athel tamarisk was originally introduced as a landscape ornamental for shade, as a windbreak along roads, and as erosion control in southern California. As this species of tamarisk seldom escapes cultivation, it is considered less invasive (Tesky 1992). Athel tamarisk is native to northern Africa, the Middle East, and India (DiTomaso et al. 2007).

Athel tamarisk produces white to pale pink flowers from May to July (DiTomaso et al. 2007). This tree mainly reproduces by seed, but sometimes vegetatively from root sprouts. Germination occurs shortly after seed dispersal, and once seedling are established in favorable conditions they may grow 3-4 meters in one year (DiTomaso et al. 2007).

Athel tamarisk can live up to 100 years and dry up viable water sources, increase surface soil salinity, modify hydrology, decrease biodiversity of plants, and increase fire risk (IUCN 2010).

Current Distribution in the Project Area: Although not found within the Project Area, a population of athel tamarisk was observed 0.25 mile north of the Project intermixed with saltcedar in a swale associated with runoff from the Imperial Valley Substation. Although saltcedar individuals appeared to be undergoing treatment, athel tamarisk individuals did not. An individual athel tamarisk tree was also identified in Pinto Wash approximately 0.15 mile south of the Project Area.

Control Options

All efforts to control this species within the Project Area will be conducted as outlined in this plan. The following are options that can be utilized as determined by the WCM.

Physical Control: As this tree typically grows in sandy ground, seedlings can be easily removed by hand. Care must be taken to remove as much of the root system as possible. If the trees are fully grown, larger mechanized devices, such as a chainsaw or dozer, are required. If a large area is invaded, the area should be deep ripped to bring any root material to the surface. Since re-shooting is likely, follow-up treatments are necessary (Cooperative Research Centre 2003).

Chemical Control: Herbicides with effectiveness against woody broadleafed plants, such as triclopyr, should be used as follow-up to initial mechanical control (Cooperative

Research Centre 2003). The cut-stump method is recommended, where the main stem is cut off by chainsaw and herbicide is applied to the cut stem immediately after to ensure absorption.

Treatment Schedule: Early control before the tree becomes mature is recommended as well as integrated control methods, using both mechanical and chemical means (Cooperative Research Centre 2003). Mechanical and chemical control should occur in late winter or early spring before the tree flowers and goes to seed.

7.2.4 Saltcedar (*Tamarix ramosissima*)

Weed Designations: Cal-IPC High rating, BLM Noxious Weed

Description: Saltcedar is a rhizomatous shrub that may occur as spotty to heavy infestations along drainages and shores of water bodies. The scale-like leaves have salt glands; flowers are small, white to deep pink, and are densely packed on racemes. The bark is reddish brown with smooth stems less than 1 inch in diameter. Saltcedar is native to Eurasia and Africa and was used in the 1800s as erosion control, windbreaks, and shade, and as an ornamental. It spreads by seed and vegetative growth. Saltcedar is a prolific seeder, with as many as 50,000 seeds per plant per year, produced over a long period (April to October) (Horton et al. 1960). Seeds are easily dispersed by wind or as water moves through the watercourses that they occupy. The seeds remain viable only for a few weeks, but they germinate easily in saturated soil. Horton et al. (1960) noted that receding spring and summer flows are ideal for germination and seedling establishment. Saltcedar can also reproduce vegetatively, if stems are buried in damp soil, as in a flooding situation ("layering"). Saltcedar is drought-tolerant and withstands lowered water tables as well as flooding (Carpenter 1998).

Photograph 4: Treated saltcedar north of the Project Area, immediately east of the Imperial Valley substation.

Presence of saltcedar can have devastating effects on native habitats, and it has been a pervasive problem across the American Southwest for several decades. Some of the more profound effects include dramatic narrowing of stream channels; sediment trapping; lowering of water tables; increased soil salinity, fire frequency, and altered

plant community composition; and decreased native wildlife diversity. Native riparian species such as cottonwood and willow can be replaced by saltcedar, which can invade to the point of dominance (Carpenter 1998).

Like many other invasive species, saltcedar is easily spread and difficult to eradicate. Therefore, early detection and control are critical to the successful control of this species.

Current Distribution in the Project Area: Although not found within the Project Area, a population of saltcedar was observed 0.25 mile north of the project in a swale associated with runoff from the Imperial Valley Substation (see Photograph 4). This population appears to be undergoing treatment due to the presence of cut stems, hydroseed, and herbicide dye observed throughout the area.

Control Options

Early detection and control are critical to the successful control of this species. Post treatment monitoring is also essential, since saltcedar is capable of resprouting following treatment. Seedlings will continue to establish as long as saltcedar infestations persist upwind or upstream of the Project Area. The following are options that can be utilized as determined by the WCM.

Physical Control: Cutting alone is not an effective means of controlling saltcedar, since it tends to resprout vigorously from roots and stumps. However, cutting to the stump and then immediately applying herbicide has been effective (see below). Seedlings and small plants may be successfully uprooted by hand, if the entire root system can be removed. A weed wrench may also be used to dislodge larger individuals. All cut vegetative material should be bagged, carried off-site, and disposed of in a responsible and legal manner to prevent the spread of weeds. Care should also be taken during transport of the materials to ensure they are secure.

Chemical Control: The most frequently used and effective method in California for larger trees is to cut an individual saltcedar shrub as close to the ground as possible and immediately (in less than 30 seconds) apply a triclopyr herbicide to the perimeter of the cut stems. This method is most effective during fall months, when the plants are actively translocating materials to their roots (Carpenter 1998). Foliar treatment of any resprouts and any plants less than 2 feet tall is necessary. This method allows plants to be treated selectively, which is especially important if there are also native species present.

Treatment Extent: As the saltcedar in the local area is not within the Project Area and it is currently being treated by another project, it will not be treated as a part of the initial pre-construction treatments of the Project. That being said, saltcedar has a potential for colonizing drainage areas on the eastern (downslope) edge of the project and will likely be a part of long term monitoring and management.

Treatment Schedule:

- Winter–early spring: locate all saltcedar individuals within mapped areas.
- Spring–summer: treat seedlings and mature trees with an appropriate control method. Avoid treatment of mature trees in spring and summer months in areas where nesting birds occur, in these cases treat mature trees with an appropriate control method in the late winter. All cut vegetative material should be bagged, carried off-site, and disposed of in a responsible and legal manner to prevent the spread of weeds. Care should also be taken during transport of the materials to ensure they are secure.
- Fall: If the cut-stump herbicide method is used, fall is the optimal time for treatment. Follow-up control should occur at least twice per year.

7.3 Reporting

In December of each year following initiation of Project construction, an annual report will be submitted to interested agencies, including, but not limited to: BLM, U.S. Fish and Wildlife Service, California Department of Fish and Game, and Imperial County. The annual report will include a summary of the activities completed during the previous calendar year related to annual weed survey and control efforts. Specifically, the annual report will include:

- the results and maps of the annual weed surveys;
- a description of any new weed species identified;
- a description of methods and locations of weed control efforts for each species identified and treated;
- an analysis of the efficacy of weed control efforts performed to date and recommend changes to future control efforts, if necessary;
- identification of unforeseen issues and recommendations to address; and
- a work plan that will include a proposed survey and treatment schedule for the next year as well as specific weed management plans for any new species identified and updated control plans for species where current control methodologies can be improved.

8.0 Conclusion

A total of two exotic species (Saharan mustard and Mediterranean grass) were observed within the Project Area. Two additional exotic species (saltcedar and athel tamarisk) were observed in the vicinity of the Project Area. Saharan mustard and Mediterranean grass will be initially treated as a part of Project weed control. Since both species are pervasive in the Sonoran Desert the control of each may be discontinued, in consultation with BLM, based on the results of the annual treatments. The two tamarisk species in the area will be treated long-term if they colonize sites within the Project Area. All species must be treated prior to construction or when treatments would be most effective based on the species phenology. Construction weed abatement measures will be implemented during Project implementation, and long-term weed monitoring and control will be required. Long-term monitoring and adaptive control measures will be implemented to reduce the threats from future weed challenges.

9.0 References Cited

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (Editors)
2012 *The Jepson manual: vascular plants of California. Second edition, thoroughly revised and expanded.* University of California Press, Berkeley, Los Angeles, and London.

Batt, B.D., J.A. Black and W.F. Cowan
1980 The Effects of Glyphosate Herbicide on Chicken Egg Hatchability. *Canadian Journal of Zoology* 58:204-210.

Bohan, D.A., C.W.H. Boffey, D.R. Brooks, S.J. Clark, A.M. Dewar, L.G. Firbank, A.J. Haughton, C. Hawes, M.S. Heard, M.J. May, J.L. Osborne, J.N. Perry, P. Rothery, D.B. Roy, R.J. Scott, G.R. Squire, I. Woiwood, and G.T. Champion
2005 Effects of Weeds and Invertebrate Abundance and Diversity of Herbicide Management in Genetically Modified Herbicide-tolerant Winter-sown Oilseed Rape. *Proc. R. Soc. B*. 272:463–474.

Bossard, C.C., J.M. Randall, M.C. Hoshovsky (Editors)
2000 Invasive Plants of California's Wildlands. University of California Press, Berkeley, Los Angeles, and London.

California Invasive Plant Council (Cal-IPC)
2012 Invasive Plant Inventory. Accessed at http://www.cal-ipc.org/ip/inventory/index.php on April 20, 2012.

Carpenter, A.T.
1998 Element Stewardship Abstract for *Tamarix ramosissima* Ledebour, *T. pentandra* Pallas, *T. chinensis* Loureiro, and *T. parviflora* De Candolle. The Nature Conservancy, Arlington, VA.

Cooperative Research Centre
2003 Weed Management Guide. Weeds of National Significance. *Tamarix aphylla*. Australia. Accessed at http://www.weeds.gov.au/publications/guidelines/wons/pubs/t-aphylla.pdf on March 23, 2012.

DiTomaso, J. M., and E. A. Healy
2007 *Weeds of California and Other Western States,* vol. 1. University of California Department of Agriculture and Natural Resources, Oakland.

Evans, D.D. and M.J. Batty
1986 Effects of High Dietary Concentrations of Glyphosate on a Species of Bird, Marsupial and Rodent Indigenous to Australia. *Environmental Toxicology and Chemistry* 5:399-401.

EXTOXNET
1996 Glyphosate. Pesticide Information Profiles. Extension Toxicology Network. Accessed at http://ace.orst.edu/info/extoxnet/ on April 20, 2012.

Feng, J.C. and D.G. Thompson
1990 Fate of Glyphosate in a Canadian Forest Watershed: 2. Persistence in Foliage and Soils. *Journal of Agricultural Food Chemistry* 38:1118-1125

Feng, J.C., D.G. Thompson, and P.E. Reynolds
1990 Fate of glyphosate in a Canadian forest watershed. 1. Aquatic Residues and off-target assessment. Journal of Agricultural Food Chemistry 38:1110-1118.

Folmar, L.C., H.O. Sanders, and A.M. Julian
1979 Toxicity of the herbicide glyphosate and several of its formulations to fish and aquatic invertebrates. *Arch. Environ. Contam. Toxicol*. 8:269–278.

Forney, D.R. and D.E. Davis
1981 Effects of Low Concentrations of Herbicides on Submersed Aquatic Plants. *Weed Science* 29:269-685.

Gardner, S.C., and C.E. Grue
1996 Effects of Rodeo® and Garlon 3A® on nontarget wetland species in central Washington. *Environ. Toxicol. Chem*. 15:441–451.

Hobbs, R.
2012 Personal communication, March. Senior Restoration Biologist, Restoration Team, RECON Environmental.

Horton, J.S., F.C. Mounts, and J.M. Kraft
1960 Seedy germination and seedling establishment of phreatophyte species. U.S. Forest Service Research paper #48. Rocky Mountain Forest and Range Experiment Station.

Hoshovsky, M. C. and J. M. Randall
2000 Management of Invasive Plant Species. In *Invasive Plants of California's Wildlands,* edited by C. C. Bossard, J. M. Randall, and M. C. Hoshovsky. University of California Press, Berkeley.

IUCN Species Survival Commission Invasive Species Specialist Group
2010 Global Invasive Species Database. Tamarix aphylla. Accessed at http://www.issg.org/database/species/ecology.asp on April 20, 2012.

Johnson, W.G., T.L. Lavy, and E.E. Gbur
1995 Persistence of Triclopyr and 2,4-D in Flooded and Non-flooded Soils. *J. Environ. Qual.*, 24:493-497.

Kerry F. L. Guiseppe, F. A., Drummond, C.S., and S. Wood
2006 The Use of Glyphosate Herbicides in Managed Forest Ecosystems and Their Effects on Non-Target Organisms with Particular Reference to Ants as Bioindicators. Maine Agricultural and Forest Experiment Station. The University of Maine. *Technical Bulletin* 192. January.

Lightner, James
2011 San Diego County Native Plants. Third Edition. Printed in Canada.

Lund–Hoie, K, and H.O. Friestad
1986 Photodegradation of the Herbicide Glyphosate in Water. *Bull. Environ. Contam. Toxicol.* 36:395-406.

Mahall, B.E. and R.M. Callaway
1991 Root communication among desert shrubs. *Proceedings of National Academy of Science*, USA. Vol. 88, pp. 874-876, February.

Malik, J., G. Barry and G. Kishore
1989 A Mini-review of “The Herbicide Glyphosate.” *BioFactors* 2(1):17-25.

Mau–Crimmins, T. M., S. E. Studd, and M. S. Mauzy
2005 Exotic Plant Management Plan for Montezuma Castle and Tuzigoot National Monuments. Technical Report NPS/IMR/SODN-001 (July). National Park Service. Denver.

McCall, P.J. and P.D. Gavit
1986 Aqueous Photolysis of Triclopyr and Its Butoxyethyl Ester and Calculated Environmental Photodecomposition Rates. *Environ. Toxic. Chem*. 5:879-885.

Neskovis, N.K. V. Poleksić, I. Elezović, V. Karan, and M. Budimiret
1996 Biochemical and Histopathological Effects of Glyphosate on Carp, *Cyprinus carpio. Bulletin of Environmental Contamination and Toxicology.* 56:295-302.

Newton, M., F. Roberts, A. Allen, B. Kelpsas, D. White, and P. Boyd
1990 Deposition and Dissipation of Three Herbicides in Foliage, Litter, and Soil of Brushfields of Southwest Oregon. *J. Agric. Food Chem*, 38:574-583.

Norris, L., M.L. Montgomery, and L.E. Warren
1987 Triclopyr Persistence in Western Oregon Hill Pastures. *Bull. Environ. Contam. Toxic*. 39:134-141.

Paveglio, F.L.
1996 Use of Rodeo and X-77 Soraderto Control Smooth Cordgrass (*Spartina alterniflora*) in a Southwestern Washington Estuary: Environmental Fate. *Environmental Toxicology and Chemistry* 15(6):961-968.

Peterson, R.K., and A.G. Hulting
2004 A Comparative Ecological Risk Assessment for Herbicides Used on Spring Wheat: the Effect of Glyphosate When Used within a Glyphosate-tolerant Wheat System. *Weed Sci.* 52:834–844.

Renewable Energy Action Team (California Energy Commission, California Department of Fish and Game, U.S. Department of Interior Bureau of Land Management, and Fish and Wildlife Service)
2010 Best Management Practices and Guidance Manual: Desert Renewable Energy Projects. California Energy Commission, Siting, Transmission, and Environmental Protection Division. REAT-1000-2010-009-F.

Sanders, A. and R. Minnich
2000 *Brassica tournefortii*. In *Invasive Plants of California's Wildlands,* edited by C. C. Bossard, J. M. Randall, and M. C. Hoshovsky. University of California Press, Berkeley.

Simenstad, C.A., J.R. Cordell, L. Tear, L.A. Weitkamp, F.L. Paveglio, K.M. Kilbride, K.L. Fresh, and C.E. Grue.
1996 Use of Rodeo® and X-77® spreader to control smooth cordgrass (*Spartina alterniflora*) in a southwestern Washington Estuary: 2. Effects on Benthic Microflora and Invertebrates. *Enviro. Toxicol. Chem.* 15(6): 969–978.

Stephenson, G.R., K.R. Solomon, C.S. Bowhey, and K. Liber
1990 Persistence, Leachability, and Lateral Movement of Triclopyr (Garlon) on Selected Canadian Forestry Soils. *J. Agric. Food Chem*. 38:584-588.

Sullivan, T.P., and D.S. Sullivan
1979 The effects of glyphosate food preference and consumption in black-tailed deer. *Can. J. Zool*. 57:1406-1412.

Tesky, Julie L.
1992 *Tamarix aphylla*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Accessed at http://www.fs.fed.us/database/feis/plants/tree/tamaph/all.html on March 23, 2012.

Thompson, D.G., B. Stanznik, D.D. Fontaine, T. Mackay, G.R. Oliver, and J.L. Troth
1991 Fate of Triclopyr Ester (Release®) in a Boreal Forest Stream. *Environ. Toxic. Chem*. 10:619-632.

Trader, M. R., M. L. Brooks, and J. V. Draper
2006 Seed Production by the Non-native *Brassica tournefortii* (Sahara Mustard) along Desert Roadsides. *Madroño* 53:313-320.

Tu, M., C. Hurd, R. Robison, and J.M. Randall
2001a Weed Control Methods Handbook: Glyphosate. The Nature Conservancy. April 2001.
2001b Weed Control Methods Handbook: Triclopyr. The Nature Conservancy. April 2001.

Tyler, M.J.
1997a Herbicides Kill Frogs. *Newsletter of the Declining Amphibians Taskforce* #21.
1997b Environmentally Friendly: A False Sense of Security? Species. *Newsletter of Species Survival Commission*, IUCN. The World Conservation Union. 29:20-21.

University of Nevada Cooperative Extension (UNCE)
2002 Identifying and Managing Sahara Mustard. Fact Sheet 05-02. Accessed at http://www.unce.unr.edu/publications/files/nr/2005/FS0502.pdf on June 15, 2009.

U.S. Environmental Protection Agency (EPA)
1993 Glyphosate. R.E.D. facts. Prevention, Pesticides, and Toxic Substances. EPA-738-F-93-011.
1998 R.E.D. Facts: Triclopyr. Prevention, Pesticides, and Toxic Substances (7508C). EPA-738-F-98-007. October.

WSSA
1994 Herbicide Handbook. Weed Society of America. Champaign, Illinois, 352 pp.

Zaranyika, M.F. and M.G. Nydandoro
1993 Degradation of Glyphosate in the Aquatic Environment: An enzymatic kinetic Model That Takes into Account Microbial Degradation of Both Free and Colloidal (or Sediment) Particle Adsorbed Glyphosate. *Journal of Agricultural Food Chemistry*.

ATTACHMENT A

APPENDIX A
POTENTIAL AND OBSERVED WEEDS WITHIN THE PROJECT AREA AND LOCAL REGION (0.5-MILE RADIUS)

Scientific Name	Common Name	Observed	Cal-IPC Rating	Habitats of Concern and Comments
Alhagi maurorum	Camelthorn	No	Moderate	Grassland, meadows, riparian and desert scrub, Sonoran thorn woodland. Very invasive in southwestern states. Limited distribution in California.
Brassica tournefortii	Saharan mustard, African mustard	Yes	High	Desert dunes, desert and coastal scrub.
Bromus diandrus	Ripgut brome	No	Moderate	Dunes, scrub, grassland, woodland, forest. Very widespread, but monotypic stands uncommon.
Bromus madritensis ssp. *rubens*	Foxtail chess, Red brome	No	High	Scrub, grassland, desert washes, woodlands.
Cynodon dactylon	Bermuda grass	No	Moderate	Riparian scrub in southern California. Common landscape weed, but can be very invasive in desert washes.
Halogeton glomeratus	Halogeton	No	Moderate	Scrub, grasslands, pinyon–juniper woodland. Larger problem in Nevada. Monotypic stands are rare.
Kochia scoparia	Kochia	No	Moderate	Scrub, chaparral, grasslands.
Schismus barbatus	Mediterranean grass	Yes	Limited	Scrub, grassland, desert washes, desert scrub,
Sisymbrium irio	London rocket	No	Moderate	Scrub, grasslands. Widespread. Primarily in disturbed sites. Impacts vary locally.
Stipa capensis	Mediterranean steppegrass, twisted-awned speargrass	No	Moderate	Desert scrub; first recorded in California 1995. Limited distribution, but spreading rapidly in California deserts.
Tamarix aphylla	Athel tamarix	Yes	Limited	Desert washes, seeps, and springs
Tamarix parviflora	Smallflower tamarisk	No	High	Riparian areas, desert washes, coastal scrub.
Tamarix ramosissima	Saltcedar, tamarisk	Yes	High	Desert washes, riparian areas, seeps and springs.
Washingtonia robusta	Mexican fan palm	No	Moderate	Desert washes. Limited distribution but spreading in southern California. Impacts can be higher locally.

APPENDIX E

Ocotillo Sol Project

CACA-51625

SDG&E Project Alternatives Analysis

Prepared for the Bureau of Land Management by
San Diego Gas & Electric Company
Updated October 2011

Introduction

San Diego Gas & Electric Company (SDG&E) submitted a right-of-way application to the Bureau of Land Management (BLM) in December 2009 (revised in August 2010) for the design, construction and operation of the Ocotillo Sol Project (Ocotillo Sol or the Project). Serialized as CACA-51625, Ocotillo Sol is proposed to be a 15-20 MW photovoltaic (PV) electric generating facility located on Federal land managed by the BLM. The proposed location of Ocotillo Sol is a 100 acre permanent project site and a 15 acre temporary construction lay down area adjacent to the existing SDG&E Imperial Valley Substation approximately four miles south of Interstate 8 (1-8) and nine miles southwest of El Centro in Imperial County, California.

The purpose of this report is to provide the BLM with a discussion of how Ocotillo Sol was developed and refined, and some of the alternatives SDG&E considered during that process. This Alternative Analysis describes the following five alternatives considered by SDG&E during the development process - Alternative 1 - Larger Acreage/Larger PV Project (Original Concept), Alternative 2 -Project located outside the Yuha Desert Management Area[1], Alternative 3 - Proposed Action (Refined Project), Alternative 4 - the Proposed Action with reduced construction lay down area and Alternative 5 – the No Action/No Project Alternative.

As discussed below, the Proposed Action does not reflect SDG&E's original project concept. Rather, the Proposed Action is the result of a robust evaluation of alternative configurations and characteristics based on technical, environmental and economic considerations, as well as agency input. This report summarizes the project objectives, formulation of the project concept and details, and a discussion of each alternative. Each alternative is analyzed based on feasibility and ability to advance the project objectives.

Pre-Application Consultation and Elimination of Non-Federal Land Alternative from Further Consideration

Since April 2009, SDG&E has worked closely with BLM staff during the pre-application phase to design and develop the Ocotillo Sol Project (see Attachment A, Project Development and BLM Consultation History). By August 2009, BLM and SDG&E had determined that non-Federal land alternatives were neither feasible nor consistent with BLM's purpose and need and eliminated those alternatives from further consideration.

The elimination of non-Federal land alternatives from further consideration was based on SDG&E's investigation of several potential private lands sites, which are described in more detail under "Alternative 2", below. Because SDG&E will interconnect to the Imperial Valley Substation at 12 kV, line loss and fault current considerations limit feasible project locations to within one and a half miles of the substation. Using real estate professionals, SDG&E evaluated private parcels within a two mile radius. These sites were determined to be infeasible for numerous reasons. Landowner contact confirmed that private parcels within the vicinity were

[1] The Yuha Desert Management Area is defined in the Flat-Tailed Homed Lizard Rangewide Management Strategy, 2003.

unavailable because (i) they were already owned by renewable energy developers; (ii) they were already under option by renewable developers; (iii) they were owned in fee by landowners not interested in selling the property for renewable development; or (iv) cost of acquisition was not economically feasible. In addition, County of Imperial officials at the time expressed concerns over the potential conversion of productive farmland to renewable energy projects. Thus, SDG&E was not able to identify a feasible non-Federal land alternative.

After reviewing these alternatives with BLM staff, and with BLM guidance and direction, SDG&E initiated a series of environmental studies, surveys and reports to assist in identifying a specific Project location that would avoid or minimize the potential environmental impacts associated with the Project on public lands. (See Attachment B: Environmental Studies, Surveys and Reports for the Ocotillo Sol Project.) In December 2009, SDG&E submitted a ROW application that included a 351-acre Study Area around the Imperial Valley Substation, per BLM guidance. In August 2010, SDG&E submitted a Plan of Development (POD) for a 100-acre Project located within the 351-acre Study Area described in the ROW application. The size and location of the 100-acre Project was specifically selected to avoid adverse effects to cultural resources based upon a Class III field survey of the larger 351-acre Study Area.[2]

In February 2011, BLM adopted various Instruction Memoranda (IM) related to the development of renewable energy projects within public lands. Instruction Memorandum No. 2011-061 outlines the requirements for Solar and Wind Energy Applications- Pre-Application and Screening. IM 2011-061 requires that "all prospective applicants schedule and participate in at least two pre-application meetings with the BLM before the BLM will accept a right-of-way application for a proposed solar or wind energy development project on the public lands." Pre-application consultation meetings consistent with IM 2011-061 were held in April and August of 2011.

Instruction Memorandum on NEPA Compliance for Utility-Scale Renewable Energy Right-of-Way Authorizations (IM No. 2011-059 dated February 7, 2011) acknowledges that "The BLM will not typically analyze a non-Federal land alternative for a right-of-way application on public lands because such an alternative does not respond to the BLM's purpose and need to consider an application for the authorized use of public lands for renewable energy development." (IM No. 2011-059 at 4.) Additionally, IM No. 2011-059 states that "BLM may eliminate an alternative from detailed analysis for a variety of reasons, including for example, if the alternative does not respond to the BLM's purpose and need, if the alternative is not technically or economically feasible (as informed by the applicant's interests and objectives), or if the alternative is inconsistent with the existing management prescriptions for the area as set forth in the governing land use plan…" (IM No. 2011-059 at 4.)

Consistent with IM No. 2011-059, non-Federal land alternatives were appropriately eliminated from further consideration. Non-Federal lands alternatives do not meet BLM's purpose and need under FLPMA to respond to a ROW application requesting authorized use of public lands for a

[2] SDG&E's consultant, LSA, conducted a Class III field survey of approximately 351 acres on the south, east, and west sides of the Imperial Valley Substation. Within the 351 acre area, LSA identified 24 archaeological sites and recommended that 9 be evaluated for National Register eligibility. The remaining IS sites were recommended as not eligible. The selected 100-acre site avoids the 9 potentially eligible resources and contains only isolated artifacts and one non-eligible site, thus avoiding adverse effects to historic properties and other cultural resources.

specific type of renewable development, nor BLM's authorities and management objectives with respect to renewable energy and public lands under the Energy Policy Act of 2005 and Secretarial Order 3285A1. Additionally, BLM and SDG&E concluded during pre-application consultation that non-Federal land alternatives were not feasible. The draft EIS should describe "all non-Federal land alternatives considered by the BLM and the applicant during the pre-application process, including previously disturbed lands, and the rationale why they were not pursued by the agency and/or the applicant…" consistent with IM 2011-059.

Definition of Project Objectives

SDG&E's fundamental objective for Ocotillo Sol is to develop, own and operate a renewable energy generation facility located in the Imperial Valley region of southern California and to deliver the renewable energy generated by Ocotillo Sol to its customers consistent with California laws, policies and mandates. The specific objectives for Ocotillo Sol are:

1. Increase the use of renewable energy and reduce greenhouse gas emissions in California consistent with existing California laws, orders and policies. California laws, orders, and policies require increasing the use of renewable energy and lowering greenhouse gas emissions. California's Renewable Portfolio Standard (RPS) is the most ambitious renewable energy standard in the country. California law requires electric corporations, including SDG&E, to increase eligible renewable energy resources by at least 1% of their electric retail sales annually, until they reach 20% by December 31, 2010, or effectively 2013 under flexible compliance provisions. California Senate Bill Xl-2, signed into law on April 12, 2011, increases the current 20% renewable energy goal by 2010 to a 33% renewable goal by December 31, 2020. In addition to renewable legislation, California passed The Global Warming Solutions Act of2006 (AB32) which requires the California Air Resources Board to regulate sources of greenhouse gasses to meet a state goal of reducing greenhouse gas emissions to 1990 levels by 2020. Additional greenhouse reduction requirements are contained in Former Governor Schwarzenegger's Executive Order (S-3-05) establishing California greenhouse reduction targets to: "by 2050, reduce GHG emissions to 80 percent below 1990 levels".
2. Develop and build a cost effective PV renewable generation project to be owned and operated by SDG&E.
3. Locate the PV project in the Imperial Valley area of southern California to allow access to strong solar resources.
4. Develop and refine the project concept and details with input and guidance from the BLM and Imperial County.

Formulation of the Project Concept and Details

Ocotillo Sol as proposed in the BLM right-of-way application and detailed in the Ocotillo Sol Project Plan of Development (POD) is the product of a rigorous analysis by SDG&E of key project considerations and evaluation of technical, environmental and economic feasibility. SDG&E met with BLM and Imperial County representatives while formulating the project concept prior to submitting a formal right-of-way application and POD with the proposed project details.

Starting in the second quarter of 2009, SDG&E concurrently began to critically evaluate potential public land (Alternative 1) and private land (Alternative 2) in the vicinity of SDG&E's Imperial Valley Substation with the potential to support development of a PV renewable generating facility. As the evaluation process progressed, the project concept, project details and project location were modified and refined as potential constraints and influential factors were better understood. Meetings with the BLM El Centro Field Office, BLM California State Office and Imperial County Executive Office staff further refined the Ocotillo Sol concept, project details and project location.

In the second and third quarters of 2009 SDG&E's project evaluation and feasibility assessment of private land indicated that land that might support renewable energy development had limited availability (primarily as a result of a boom in renewable development activities) and the price of land that was available was not economically feasible. Meetings with Imperial County's Executive office also indicated the County was concerned about the potential conversion of productive farmland to renewable energy projects.

SDG&E's project evaluation and feasibility assessment of public land indicated that land was available for right-of-way grants in the area around the Imperial Valley Substation. In addition, the Department of Interior and BLM policies and mandates promote renewable development on public lands. The evaluation also indicated that land development restrictions associated with the Flat-Tailed Homed Lizard Rangewide Management Strategy, 2003 (Management Strategy) might constrain the acreage available for project development. Guidance received in meetings with the BLM El Centro Field Office and BLM State Office in the third quarter of 2009 indicated that PV project development was feasible on Federal lands around the Imperial Valley Substation. In addition, the guidance from BLM suggested that a project site of approximately 100 acres would not exceed the development limitations contained in the Management Strategy. Based on this analysis and BLM guidance SDG&E moved forward with a refined project concept consisting of a 100 acre project site on Federal land around the Imperial Valley Substation.

Once the size of the proposed project site was established at approximately 100 acres of Federal land around the Imperial Valley Substation, SDG&E conducted additional evaluation in the fourth quarter of 2009 and first quarter of 2010 to determine the project site location that would be the least environmentally and technically constrained. This evaluation included SDG&E's initial right-of-way application in December 2009 and BLM's authorization to perform biological and cultural technical studies of a 351 acre study area east, south and southeast of the Imperial Valley Substation. It also included evaluation of potential jurisdictional waters that included an on-site stakeholder meeting with the U.S Army Corps of Engineers (USACE) followed by a jurisdictional determination letter from the USACE. SDG&E also evaluated potential technical considerations such as conflicts with existing and proposed transmission infrastructure, unobstructed south/southeast solar exposure to allow maximum solar energy production, utilization of existing access roads, minimization of the generation tie line/interconnection facilities and proximity to existing SDG&E operations.

Key considerations that were applied to refine the original project concept and details included:

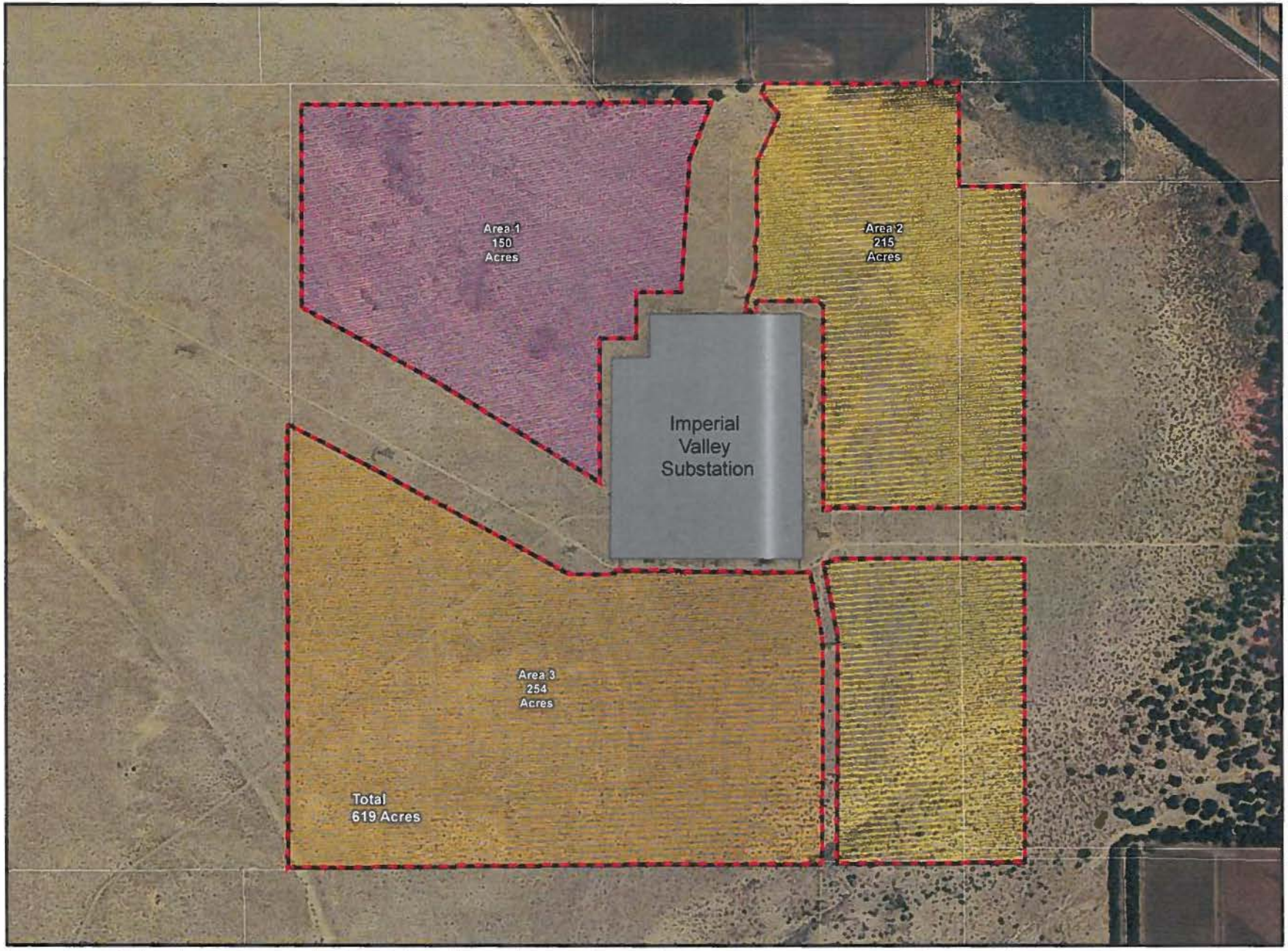
I. The renewable technology for Ocotillo Sol should be based on conventional PV generating systems.
2. The PV project should electrically interconnect to the SDG&E's Imperial Valley Substation.
3. Although the Imperial Valley Substation contains 500 and 230 kilovolt (kV) facilities there is a 12 kV system within the substation with limited interconnection capacity. Interconnection at 12 kV offers the opportunity to minimize the amount of equipment, size of equipment, and cost of the interconnection facilities and minimize the potential to require upgrades or modifications to the existing transmission network. For this reason SDG&E chose to propose Ocotillo Sol's interconnection to the Imperial Valley Substation at 12 kV.
4. Electrical line loss and fault current technical considerations limit the feasible length of the 12 kV interconnection generation tie line to approximately one and one-half miles. Consequently, prospective alternative project sites should be located within an approximately one and one-half mile radius of the Imperial Valley Substation.
5. The 12 kV electrical system within the Imperial Valley Substation has a capacity to allow a PV project size up to approximately 60 megawatts.
6. Land for the project site must be available for long term control from construction through operation at an economically feasible cost, either through purchase in fee or lease.
7. In addition to the criteria of land availability, the project alternative must be located in an area where the existing land use designation allows for the development, construction and operation of a PV electric generating facility.
8. Environmental evaluation on a screening level basis should not reveal any fatal flaws or significant constraints. Project development was guided by the criteria to identify and pursue the project site that avoided and minimized impacts to environmental resources.

Considerable analysis and refinement of Ocotillo Sol occurred between project initiation in the second quarter of 2009 and August 2010 when the revised right-of-way application and POD were submitted to the BLM. The purpose of the revised right-of-way application was to reduce the project area from the 35I acre study area to the 100 acre permanent project site and the temporary I5 acre lay down area as detailed in the POD.

Analysis of Each Alternative

Alternative 1 - Larger Acreage/Larger Project (Original Concept)

The Original Concept for Ocotillo Sol was a project located on up to 619 acres surrounding the Imperial Valley Substation and a project capacity up to 60 MW, which is the approximate capacity of the 12 kV electrical system within the Imperial Valley Substation. Figure 1 depicts the area of approximately 6I9 acres surrounding the Imperial Valley Substation that has the potential to accommodate the maximum project size of up to 60 MW and allow interconnection to the Imperial Valley Substation at 12 kV.



Ocotillo Sol Project
Figure 1
Alternative 1
Larger Acreage/ Larger Project

Legend

- Area 1
- Area 2
- Area 3
- Imperial County Parcel

1 inch = 700 feet

This map is not survey grade, and SDG&E makes no representations or warranties, whether expressed or implied, as to its accuracy, correctness, defensibility, completeness or any other standard or measure of quality or adequacy or as to its use or intended use for any particular purpose. SDG&E disclaims all warranties, expressed or implied, including the warranty of fitness for a particular purpose. You are solely responsible for selecting this map to use and you are solely responsible for any consequences resulting from your use. Reproduction, duplication, or modification of this map is not allowed without written permission from SDG&E Land Services GIS.

Produced by: Courtney Jones
M:\Projects\Sunrise\20110727_IV_Sub_B.mxd
Requestor: Charlie Neal

Evaluation of Alternative 1 in the second quarter of 2009 revealed constraints that limit the potential acreage and corresponding project size in the area around the Imperial Valley Substation. First, environmental evaluation of the area around the Imperial Valley Substation indicated constraints relating to development within the FTHL Yuha Desert Management Area and potential impacts to cultural resources. The FTHL Rangewide Management Strategy limits land use authorizations within the Yuha Desert Management Area such that the cumulative new disturbance since 1997 may not exceed 1% of the total acreage on Federal land. Additionally, archeological sites were identified that appeared to meet the eligibility criteria for the National Register of Historic Places (NRHP). Also, existing (and now proposed) transmission lines and generation tie lines effectively divide the area around the Imperial Valley Substation creating several potential conflicts between a larger PV project site area and the other energy infrastructure within existing designated energy corridors. Consequently, it was concluded that a PV generation project located on the 619 acres surrounding the Imperial Valley Substation was not feasible. Through SDG&E's evaluation and pre-application discussions with the BLM it was concluded that a project site of approximately 100 acres would be more feasible considering the land use authorization limit within the FTHL Rangewide Management Strategy.

Based on a screening level analysis and input from BLM, Alternative 1 was determined not to be feasible and eliminated from further evaluation. However, the knowledge gained in the evaluation of this alternative was useful in establishing the ultimate development concept of the Proposed Action and how to proceed in determining the least environmentally constrained project site. The specific impact on the Proposed Action from the Alternative 1 evaluation was an understanding that the feasible project acreage would be approximately 100 acres or enough acreage to support a 15-20 MW PV project. In addition, Alternative 1 evaluation provided the basis for establishing a 351 acre study area to assess in detail the environmental constraints and development constraints around the Imperial Valley Substation. As a result of environmental and technical analysis within the 351 acre study area, the 100 acre project site location selected south and southeast of the Imperial Valley Substation southern fence line was the least constrained area.

Alternative 2 - Project Located Outside the Yuba Desert Management Area (Non-Federal Land Alternatives)

Alternative 2 was a project with the PV project site located outside the Yuha Desert Management Area, a generation tie line crossing the Yuha Desert Management Area and an interconnection point within the Imperial Valley Substation. Since the Imperial Valley Substation is completely surrounded by the Yuha Desert Management Area it is not feasible to interconnect to SDG&E's Imperial Valley Substation without at least a generation tie line crossing the Yuha Desert Management Area.

SDG&E evaluated the alternative of a PV project site located on private land outside the Yuha Desert Management Area at the same time Alternative l was evaluated. Since the project criteria includes an interconnection to the Imperial Valley Substation at 12 kV, line loss and fault current considerations limit the feasible project site location to within approximately one and one-half miles of the Imperial Valley Substation. The Alternative 2 evaluation began with identification of private parcels within a two mile radius of the Imperial Valley Substation as shown in Figure

2 (Alternative 2 - Project located outside the Yuha Management Area). This two mile radius around the Imperial Valley Substation was slightly larger than the distance estimated to be technically feasible to increase the number of parcels considered.

In the spring of2009 SDG&E conducted research and private landowner contacts through real estate professionals knowledgeable of the Imperial County area around the Imperial Valley Substation.

Site 1 – (1A & 1B)

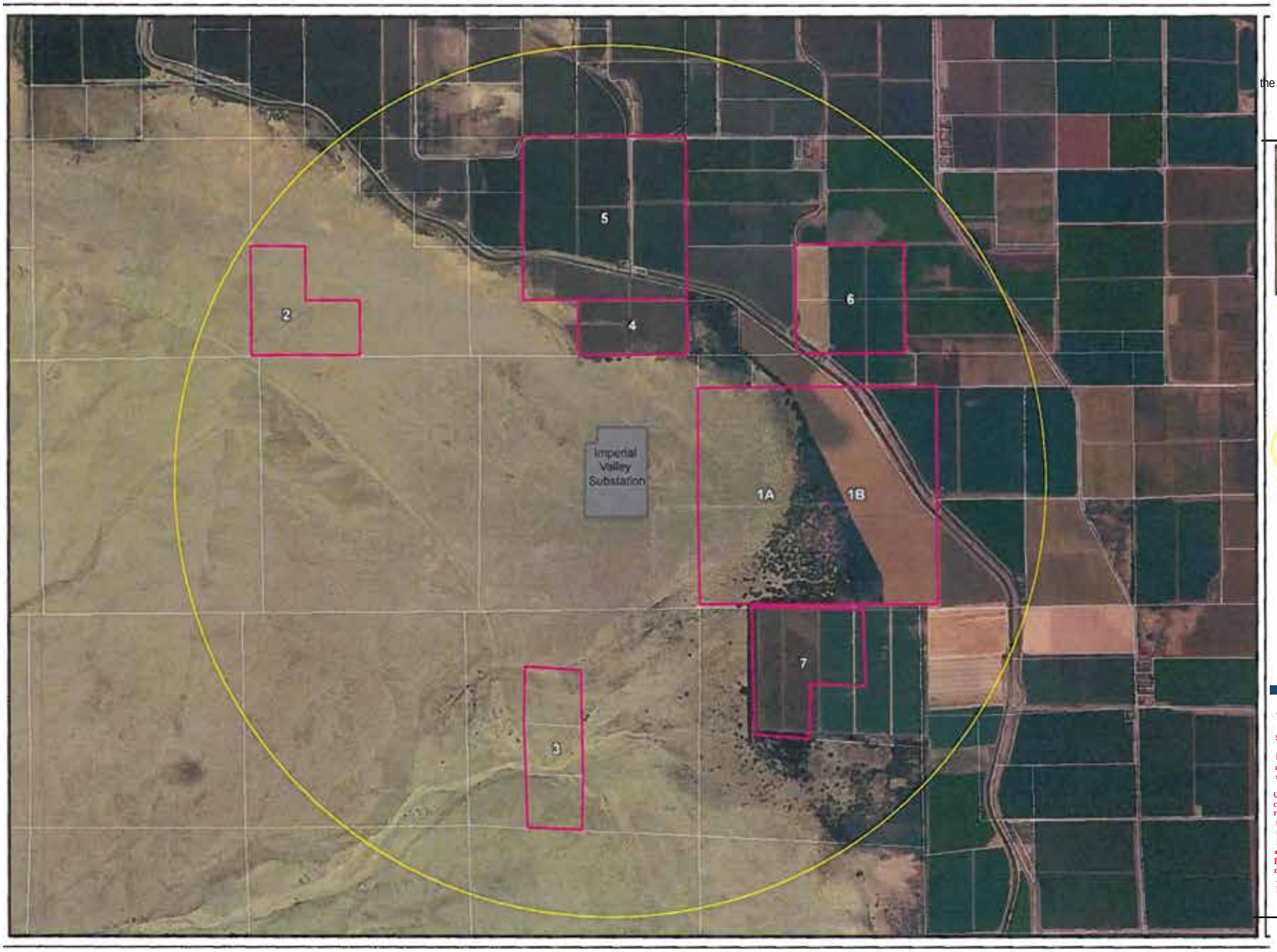
Site 1 is approximately 560 acres in size and is comprised of approximately 320 acres of undeveloped, fallow land abutting Federal land (Site 1A) and approximately 240 acres of productive farmland west of the Westside Main Canal (Parcel 1B). SDG&E proposed written option and purchase terms for the entire 560 acres based on the market value of land in Imperial County, and local real estate professional feedback. The landowner responded that Parcel 1A was already under option to another energy project developer and that SDG&E's offer on Parcel 1B was well below their interest level. Subsequent real estate professional contact with the landowner indicated a price per acre expectation over 3 times higher than SDG&E's offer price and SDG&E concluded it was not economically feasible to continue pursuit of these parcels because the landowner expectations were well above market prices and because based on SDG&E discussions with BLM, Federal land was available for renewable development at fair market value lease rates.

Additionally, Site 1A contains desert terrain similar to the Ocotillo Sol proposed site, thus the probability this parcel would exhibit the presence of flat tailed horned lizard and burrowing owl species is high. Also, based on an archaeology records search (Imperial County CHRIS data, October 7, 2011) the potential for archaeological sites in this area is high. As illustrated on Figure 2, Pinto Wash also crosses the southeast portion of Parcel 1A creating a high potential for jurisdictional waters that could impact up to one half of Site 1A's acreage. Site 18 also borders the West Side Main Canal which has been determined eligible for the National Register of Historic Places.

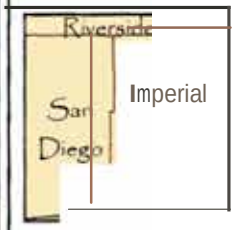
Site 2

Site 2 contains two private parcels that are surrounded by Federal land approximately 1.5 - 2 miles northwest of the IV Substation. These two parcels are owned by two separate landowners. Through a real estate professional SDG&E contacted the two landowners with one indicating possible interest and the other no interest. SDG&E did not continue to pursue the interested landowner because the Southwest Powerlink, Sunrise Powerlink and Imperial Valley Solar Generation Tie Line would encumber the parcel, making a PV project on this site infeasible.

Site 2 are private inholdings in the Yuha Desert Management Area which is located in desert terrain similar to the Ocotillo Sol proposed site, and would therefore have a high potential for the presence of flat tailed horned lizard. Additionally, based on an archaeology records search (Imperial County CHRIS data, October 7, 2011) the potential for archaeological sites in this area is high.



Ocotillo Sol Project
Figure2
Alternative2
Project Located Outside
the Yuha Desert Management Area



Legend

2 MHe Redius ollmpelial Valley Substation

Imperial County Parcel

Non Federal Allemative Sile

1Inch = 2,100 feet

This IMP - not aney "act. 11ld rubs no repr.antllions or SDG&E _ _ whetw expr.ued or lmpiM, n to b ICCUr.:.y, con.dnen. defenlibaty, eornpMIMieu 01 VoCh&r stwKIlrd 01 me... of or eevar•toitauaeorkrtandfwl UM for *eny* p•rtt=ar purpoN. SDG&E clat:llirN ,a wartlftfin, eyptessed or rnplad, n::lu*'O the of ftlnnl for • purpose. You •re aolely rnponsible for seledtng this I'NIP to uN lndyou _ _ toWyr tor.-.y conrltROnQ from 'fOAll un Reprodl.lc:hn, duplieallon, or rnocilcdorl d lta MIIP C. not .aow.d ..ww.ut WfiUM penmaian from SDG&E L.ndS.VCnGIS.

Produced by Courtney Jones
Reviewed by Charles Hood

Site 3

Site 3 consists of three separate parcels owned by three separate landowners with each parcel approximately 42 acres in size. The three parcels are south of the Imperial Valley Substation, they abut each other running south to north and are surrounded by Federal land. SDG&E briefly considered these three parcels but did not pursue them because to secure control of adequate land for a feasible project size would require negotiations with multiple landowners.

Site 3 are private inholdings in the YUHA Desert Management Area and should be eliminated from further review because it has desert terrain similar to the Ocotillo Sol Proposed site that indicates a high probability this parcel would exhibit the presence of the flat tailed horned lizard and burrowing owl. Also, based on an archaeology records search (Imperial County CHRIS data, October 7, 2011) the potential for archaeological sites in this area is high. As evident in Figure 2, Pinto Wash crosses all three parcels creating a high potential for impacts to jurisdictional water.

Site 4 & Site 5

Based on SDG&E and real estate professional knowledge, non-Federal parcels directly north of the IV Substation and abutting Federal land were controlled by two other energy project developers. Parcel4 was owned by Rabley Holdings, a subsidiary of Sempra Energy Corporation. Parcel 5 was under option by Mount Signal Solar/MMR Power Solutions, LLC who had a solar energy facility power purchase agreement with SDG&E approved by the California Public Utilities Commission on September 18,2008. (Based on SDG&E's current knowledge this parcel and other parcels west and abutting Federal land are now part of the Silverleaf Solar, LLC Project.) Therefore, neither parcel was available to SDG&E.

Site 6

Site 6 consists of approximately 196 acres of productive farmland northeast of the Imperial Valley Substation. Through a real estate professional SDG&E contacted this parcel's landowner. They indicated an interest in working with a renewable energy developer, but expressed a price per acre expectation approximately 2.5 times the market value of land in Imperial County. In addition, this parcel does not abut Federal land; therefore, in addition to a right-of-way from the BLM, a right-of-way for the generation tie line would be required from an adjoining private parcel(s) landowner. SDG&E concluded that a project located on this parcel would not be economically feasible. The tie line would also have to cross the West Side Main Canal which has been determined eligible for the National Register of Historic Places.

Site 7

Site 7 consists of approximately 781 acres of productive farmland southeast of the Imperial Valley Substation and abutting Federal land. SDG&E contacted through a real estate professional the owner of this parcel. This landowner had no interest in leasing or selling the land and SDG&E does not have condemnation rights for renewable generation projects.

In summary, this research and landowner contact indicated that private parcels within a two mile radius of the Imperial Valley Substation were in one of four categories:

I. Unavailable because they were owned in fee by renewable energy developers other than SDG&E.
2. Unavailable because they were under option by renewable energy developers other than SDG&E.
3. Unavailable because they were owned in fee by a landowner not interested in renewable energy development.
4. Potentially available, but were owned by landowners whose price per acre expectations were significantly in excess of SDG&E's evaluation of regional land market prices.

SDG&E's efforts to identify and negotiate land control agreements with existing private landowners revealed that option and land price expectations did not support feasible renewable energy development economics or private land was not available for long term control to support development, construction and operation of a PV generating facility. Furthermore, although SDG&E has not performed detailed environmental studies of the non-Federal land sites considered, the detailed environmental analysis conducted around the 351 acres surrounding the IV Substation coupled with a desktop analysis provide an overview of the potential environmental issues of a non-Federal lands alternative. Based on this screening level evaluation, SDG&E concluded that the non-Federal sites considered have a high potential to contain biological, cultural and jurisdictional water issues equal to or greater than the Ocotillo Sol proposed site.

SDG&E also conducted discussions with Imperial County executives in the first quarter of 2009 about the utilization of private farmland for the development and construction of a PV facility. Although the County's land use designations do not preclude the conversion of farmland to renewable energy development, the County expressed concern about conversion of productive farmland to renewable development and a desire that development occur on parcels that are not very productive farmland or that have been fallowed. More recently in 2011, the Imperial County Planning Commissioners have expressed these concerns in public meetings associated with the review and approval of Conditional Use Permits for other solar projects located on private farmland in Imperial County. Almost all of the private parcels SDG&E evaluated within a two mile radius of the Imperial Valley Substation were farmland in active production.

In addition, a PV project located on private land outside the Yuha Desert Management Area would not meet Department of the Interior and Bureau of Land Management objectives as defined in the Energy Policy Act 2005, which sets forth the "sense of Congress" that the Secretary of the Interior should seek to have approved non-hydropower renewable energy projects on the public lands with a generation capacity of at least 10,000 MW by 2015.

There is also Federal land outside the Yuha Desert Management Area that might be available for renewable energy development. However, the closest Federal land outside the Management Area is approximately 11 miles from the Imperial Valley Substation and is beyond the technically feasible distance for a 12 kV generation tie line to the Imperial Valley Substation. A

significant portion of the federal land outside the Yuha Desert Management Area is also under development by the Imperial Valley Solar Project and the Ocotillo Express Wind Project.

Alternative 2 was considered, but not carried forward for detailed analysis.

Alternative 3 – the Proposed Action (Refined Project)

The Proposed Action was developed as an alternative to the original project concept of a larger project located on Federal land surrounding the Imperial Valley Substation. The Proposed Action has been outlined in the Ocotillo Sol revised right-of-way application (SF-299) submitted to the BLM in the August 2010 and further detailed in the Initial POD submitted to BLM in August 2010 and the Updated POD submitted to the BLM in December 2010[3]. The location of the proposed 100 acre permanent project site and the 15 acre temporary construction lay down area are shown in Figure 3. The 100 acre project site is anticipated to support a 15-20 MW PV generating facility.

The Proposed Action for Ocotillo Sol meets all the project objectives and is feasible. As discussed in the Ocotillo Sol POD, the Proposed Action would allow the consolidation of the proposed PV system with existing SDG&E operations (the Imperial Valley Substation) and access to Ocotillo Sol would utilize an existing access road. The Proposed Action location minimizes the length of 12 kV transmission line to approximately 1,000 feet, minimizes the amount of transmission losses and increases the feasibility of undergrounding the generation tie line connection to the Imperial Valley Substation. The Proposed Action's location adjacent to the Imperial Valley Substation would also minimize the visual impact of the PV facility, because the PV facility would meld with the existing Imperial Valley Substation and there would not be a requirement for an additional overhead transmission line. The proposed site is relatively flat and provides a fairly unobstructed south/southeast orientation.

The Proposed Action project site location is subject to the 1980 California Desert Conservation Area (COCA) Plan. The entire project site is identified as Multiple Use Class L. Class L land "protects sensitive, natural, scenic, ecological, and cultural resource values," and is "managed to provide for generally lower intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." Most land use activities are allowed in a Class L designation after NEPA requirements are met. The Proposed Action is a proposed use that would conform to the COCA Plan after NEPA requirements are met.

Based on BLM protocol level biological, water resources and cultural surveys of approximately 351 acres around the Imperial Valley Substation (performed under the original right-of-way application submitted to the BLM in December 2009) the proposed 115 acre area directly south and southeast of the Imperial Valley Substation was identified as the least environmentally constrained. Results of the biological surveys did not identify any state or Federal listed plant or animal species and the Proposed Action was also situated to avoid impacts to Pinto Wash, a potential Federal and jurisdictional water which is located approximately 540 feet to the northwest. The Proposed Action was also designed to avoid potentially eligible cultural

[3] The December 2010 update to the POD addressed BLM comments, questions and requests for additional information after BLM review of the initial POD.

COPYRIGHT © 2011 BURNS & McDONNELIENGINEERING COMPANY,INC.

PROJECT FEATURES

NEW INTERCONNECTION LIJIE

NEW CHAIN LINK FENCE

TEMPORARY LAYOOWN AREA

INVERTER / TRANSFORMER PAD

INDICATES 1 MW SOLAR ARRAY

EXISTING UTILITY FEATURES

TRANSMISSION CORRIDOR

RENEWABLE ENERGY ROW

IMPERIAL VALLEY SUBSTATION

CACA051625

N

Burns & McDonnell
SINCE 1898

Ocotillo Sol Project

FIGURE3
PRELIMINARY SITE LAYOUT ALTERNATIVE 3
PROPOSED ACTION

resources. Of the 67 cultural resources identified within the 351 acre survey area, 13 occur within the Proposed Action site (115 acres). These include twelve prehistoric isolates and one prehistoric archeological lithic artifact scatter. Based on the results of the survey combined with a geomorphic and regional analysis of archeological resources within the area, the 13 cultural resources would not meet the eligibility criteria for the NRHP.

Alternative 4 – the Proposed Action with Reduced Construction Lay Down Acreage

Alternative 4 would reduce the 15 acre temporary Jay down area shown in Figure 3 directly east of the proposed 100 acre permanent project site. SDG&E analyzed the feasibility of this alternative as a refinement to the Proposed Action by performing a detailed evaluation of the areas and acreage required to support construction activities, the sequence and timing of construction activities and equipment deliveries and a close look at areas within the proposed permanent project site that might be utilized to support construction. The result of this evaluation is shown in Figure 4. Alternative 4 would limit the space available for construction activities and constrain the construction process. It would require closer planning and coordination of construction activities by the construction contractor.

Alternative 4 reduces the temporary construction area east of the project site from 15 acres to two acres. The temporary two acre site would be utilized as a parking area for construction labor and would be reclaimed at the end of the construction period. All other construction support and lay down requirements would be contained within the 100 acre permanent project site.

Alternative 4 meets the project objectives and was determined to be feasible. Except for the reduction of the temporary Jay down area, all other details of Alternative 4 would be the same as the Alternative 3 - Proposed Action.

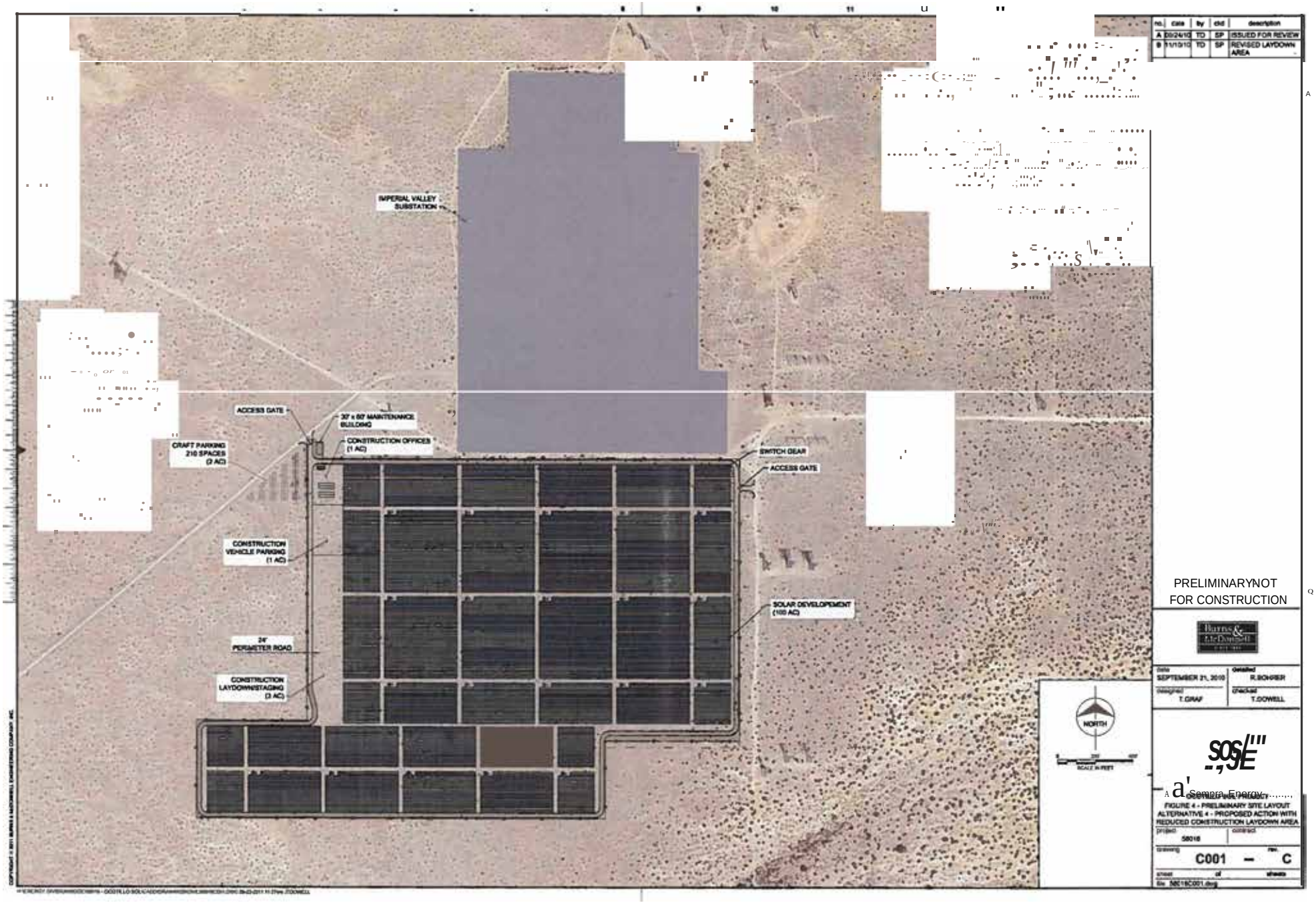
SDG&E prefers the larger temporary lay down area contained in the Alternative 3 – the Proposed Action. However, if requested by the BLM as a result of the NEPA process SDG&E will refine the Proposed Action to reduce the amount of temporary lay down area to two acres as reflected in Alternative 4.

Alternative 5 – No Action/No Project Alternative

The No Action/No Project Alternative assumes that the right-of-way grant is denied; that Ocotillo Sol is not constructed and operated; and the COCA Plan is not amended to allow the Project to move forward.

Alternative 5 would not meet the SDG&E objectives for Ocotillo Sol as identified earlier in this Alternatives Analysis.

In addition, the No Action/No Project Alternative would not meet Department of the Interior and Bureau of Land Management objectives as defined in existing orders and policy. Department of the Interior and Bureau of Land Management objectives are defined in the Energy Policy Act 2005, which sets forth the "sense of Congress" that the Secretary of the Interior should seek to have approved non-hydropower renewable energy projects on the public lands with a generation


IMPERIAL VALLEY SUBSTATION
ACCESS GATE
30' x 60' MAINTENANCE BUILDING
CONSTRUCTION OFFICES (1 AC)
CRAFT PARKING 210 SPACES (2 AC)
SWITCH GEAR
ACCESS GATE
CONSTRUCTION VEHICLE PARKING (1 AC)
SOLAR DEVELOPEMENT (100 AC)
24' PERIMETER ROAD
CONSTRUCTION LAYDOWN/STAGING (3 AC)
NORTH
SCALE IN FEET
PRELIMINARY/NOT FOR CONSTRUCTION
Burns & McDonnell
SEPTEMBER 21, 2010
R.BOHRER
T.GRAF
T.DOWELL
Sempra Energy
FIGURE 4 - PRELIMINARY SITE LAYOUT
ALTERNATIVE 4 - PROPOSED ACTION WITH REDUCED CONSTRUCTION LAYDOWN AREA
C001
C

capacity of at least 10,000 MW by 2015. Department of the Interior Order No. 3285, Amendment No. I, Section 4 states, "Encouraging the production, development, and delivery of renewable energy is one of the Department's highest priorities. Agencies and bureaus within the Department will work collaboratively with each other, and with other Federal agencies, departments, local communities, and private landowners to encourage the timely and responsible development of renewable energy and associated transmission while enhancing the Nation's water, wildlife, and other natural resources." BLM Instruction Memorandum No. 2007-097 policy states, "The BLM's general policy is to facilitate environmentally responsible commercial development of solar energy projects on public lands and to use solar energy systems on BLM facilities where feasible."

Conclusion

The Proposed Action has been selected by SDG&E as the preferred alternative for several reasons. The proposed site is located directly adjacent to the southern fence line of SDG&E's Imperial Valley Substation. It is located on Federal land that has a land use designation that would allow construction of the PV generation project after NEPA requirements are met. This proposed location would allow the utilization of existing access roads, would minimize the amount of equipment, cost and complexity of interconnection infrastructure, allow integration with existing SDG&E operations and is the least environmentally constrained area surrounding the Imperial Valley Substation considering biological and cultural resources, and jurisdictional water impacts. Construction and operation of the Proposed Action would have no direct impacts to any federally listed species, state listed species, jurisdictional waters, or cultural resources that have the potential to meet NRHP eligibility criteria. Visual impacts would also be minimized because of Ocotillo Sol site's location adjacent to a major electric transmission substation facility and this close proximity would make undergrounding the interconnecting generation tie line feasible. The proposed site also has flat, south/southeast orientation to allow relatively unobstructed exposure to the solar resource.

Although the Proposed Action is located within the Yuha Desert Management Area, SDG&E's evaluation in conjunction with BLM guidance indicated that Ocotillo Sol could be developed, built and operated without exceeding the cumulative acreage disturbance limitations on Federal land imposed by the Flat Tailed Horned Lizard Rangewide Management Strategy.

The Proposed Action offers the most suitable alternative to meet SDG&E's project objectives. Although the Proposed Action in Alternative 3 would result in a smaller project than SDG&E originally proposed when Alternative 1 was conceptualized, land use and environmental constraints preclude construction of a larger project. The Proposed Action is also consistent with Department of Interior and BLM orders and policies that promote development of renewable generation on Federal lands. SDG&E considers Alternative 4 to be a feasible and workable alternative that offers the opportunity to reduce the amount of disturbance within the Yuha Desert Management Area.

Under NEPA, the BLM is required to take a "hard look" at the environmental consequences of its actions and to consider alternatives that will avoid or lessen environmental impacts. The BLM's review of potential impacts and alternatives for Ocotillo Sol began long before the POD was submitted in August 2010. Although further refinements to lessen potential impacts may

still be identified and incorporated into the Project, the Proposed Action reflects considerable focus by SDG&E and BLM to advance Federal and state renewable energy goals while minimizing the impacts to the local environment.

Attachment A

Project Development and BLM Consultation History

January 2009: SDG&E begins identification of Federal and non-Federal parcels near the Imperial Valley Substation.

April 20. 2009: SDG&E begins pre-application consultation with BLM staff to discuss Ocotillo Sol as a concept to locate a photovoltaic project near the Imperial Valley Substation. The option to develop the project adjacent to the Imperial Valley Substation is discussed. SDG&E is advised by State office to coordinate with El Centro Field Office and to analyze the potential to develop the project entirely on Federal land.

July 28, 2009: SDG&E participates in pre-application meeting with the El Centro Field Office staff to discuss the project concept and next steps.

August 5, 2009: SDG&E meets with BLM staff to discuss the findings of the preliminary environmental evaluation of approximately 600 acres surrounding the Imperial Valley Substation. BLM State Office and El Centro Field Office staffs advise SDG&E to locate Ocotillo Sol on public lands surrounding the Imperial Valley substation, in light of SDG&E's investigations of potential alternate sites within private lands and BLM's purpose and need to develop renewable energy within public lands.

August 24, 2009: SDG&E informs the BLM State and El Centro Field Office that it has re-evaluated the concepts discussed on August 5 and is ready to proceed with the detailed evaluations necessary to develop an approximately 100-acre PV project on BLM land adjacent to the Imperial Valley Substation.

August 27. 2009: BLM provides El Centro Field Office point of contact to further discuss project details and obtain fieldwork authorizations, survey protocols and other relevant information.

September 11, 2009: SDG&E's Environmental Consultant, LSA and Associates, begins coordinating fieldwork authorizations with the El Centro Field Office for required environmental studies on 351 acres adjacent to the Imperial Valley Substation.

December 17, 2009: SDG&E files a ROW application for BLM approval to conduct environmental technical studies within a 351 acre area surrounding the Imperial Valley Substation with the objective of project development within the least constrained 100 acres. The SDG&E's proposed in service date was originally December 2012.

August 16, 2010: after conducting comprehensive environmental studies as per BLM El Centro Field Office guidance, SDG&E submits a POD, which reflects a refined project of 100 acres. The refined project avoids impacts to biological resources, cultural resources, jurisdictional waters and potential conflicts with other utility infrastructure. Consistent with BLM instruction memorandum for low potential screening criteria (IM No. 2011-61 dated February 7, 2011), the Ocotillo Sol project site is located on land acceptable for solar development, is adjacent to previously disturbed or developed sites, minimizes

construction of new roads and/or transmission lines and is adjacent (but not conflicting with) designated transmission corridors.

December 1, 2010: BLM holds tribal consultation meeting at the El Centro Field Office.

December I7, 2010: SDG&E submits a revised POD to incorporate BLM El Centro Field Office comments.

March 8. 2011: BLM categorizes Ocotillo Sol as one of I9 Priority Projects; ready for environmental review and public comment; potential for approval by year end; located where impacts to environment are minimized.

March I5, 2011: EIS kickoff meeting with BLM consultant (RECON). Despite nearly two years of consultation with BLM, BLM advises SDG&E that a pre-application meeting pursuant to IM No. 20II-06I (February 7, 2011) is required.

April I2. 2011: BLM advises SDG&E that Ocotillo Sol POD is sufficient to allow BLM to publish a Notice of Intent to prepare an EIS for the Project.

April20. 2011: First BLM stakeholder pre-application meeting pursuant to IM No. 2011-061 (February 7, 2011).

July I5, 2011: BLM publishes a Notice of Intent to prepare an EIS for Ocotillo Sol.

August 1, 2011: Second BLM stakeholder pre-application meeting pursuant to IM No. 20II-061 (February 7, 2011). Attendees include representatives and County of Imperial. Native American representatives are invited, but do not attend.

August 10, 2011: BLM hosts two public scoping meetings on the Project.

August 26, 2011: SDG&E provides BLM with a written summary of alternatives to Ocotillo Sol – including alternatives that were excluded from further consideration during the pre-application consultation process, have been incorporated into the project, or are still under investigation by SDG&E. The non-Federal land alternative was identified by SDG&E as considered, but eliminated from further consideration.

September 13, 2011: BLM staff requests detailed data and meetings to analyze a non-Federal lands alternative. Additional analysis includes identification of a "preferred alternative site location and gen-tie route", cultural resources surveys (including archaeological, built environment, and paleontological), biological surveys (including burrowing owls, general avian point counts, plant surveys, mountain plover surveys), hydrologic jurisdictional determinations from U.S. Army Corps of Engineers and California Department of Fish and Game, and a CEQA analysis from the County (according to BLM staff, most likely an Environmental Impact Report rather than a negative declaration). BLM staff indicates that this information, including a CEQA analysis by the County, is now needed prior to the completion of a draft EIS.

October 5, 2011: BLM notifies SDG&E that a detailed analysis of a non-Federal land alternative may not be needed if additional information is provided to describe why this alternative was considered, but not carried forward for detailed analysis.

Attachment B

Environmental Studies, Surveys and Reports Prepared for Ocotillo Sol Project

The following environmental studies, surveys and reports have been prepared for the Ocotillo Sol Project and submitted to the BLM for review as part of the NEPA process:

- Paleontological Letter Report, December 2009
- Flat-tailed Horned Lizard (FTHL) Survey, February 2010
- FTHL Observation Letter Report, June 2010
- Burrowing Owl Surveys, June 2010 (included a total of six field visits to the study area. Survey visits included a preliminary burrow survey in 2009 followed by subsequent focused breeding season surveys in 2010)
- Preliminary Jurisdictional Delineation Report, July 2010
- Golden Eagle Surveys Surrounding Sunrise Powerlink, July 2010
- Phase I Environmental Site Assessment, September 2010
- Cultural Resources Class III field survey, October 2010
- Focused Rare Plant Surveys, January 2011 (Included Spring and Fall 2010 Surveys)
- Winter Avian Point Count Survey, February 2011
- Spring Avian Point Count Survey, April 2011
- Biological Resources Technical Report, May 2011
- Paleontological Assessment Report, September 2011 (Requested in June 2011)
- Historic Built Environment Report, September 2011 (Requested on April 28, 2011)

APPENDIX F

LSA ASSOCIATES, INC.
PACIFIC CENTER
703 PALOMAR AIRPORT RD., SUITE 260
CARLSBAD, CALIFORNIA 92011
760.931.5471 TEL
760.918.2458 FAX
BERKELEY
FT. COLLINS
IRVINE
FRESNO
PALM SPRINGS
PT. RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

January 19, 2011

Edalia Olivo-Gomez
Environmental Specialist
8315 Century Park Court, CP21E
San Diego, CA 92123-1548

Subject: Results of Focused Plant Survey at Ocotillo Sol Project Site in Imperial County (LSA Project No. SGE0905)

Dear Ms. Olivo-Gomez:

This report documents the results of a focused survey for sensitive plant species at the above-referenced approximately 115-acre project site, located in the Yuha Desert of lower Imperial Valley, approximately 10 miles southwest of El Centro, Imperial County, California, within portions of Sections 2 and 3 of Township 16.5 South, Range 12 East. An approximately 350-acre area encompassing the project site, as shown on the United States Geological Survey (USGS) *Mount Signal, California* 7.5-minute topographic quadrangle map (Figure 1, attached), was surveyed during site visits in the spring of 2010. Following project refinement, the survey area was reduced to approximately 145 acres for a fall site visit. The fall survey area consists of the project site surrounded by a 150-foot buffer in undeveloped areas (Figure 2).

The survey was conducted according to *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM protocol; Bureau of Land Management [BLM] 2009). No special status plant species were found during the survey and none are expected to occur on the project site. One target species, Thurber's pilostyles (*Pilostyles thurberi*), was found within the approximately 350-acre spring survey area but outside of the approximately 145-acre fall survey area. This species is not a special status plant (as defined in the BLM protocol) and is not considered sensitive, but is monitored by the California Department of Fish and Game (CDFG) and the California Native Plant Society (CNPS) as a CNPS List 4 species.

PROJECT DESCRIPTION

SDG&E proposes to develop, build, own, and operate a photovoltaic (PV) electric generation project in Imperial County, California on previously undisturbed Federal land adjacent to the SDGE Imperial Valley Substation. The project's purpose is to generate approximately 12-14 megawatts of renewable energy utilizing the abundant solar resource available in Imperial County. The existing substation and proposed PV array site are located on land under the jurisdiction of the BLM. The project will be located on approximately 100 acres directly south and southwest of SDG&E's Imperial Valley Substation and construction will temporarily require an additional 15 acres for equipment and components.

PHYSICAL AND BIOLOGICAL SETTING

The approximately 350-acre spring survey area is generally flat and level, with elevation ranging from approximately 10 feet below to 30 feet above mean sea level. Observed soils are sands and loamy sands. Pinto Wash crosses the southeast corner of the spring survey area but is outside the approximately 145-acre fall survey area and project site.

There are four vegetation types (CDFG 2007) within the spring survey area (Figure 2). The *Larrea tridentata – Ambrosia dumosa* Alliance is the predominant vegetation type in the spring survey area. The *Larrea tridentata – Ambrosia dumosa* vegetation type is the only vegetation type within the fall survey area and the project site. This vegetation type is dominated by creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), Panamint cryptantha (*Cryptantha angustifolia*), desert Indianwheat (*Plantago ovata*) and common Mediterranean grass (*Schismus barbatus*). The predominant vegetation type in Pinto Wash is the *Larrea tridentata* Alliance, which is dominated by creosote bush, Panamint cryptantha, and common Mediterranean grass. The *Psorothamnus spinosus* Alliance occupies a smaller portion of Pinto Wash, and is dominated by smoketree (*Psorothamnus spinosus*), cryptantha (*Cryptantha* sp.), common Mediterranean grass, and desert sand verbena (*Abronia villosa* var. *villosa*). A *Tamarix aphylla* Semi-Natural Non-Native Stand occurs in the northern portion of the spring survey area just east of the existing substation. This vegetation type is dominated by athel (*Tamarix aphylla*), cryptantha, creosote bush, and common Mediterranean grass.

SURVEY TARGET SPECIES

At the direction of Andrew Trouette of the BLM El Centro Field Office, all plants on Table 3A of the BLM's *California Desert Conservation Area Plan 1980 As Amended* (Bureau of Land Management 1980) were considered as potential survey target species. All plants on the CDFG *Special Vascular Plants, Bryophytes, and Lichens List* (CDFG, Natural Diversity Data Base [CNDDB] 2009a) that are known to occur in Imperial County, based on records in the CNDDB (CDFG, CNDDB 2009b) and on CalFlora (Calflora 2009), were also considered.

Based on the distribution and habitat requirements of each taxon, and habitat conditions in the survey area, a determination of habitat suitability was made for each taxon. A list of taxa with potentially suitable habitat in the survey area is provided in Table A. These are the target species for the plant survey. All of these are CNPS List 2 plants, except for chaparral sand-verbena (*Abronia villosa* var. *aurita*), which is a CNPS List 1B plant, and Thurber's pilostyles, which is a CNPS List 4 plant. None is listed as threatened, endangered, or rare under the Federal or State Endangered Species Acts.

Table A. Plant Taxa with Potentially Suitable Habitat in the Survey Area (Target Species)

Species	Habitat and Distribution	Activity Period
Abronia villosa var. *aurita* **Chaparral sand-verbena**	Sandy areas in chaparral and coastal sage scrub and rarely in desert dunes or other sandy areas, below 1,600 meters (5,300 feet) elevation.	Blooms mostly March through August (annual herb)
Astragalus insularis var. *harwoodii* **Harwood's milk-vetch**	Desert dunes or open sandy flats, or less often in stony desert washes, mostly within creosote bush scrub, at 0 to 710 meters (0 to 2,300 feet) elevation.	Blooms January through May (annual herb)

Table A. Plant Taxa with Potentially Suitable Habitat in the Survey Area (Target Species)

Species	Habitat and Distribution	Activity Period
Castela emoryi **Emory's crucifixion-thorn**	Non-saline dry lakes and less frequently along washes (especially among basalt flows) or similar non-saline seasonally wet sites where water accumulates, at 85 to 770 meters (280 to 2,530 feet) elevation in desert scrub. Occurs rarely if at all on upper alluvial slopes or rocky slopes.	Blooms mostly June through July (deciduous shrub)
Chamaesyce abramsiana **Abrams' spurge**	Sandy areas of desert scrub below 1,000 meters (3,300 feet) elevation.	Blooms mostly September through November following late summer rains (annual herb)
Ipomopsis effusa **Baja California ipomopsis**	Only a single occurrence is known from California, consisting of two plants on sandy flat near a wash with smoke trees (*Psorothamnus spinosus*) and button brittlebush (*Encelia frutescens*) at 33 meters (110 feet) elevation near the Mexican border in Imperial County. Not seen after 1987. Probably a waif (an unusual species that does not become naturalized in the wild). In Mexico, occurs on gravelly flats and in pinyon woodland up to 2,000 meters (6,600 feet) elevation.	Blooms April through June (annual herb)
Malperia tenuis **Brown turbans**	Sandy places and rocky slopes in Sonoran Desert scrub at 15 to 335 meters (50 to 1,100 feet) elevation.	Blooms March through April (annual herb)
Mentzelia hirsutissima **Hairy stickleaf**	Rocky sites, especially coarse rubble and talus slopes, washes, and alluvial fans, in Sonoran Desert scrub at -5 to 800 meters (-15 to 2,600 feet) elevation.	Blooms March through May (annual herb)
Nemacaulis denudata var. *gracilis* **Slender woolly-heads**	Coastal dunes or desert dunes or sandy sites at -50 to 400 (560) meters (-160 to 1,300 [1,800] feet) elevation.	Blooms mostly April through May (annual herb)
Pilostyles thurberi **Thurber's pilostyles**	Sandy alluvial plains and sandstone talus in Sonoran Desert scrub at up to 365 meters (1,200 feet) elevation, where it is a parasite of *Psorothamnus emoryi* (and of *Psorothamnus polydenius* in Nevada).	Blooms at various times, but old flowers remain visible for a year or more (perennial parasitic herb)

Table B (attached) contains a list of the evaluated plant taxa that are not expected to occur within the survey area because of unsuitable habitat conditions or because the survey area is outside the range of the taxon. Reasons for excluding each taxon are provided.

METHODS

Survey methods, including determination of target species, timing of site visits, and field methods, were coordinated with Andrew Trouette of the BLM El Centro Field Office. The survey was conducted according to the BLM protocol by biologists qualified, and previously approved by the BLM, to conduct botanical surveys. The survey consisted of three site visits in 2010. The survey area (Figure 2) for the first two site visits was approximately 350 acres, but following refinement of the project design, the survey area was reduced to approximately 145 acres for the third site visit.

The first visit was March 22 from 1:30 to 5:15 p.m. and March 23 from 9:00 a.m. to 6:20 p.m., near the peak of the flowering season at the site. The second visit was April 29 from 11:00 a.m. to 4:30 p.m. and April 30 from 10:00 a.m. to 2:00 p.m., near the end of the flowering season. Both first and second survey visits were conducted by LSA biologists Sarah Barrera, Stanley Spencer, Dan Rosie, Jodi Ross, and Matthew Willis.

These visits overlapped the expected blooming periods of all target species except for Emory's crucifixion-thorn (*Castela emoryi*), Thurber's pilostyles, and Abram's spurge. Emory's crucifixion-thorn and Thurber's pilostyles can be readily identified outside of the blooming period. Abram's spurge (*Chamaesyce abramsiana*) is primarily an Arizona species that typically grows following summer precipitation, which in the project vicinity is frequently of insufficient quantity to promote much germination and growth of annuals. Most precipitation in this extremely arid area occurs in late fall and winter (The Weather Channel 2010). Based on its known distribution and dependence on summer or early fall rain, this species is unlikely to occur at the project site.

A third site visit to survey for Abram's spurge and other species dependent on summer or early fall rain was conducted at the direction of BLM on November 4 from 12:00 to 5:00 p.m. by LSA biologists Stanley Spencer, Dan Rosie, and Jaime Morales, following substantial rain in early October. The El Centro area had received approximately 1.6 inches of rain between August 27 and October 20, with most of it (about 1 inch) occurring on October 2 (National Oceanic and Atmospheric Administration 2010).

All survey personnel were approved by BLM prior to participating in the survey, had previous experienced conducting desert plant surveys or vegetation mapping in habitats similar to those on the project site, and were familiar with common species expected to be observed in the survey area. Herbarium specimens, photographs, and written descriptions were used to familiarize survey personnel with the appearances and identifying characteristics of each of the target species. Reference populations for Emory's crucifixion-thorn and Thurber's pilostyles were visited prior to the first site visit. For other target species, reference populations with habitat conditions similar to those on the project site were not available.

The survey was floristic in nature. All plant taxa observed were documented and identified at least to the taxonomic level required to determine rarity status. The entire respective survey area was surveyed during each of the three site visits by walking along transects that provided for 100 percent visual coverage and detection of the smallest target species. The distances between transects averaged 15 meters (50 feet) during the first and third site visits and 20 meters (65 feet) during the second visit.

SURVEY RESULTS AND DISCUSSION

A complete list of plant species observed during the survey, with associated habitat type, is provided in Table C (attached).

The *Psorothamnus spinosus* Alliance in Pinto Wash (Figure 2) is a "rare or unusual plant community" as defined in the BLM protocol. This plant community is within the spring survey area but is not within the fall survey area or the project area. A California Natural Community Field

Survey Form (attached) documenting the occurrence of this vegetation type within the spring survey area was submitted to the CNDDB as required by the BLM protocol.

The intent of the third site visit was to survey for plants that had germinated as a result of rain in early October. Although several annual species had germinated following the October rain, all had previously been observed in greater abundance during the first or second site visits. Photographs of site conditions during the third site visit are included in Figure 3. Species that appeared to have germinated as a result of the October rain include manybristle chinchweed (*Pectis papposa*), cryptantha (*Cryptantha* sp.), Sahara mustard (*Brassica tournefortii*), desert sand verbena, browneyes (*Camissonia claviformis*), desert Indianwheat, common Mediterranean grass, and possibly desert palafox (*Palafoxia arida* var. *arida*).

One target species, Thurber's pilostyles, was found just outside the fall survey area (Figure 2; Figure 3, Photograph 4) during the third site visit, but was not found on the project site. This species is a short-lived perennial and a stem parasite of dyebush (*Psorothamnus emoryi*). It is not a special status plant (as defined in the BLM protocol) and is not considered sensitive, but is monitored by the CDFG and by the CNPS as a CNPS List 4 species. No other target or special status plant species were found during the survey. Only one individual of Thurber's pilostyles was found. Because its host plant is only sparsely distributed in the project vicinity, Thurber's pilostyles is expected to be sparsely distributed as well. Because Thurber's pilostyles is believed to be dioecious (individual plants do not have both male and female parts) and individuals are short-lived, the individual encountered is unlikely to reproduce or to be living at the time of project construction. The project location is within the known range of this species, and the species has been recorded from about 4 miles southwest of the project site at the intersection of Highway 98 and Pinto Wash (CDFG, CNDDB. 2009b). A California Native Species Field Survey Form documenting the observation of this species during the survey is attached and was submitted to CNDDB as required by the BLM protocol.

Given the habitat conditions and results of the plant survey, no special status plant species are expected to occur on the project site and no impacts to special status plant species are expected; hence no mitigation for impacts to special status plants is recommended.

REFERENCES CITED

Bureau of Land Management. 2009. *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species*.

Bureau of Land Management. 1980. *California Desert Conservation Area Plan 1980 As Amended*.

California Department of Fish and Game, Natural Diversity Data Base. 2009a. *Special Vascular Plants, Bryophytes, and Lichens List* (April 2009 update). The Resources Agency, Sacramento, California.

California Department of Fish and Game, Natural Diversity Data Base. 2009b. *Rarefind 3* (version 3.1.0, dated November 4, 2009). The Resources Agency, Sacramento, California.

California Department of Fish and Game. 2007. *Department of Fish and Game, Biogeographic Data Branch, Vegetation Classification and Mapping Program, List of California Vegetation Alliances, October 22, 2007*. The Resources Agency, Sacramento, California.

Calflora. 2009. *Calflora: Information on California Plants for Education, Research and Conservation*. Berkeley, California. http://www.calflora.org/ (Accessed: November, 2009).

National Oceanic and Atmospheric Administration. 2010. *National Weather Service*. Preliminary monthly climate data for Imperial. http://www.weather.gov/climate/index.php?wfo=psr (Accessed: December, 2010).

The Weather Channel. 2010. *Weather.com.* Monthly weather for El Centro. http://www.weather.com/outlook/health/fitness/wxclimatology/monthly/graph/USCA0332 (Accessed: December, 2010).

PERSONS CONTACTED

Andrew Trouette, El Centro Field Office, Bureau of Land Management.

Andrew Sanders, Curator, Herbarium, University of California, Riverside (UCR).

HERBARIA VISITED

University of California, Riverside (UCR).

Please do not hesitate to contact me if you require any additional information.

Sincerely,

LSA ASSOCIATES, INC.

Stanley C. Spencer, Ph.D.
Senior Biologist/Botanist

Attachments: Figure 1 – Regional Location
Figure 2 – Vegetation Map and Survey Results
Figure 3 – Site Photographs
Table B – Excluded Plant Taxa
Table C – Vascular Plant Species Observed
California Natural Community Field Survey Form (and map)
California Native Species Field Survey Form

Table B. Excluded Plant Taxa

Taxon	In BLM Table 3A?	Reason for Exclusion
Agave utahensis var. *eborispina*	Yes	1
Arabis shockleyi	Yes	1
Arctomecon merriamii	Yes	1
Astragalus albens	Yes	1
Astragalus cimae var. *cimae*	Yes	1
Astragalus cimae var. *sufflatus*	Yes	1
Astragalus funereus	Yes	1
Astragalus jaegerianus	Yes	1
Astragalus lentiginosus var. *coachellae*	Yes	1
Astragalus lentiginosus var. *micans*	Yes	1
Astragalus lentiginosus var. *sesquimetralis*	Yes	1
Astragalus magdalenae var. *peirsonii*	Yes	2
Astragalus mohavensis var. *hemigyrus*	Yes	1
Astragalus tricarinatius	Yes	1
Berberis nevinii	Yes	2
Brickellia knappiana	Yes	1
Bursera microphylla	No	2
Calliandra eriophylla	No	3
Calochortus excavatus	Yes	1
Calochortus striatus	Yes	1
Calystegia piersonii	Yes	1
Camissonia arenaria	No	2
Carnegiea gigantea	No	2
Caulanthus simulans	Yes	1
Caulostramina jaegeri	Yes	1
Chaenactis carphoclinia var. *peirsonii*	No	2
Chamaesyce (Euphorbia) platysperma	Yes	3
Chorizanthe (special status species)	Yes	1
Colubrina californica	Yes	2
Cordylanthus eremicus ssp. *bernardinus*	Yes	1
Coryphantha alversonii (vivipara var. *alversonii)*	Yes	3
Coryphantha vivipara var. *rosea*	Yes	1
Croton wigginsii	Yes	4
Cryptantha ganderi	Yes	1
Cylindropuntia munzii (Opuntia munzii)	Yes	2

Table B. Excluded Plant Taxa

Taxon	In BLM Table 3A?	Reason for Exclusion
Cylindropuntia xfosbergii (Opuntia bigelovii var. *hoffmannii)*	Yes	2
Cymopterus deserticola	Yes	1
Deinandra (Hemizonia) arida	Yes	1
Deinandra (Hemizonia) floribunda	Yes	1
Deinandra (Hemizonia) mohavensis	Yes	1
Ditaxis claryana	No	2
Ditaxis serrata var. *californica*	Yes	2
Dudleya saxosa ssp. *saxosa*	Yes	1
Echinocereus engelmannii ssp. *munzii*	Yes	1
Enceliopsis covillei	Yes	1
Enceliopsis nudicaulis	Yes	1
Ephedra funerea	Yes	1
Erigeron parishii	Yes	1
Eriogonum bifurcatulm	Yes	1
Eriogonum eremicola	Yes	1
Eriogonum gilmanii	Yes	1
Eriogonum kennedyi var. *pinicola*	Yes	1
Eriogonum microthecum var. *panamintense*	Yes	1
Eriogonum ovalifolium ssp. *vineum*	Yes	1
Eriogonum thornei (ericifolium var. *thornei)*	Yes	1
Eriogonum thornei (ericifolium)	Yes	1
Eriophyllum mohavense	Yes	1
Eryngium aristulatum var. *parishii*	No	2
Eucnide rupestris	No	5
Fimbristylis thermalis	Yes	1
Galium angustifolium ssp. *bernardinus*	Yes	1
Galium angustifolium ssp. *borregoense*	Yes	1
Galium hilendiae ssp. *kingstoense*	Yes	1
Galium hypotrichum ssp. *tomentillum*	Yes	1
Geraea viscida	No	2
Gilmania luteola	Yes	1
*Glossopetalon pungens (*includes *Forsellesia pungens* var. *glabra)*	Yes	1
Grindellia fraxino-pratensis	Yes	1
Helianthus niveus ssp. *tephrodes*	Yes	2
Herissantia crispa	No	2

Table B. Excluded Plant Taxa

Taxon	In BLM Table 3A?	Reason for Exclusion
Hulsea mexicana	No	2
Hulsea vestita ssp. *inyoensis*	Yes	1
Hymenoxys odorata	No	2
Imperata brevifolia	No	6
Ipomopsis tenuifolia	No	2
Ivesia patellifera (Potentilla patellifera)	Yes	1
Koeberlinia spinosa ssp. *tenuispina*	No	2
Lepidium flavum var. *filipense*	Yes	1
Linanthus maculatus	Yes	1
Lotus haydonii	No	2
Lupinus excubitus var. *medius*	Yes	3
Lupinus holmgrenianus	Yes	1
Lycium parishii	No	2
Marina orcuttii var. *orcuttii*	Yes	1
Maurandya petrophila	Yes	1
Mentzelia tridentata	No	3
Mimulus rupicola	Yes	1
Monardella robisonii	Yes	1
Nama stenocarpum	No	4
Nitrophila mohavensis	Yes	1
Opuntia basilaris var. *brachyclada*	Yes	1
Opuntia phaeacantha var. *mohavensis*	Yes	1
Opuntia wigginsii	Yes	2
Palafoxia arida var. *gigantea*	No	2
Penstemon calcareus	Yes	1
Penstemon californicus	Yes	1
Penstemon stephensii	Yes	1
Perityle inyoensis	Yes	1
Perityle villosa	Yes	1
Petalonyx thurberi ssp. *gilmanii*	Yes	1
Phacelia amabilis	Yes	1
Phacelia anelsonii	Yes	1
Phacelia mustelina	Yes	1
Phacelia novenmillensis	Yes	1
Pholisma (Ammobroma) sonorae	Yes	4

Table B. Excluded Plant Taxa

Taxon	In BLM Table 3A?	Reason for Exclusion
Puccinellia parishii	Yes	1
Salvia greatae	Yes	2
Sclerocactus polyancistrus	Yes	1
Selaginella eremophila	No	3
Senna covesii	No	2
Sphaeralcea rusby ssp. *eremicola*	Yes	1
Tetracoccus ilicifolius	Yes	1
Teucrium cubense ssp. *depressum*	No	5
Xylorhiza (Machaeranthera) orcuttii	Yes	2
Xylorhiza cognata	No	4
Zeltnera (Centaurium) namophila(um)	Yes	1

1: Taxon does not occur in Imperial County.
2: Site is well outside expected geographic range of the taxon.
3: Site is outside expected geographic and elevational range of the taxon.
4: Site is outside expected geographic range of the taxon, and habitat conditions on site are unsuitable.
5: Site is outside expected elevational range of the taxon, and habitat conditions on site are unsuitable.
6: Habitat conditions on site are unsuitable.

Table C: Vascular Plant Species Observed

Scientific Name	Common Name	Vegetation Community
PINOPHYTA	**GYMNOSPERMS**	
Ephedraceae	**Ephedra family**	
Ephedra trifurca	Longleaf jointfir	**LA, P**
MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**	
Apodanthaceae	**Stemsucker family**	
Pilostyles thurberi	Thurber's pilostyles	**LA**
Asteraceae	**Sunflower family**	
Ambrosia dumosa	Burrobush	**LA, L**
Ambrosia salsola	Burrobrush	**L**
Baileya pauciradiata	Laxflower	**LA, L**
Chaenactis stevioides	Steve's dustymaiden	**LA**
Encelia farinosa	Brittlebush	**P**
Encelia frutescens	Button brittlebush	**LA**, **P**
*Lactuca serriola**	Prickly lettuce	**LA**
Logfia sp.	Cottonrose	**LA**
Malacothrix glabrata	Desert dandelion	**L**
Palafoxia arida var. *arida*	Desert palafox	**LA**
Pectis papposa	Manybristle chinchweed	**T**
Psathyrotes ramosissima	Velvet turtleback	**LA**
Rafinesquia neomexicana	Desert chicory	**LA**
*Sonchus oleraceus**	Common sow thistle	**T**
Stephanomeria exigua	Small wreath-plant	**LA**
Boraginaceae	**Borage family**	
Cryptantha angustifolia	Panamint cryptantha	**LA**
Cryptantha maritima	Guadalupe cryptantha	**LA, L**
Cryptantha micrantha	Redroot cryptantha	**LA**
Pectocarya heterocarpa	Mixed-nut pectocarya	**LA**
Tiquilia palmeri	Palmer's crinklemat	**LA**
Tiquilia plicata	Fanleaf crinklemat	**LA**
Brassicaceae	**Mustard family**	
*Brassica tournefortii**	Sahara mustard	**LA**
Dithyrea californica	California shieldpod	**LA, L**
Lepidium lasiocarpum	Shaggyfruit pepperweed	**LA**, **T**
Streptanthella longirostris	Streptanthella	**LA**
Cactaceae	**Cactus family**	
Cylindropuntia echinocarpa	Silver cholla	**L**
Ferocactus cylindraceus	California barrel cactus	**L**

Table C: Vascular Plant Species Observed

Opuntia basilaris var. *basilaris*	Beavertail prickleypear	**LA**
Caryophyllaceae	**Pink family**	
Achyronychia cooperi	Onyxflower	**LA, L, P**
Chenopodiaceae	**Saltbush family**	
Atriplex canescens	Fourwing saltbush	**L**
Atriplex polycarpa	Cattle saltbush	**L**
*Chenopodium murale**	Nettleleaf goosefoot	**LA**, **T**
Euphorbiaceae	**Spurge family**	
Chamaesyce polycarpa	Smallseed sandmat	**LA**
Croton californicus	California croton	**LA**
Stillingia spinulosa	Annual toothleaf	**L**
Fabaceae	**Pea family**	
Acacia greggii	Catclaw	**L**
Lupinus arizonicus	Arizona lupine	**L**
Prosopis glandulosa var. torreyana	Honey mesquite	**LA**
Psorothamnus emoryi	Dyebush	**LA**
Psorothamnus schottii	Schott's dalea	**P**
Psorothamnus spinosus	Smoketree	**P**
Fouquieriaceae	**Ocotillo family**	
Fouquieria splendens	Ocotillo	**LA**
Hydrophyllaceae	**Waterleaf family**	
Emmenanthe penduliflora	Whispering bells	**L**
Nama hispidum	Bristly nama	**L**
Loasaceae	**Loasa family**	
Petalonyx thurberi ssp. *thurberi*	Thurber's sandpaper plant	**P**
Nyctaginaceae	**Four-o'clock family**	
Abronia villosa var. *villosa*	Desert sand verbena	**LA**
Onagraceae	**Evening primrose family**	
Camissonia claviformis	Browneyes	**LA**
Camissonia californica	Mustard-like evening primrose	**LA**
Oenothera deltoides	Birdcage evening primrose	**LA, L**
Plantaginaceae	**Plantain family**	
Plantago ovata	Desert Indianwheat	**LA**
Polemoniaceae	**Phlox family**	
Loeseliastrum schottii	Schott's calico	**LA**, **L**
Polygonaceae	**Buckwheat family**	

Table C: Vascular Plant Species Observed

Chorizanthe brevicornu	Brittle spineflower	**LA**
Chorizanthe rigida	Devil's spineflower	**LA**
Eriogonum deflexum	Flatcrown buckwheat	**LA**
Eriogonum thomasii	Thomas' buckwheat	**LA**
Resedaceae	**Mignonette family**	
Oligomeris linifolia	Lineleaf whitepuff	**LA**
Solanaceae	**Nightshade family**	
Lycium cf. *andersonii*	Anderson's desert thorn	**L**
Tamaricaceae	**Tamarisk family**	
*Tamarix aphylla**	Athel	**L**, **T**
*Tamarix ramosissima**	Mediterranean tamarisk	**L**, **T**
Zygophyllaceace	**Caltrop family**	
Larrea tridentata	Creosote bush	**LA, L, P, T**
Liliaceae	**Lily family**	
Agave desertii	Desert agave	**P**
Hesperocallis undulata	Desert lily	**LA**
Poaceae	**Grass family**	
Bouteloua barbata	Sixweeks grama	**T**
*Schismus barbatus**	Common Mediterranean grass	**LA**, **T**

* Non-native

LA = *Larrea tridentata – Ambrosia dumosa* Alliance
L = *Larrea tridentata* Alliance
P = *Psorothamnus spinosus* Alliance
T = *Tamarix aphylla* Semi-Natural Non-Native Stand

APPENDIX G

LSA ASSOCIATES, INC.
PACIFIC CENTER
703 PALOMAR AIRPORT RD., SUITE 260
CARLSBAD, CALIFORNIA 92011
760.931.5471 TEL
760.918.2458 FAX

BERKELEY
FT. COLLINS
IRVINE
FRESNO
PALM SPRINGS
PT. RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

February 22, 2011

Edalia Olivo-Gomez
Senior Environmental Specialist
San Diego Gas & Electric
8315 Century Park Court, CP21E
San Diego, CA 92123-1548

Subject: Winter Avian Point-Count Survey Results
Ocotillo Sol Project
Imperial County, California (LSA Project No. SGE0905)

Dear Ms. Olivo-Gomez:

LSA Associates, Inc. (LSA) is providing this letter report to document the results of winter avian point-count surveys at the Ocotillo Sol Project site in Imperial County, California. To expedite the final report, spring avian point-count surveys will be initiated as early in March as possible.

METHODS

The winter point-count surveys were conducted in accordance with the Bureau of Land Management's "BLM Solar Facility Point Count Protocol" (dated March 2009). LSA biologists Mark Billings and Dan Rosie conducted four surveys during the winter (November through January). Dates, times, and weather conditions of these surveys are provided in Table A. The survey utilized a single transect consisting of eight point-count stations, with adjacent stations separated by 250 meters (820 feet; see attached Figure 1). The transect was located so as to provide a representative sampling of the project site. Habitat value throughout the project site was fairly uniform. The surveys were conducted one day a week for four consecutive weeks. During each survey, each point-count station was monitored for 10 minutes, and birds observed within a radius of 100 meters (330 feet) of the station over the 10-minute period were counted.

Table A: Survey Schedule and Conditions

Date 2010	Time	Weather
November 11	0746–1133	Cool–mild, clear, light–moderate wind
November 18	0630–1003	Mild, clear, calm
November 30	0613–0950	Mild, clear, light wind
December 7	0616–1005	Cool, clear, light wind

RESULTS

Three hundred birds, comprising 17 species, were detected during the surveys (Table B). Bird observations were more or less uniform across the site, both in species composition and in numbers of individuals (Table C).

Table B: Survey Summary (Number of Individuals Observed by Date)

Species	11/11	11/18	11/30	12/7	Total
rock pigeon (*Columba livia*)	15	38	50	4	**107**
turkey vulture (*Cathartes aura*)	52	0	1	3	**56**
yellow-rumped warbler (*Dendroica coronata*)	6	3	21	10	**40**
horned lark (*Eremophila alpestris*)	7	11	3	3	**24**
European starling (*Sturnus vulgaris*)	0	9	6	1	**16**
house finch (*Carpodacus mexicanus*)	3	4	2	7	**16**
common raven (*Corvus corax*)	2	4	0	7	**13**
red-tailed hawk (*Buteo jamaicensis*)	3	0	3	0	**6**
loggerhead shrike (*Lanius ludovicianus*)	1	2	2	0	**5**
white-throated swift (*Aeronautes saxatalis*)	5	0	0	0	**5**
American kestrel (*Falco sparverius*)	2	0	2	0	**4**
blue-gray gnatcatcher (*Polioptila caerulea*)	1	1	0	0	**2**
Eurasian collared-dove (*Streptopelia decaocto*)	0	2	0	0	**2**
ferruginous hawk (*Buteo regalis*)	0	0	0	1	**1**
pine siskin (*Spinus pinus*)	1	0	0	0	**1**
prairie falcon (*Falco mexicanus*)	1	0	0	0	**1**
Say's phoebe (*Sayornis saya*)	0	1	0	0	**1**
Total	**99**	**75**	**90**	**36**	**300**

Table C: Detailed Survey Results: Number of Individuals Observed by Date and Point)

Point	November 11	November 18	November 30	December 7
1	loggerhead shrike (1) prairie falcon (1) rock pigeon (4) yellow-rumped warbler (1)	horned lark (1) house finch (1) loggerhead shrike (1) yellow-rumped warbler (1)	American kestrel (2) red-tailed hawk (2) turkey vulture (1) yellow-rumped warbler (2)	ferruginous hawk (1) turkey vulture (3)
2	common raven (1) red-tailed hawk (2) rock pigeon (10) turkey vulture (1) yellow-rumped warbler (2)	Eurasian collared-dove (2) European starling (6) horned lark (1) rock pigeon (35)	loggerhead shrike (1) yellow-rumped warbler (5)	horned lark (1) house finch (3)
3	American kestrel (1) horned lark (1) house finch (2) turkey vulture (7)	horned lark (2) yellow-rumped warbler (1)	European starling (5) horned lark (2) red-tailed hawk (1) rock pigeon (50)	house finch (1)
4	pine siskin (1) rock pigeon (1) turkey vulture (40) yellow-rumped warbler (1)	European starling (3) loggerhead shrike (1) rock pigeon (3)	European starling (1) house finch (2)	common raven (7) European starling (1) yellow-rumped warbler (2) house finch (1) rock pigeon (4)

Table C: Detailed Survey Results: Number of Individuals Observed by Date and Point)

Point	November 11	November 18	November 30	December 7
5	blue-gray gnatcatcher (1) horned lark (4) red-tailed hawk (1) turkey vulture (3)	blue-gray gnatcatcher (1) horned lark (2) house finch (1)	loggerhead shrike (1) yellow-rumped warbler (5)	horned lark (1) yellow-rumped warbler (2)
6	American kestrel (1)	common raven (3) horned lark (2)		horned lark (1) house finch (1) yellow-rumped warbler (1)
7	common raven (1) horned lark (1) house finch (1) turkey vulture (1)	horned lark (2) house finch (2) Say's phoebe (1) yellow-rumped warbler (1)	yellow-rumped warbler (8)	yellow-rumped warbler (1)
8	horned lark (1) white-throated swift (5) yellow-rumped warbler (2)	common raven (1) horned lark (1)	horned lark (1) yellow-rumped warbler (1)	house finch (1) yellow-rumped warbler (4)

The only special-status birds observed during the winter point-count surveys are loggerhead shrike (*Lanius ludovicianus*), categorized as a California Species of Special Concern by the California Department of Fish and Game (CDFG), and ferruginous hawk (*Buteo regalis*), monitored by CDFG as a Special Animal but without official conservation status. Neither species is listed as Threatened or Endangered by the State of California or the Federal government, and neither is a BLM Sensitive species. The ferruginous hawk was observed flying over the project site. This species is more likely to utilize nearby agricultural areas because the project site does not appear to contain optimal habitat, but during the winter, the species may forage on the site, or migrate through it.

Please contact me or Mike Trotta at (760) 931-5471 if you have any questions about this letter report.

Sincerely

LSA ASSOCIATES, INC.

Mark Billings
Biologist

Attachment: Figure 1: Avian Point-Count Survey Map

LSA

FIGURE 1

LEGEND

- Impact Area plus Buffer
- Existing SDG&E Imperial Valley Substation
- Point-Count Transect
- Point Count (with ID)
- Point Count 100m Radius

N

0 300 600
FEET

SOURCE: Bing Maps (2008)

R:\SGE0905\GIS\Transects.mxd (1/12/2011)

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Avian Point-Count Survey Map

APPENDIX H

LSA ASSOCIATES, INC.
PACIFIC CENTER
703 PALOMAR AIRPORT RD., SUITE 260
CARLSBAD, CALIFORNIA 92011
760.931.5471 TEL
760.918.2458 FAX

BERKELEY
FT. COLLINS
IRVINE
FRESNO
PALM SPRINGS
PT. RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

April 21, 2011

Edalia Olivo-Gomez
Senior Environmental Specialist
San Diego Gas & Electric
8315 Century Park Court, CP21E
San Diego, CA 92123-1548

Subject: Spring Avian Point-Count Survey Results
Ocotillo Sol Project
Imperial County, California (LSA Project No. SGE0905)

Dear Ms. Olivo-Gomez:

LSA Associates, Inc. (LSA) is providing this letter report to document the results of spring avian point-count surveys at the Ocotillo Sol Project site in Imperial County, California. This report follows the previously submitted winter avian point-count survey report dated February 22, 2011.

METHODS

The spring point-count surveys were conducted in accordance with the Bureau of Land Management's "BLM Solar Facility Point Count Protocol" (dated March 2009). LSA biologists Mark Billings and Dan Rosie conducted four surveys during the spring (March and April). Dates, times, and weather conditions of these surveys are provided in Table A. The survey utilized a single transect consisting of eight point-count stations, with adjacent stations separated by 250 meters (820 feet; see attached Figure 1). The transect was located so as to provide a representative sampling of the project site. Habitat value throughout the project site was fairly uniform. The surveys were conducted one day a week for four consecutive weeks. During each survey, each point-count station was monitored for 10 minutes, and birds observed within a radius of 100 meters (330 feet) of the station over the 10-minute period were counted.

Table A: Survey Schedule and Conditions

Date 2011	Time	Weather
March 2	0730–1130	Cool–warm, mostly clear, light wind–calm
March 11	0725–1120	Mild–warm, clear, calm
March 18	0720–1130	Cool–warm, mostly overcast, calm–light wind
March 25	0800–1130	Mild–warm, mostly clear, light wind

RESULTS

Two hundred-ninety-four birds, comprising 23 species, were detected during the surveys (Table B). Bird observations were more or less uniform across the site, both in species composition and in numbers of individuals (Table C).

Table B: Survey Summary (Number of Individuals Observed by Date)

Species	3/2	3/11	3/18	3/25	Total
cliff swallow (*Petrochelidon pyrrhonota*)	0	3	38	12	**53**
white-crowned sparrow (*Zonotrichia leucophrys*)	10	0	25	5	**40**
house finch (*Carpodacus mexicanus*)	7	9	2	15	**33**
European starling (*Sturnus vulgaris*)	20	0	0	8	**28**
yellow-rumped warbler (*Dendroica coronata*)	8	4	6	9	**27**
rock pigeon (*Columba livia*)	0	7	12	5	**24**
Swainson's hawk (*Buteo swainsoni*)	3	11	0	0	**14**
Eurasian collared-dove (*Streptopelia decaocto*)	2	4	1	5	**12**
horned lark (*Eremophila alpestris*)	2	1	2	6	**11**
barn swallow (*Hirundo rustica*)	0	10	0	0	**10**
tree swallow (*Tachycineta bicolor*)	0	8	0	0	**8**
western kingbird (*Tyrannus verticalis*)	0	0	6	1	**7**
Say's phoebe (*Sayornis saya*)	3	2	0	1	**6**
American kestrel (*Falco sparverius*)	1	1	1	1	**4**
blue-gray gnatcatcher (*Polioptila caerulea*)	1	0	2	0	**3**
common raven (*Corvus corax*)	1	0	2	0	**3**
turkey vulture (*Cathartes aura*)	1	2	0	0	**3**
warbling vireo (*Vireo gilvus*)	0	0	1	2	**3**
black phoebe (*Sayornis nigricans*)	0	0	1	0	**1**
Brewer's sparrow (*Spizella breweri*)	0	0	1	0	**1**
hummingbird (*Trochilidae* sp.)	0	0	1	0	**1**
lesser goldfinch (*Spinus psaltria*)	0	0	1	0	**1**
orange-crowned warbler (*Oreothlypis celata*)	0	0	1	0	**1**
Total	**59**	**62**	**103**	**70**	**294**

Table C: Detailed Survey Results (Number of Individuals Observed by Date and Point)

Point	March 2	March 11	March 18	March 25
1	common raven (1) European starling (6) house finch (1) white-crowned sparrow (10) yellow-rumped warbler (8)	house finch (3) turkey vulture (1)	blue-gray gnatcatcher (2) Brewer's sparrow (1) cliff swallow (8) Eurasian collared-dove (1) horned lark (1) lesser goldfinch (1) orange-crowned warbler (1) warbling vireo (1) western kingbird (6) white-crowned sparrow (20)	cliff swallow (2) house finch (2) western kingbird (1) white-crowned sparrow (2) yellow-rumped warbler (3)
2	European starling (6) Say's phoebe (1)	Eurasian collared-dove (2) house finch (1) Swainson's hawk (11) turkey vulture (1)	cliff swallow (3) house finch (1) hummingbird sp. (1) rock pigeon (10) yellow-rumped warbler (1)	house finch (2) yellow-rumped warbler (1)
3	Eurasian collared-dove (1) European starling (4) horned lark (1)	rock pigeon (4) tree swallow (8) yellow-rumped warbler (2)	black phoebe (1) cliff swallow (6) house finch (1) rock pigeon (2) yellow-rumped warbler (3)	cliff swallow (5) Eurasian collared-dove (3) house finch (4) Say's phoebe (1) warbling vireo (1)
4	American kestrel (1) blue-gray gnatcatcher (1) Eurasian collared-dove (1) European starling (4) house finch (1)	American kestrel (1) cliff swallow (1) Eurasian collared-dove (1) house finch (1) rock pigeon (3)	American kestrel (1) common raven (2)	Eurasian collared-dove (2) European starling (8) horned lark (2) rock pigeon (5)
5	house finch (1)	barn swallow (2) house finch (1)	cliff swallow (15)	horned lark (3) yellow-rumped warbler (1)
6	house finch (2) Swainson's hawk (3) turkey vulture (1)	barn swallow (3) house finch (1) Say's phoebe (2)	cliff swallow (3) yellow-rumped warbler (2)	cliff swallow (2) house finch (3) yellow-rumped warbler (1)
7	house finch (2) Say's phoebe (2)	cliff swallow (1) horned lark (1) house finch (1) yellow-rumped warbler (1)	cliff swallow (1) horned lark (1) white-crowned sparrow (5)	cliff swallow (3) house finch (1) yellow-rumped warbler (1)

Table C: Detailed Survey Results (Number of Individuals Observed by Date and Point)

Point	March 2	March 11	March 18	March 25
8	horned lark (1)	barn swallow (5) cliff swallow (1) Eurasian collared-dove (1) house finch (1) yellow-rumped warbler (1)	cliff swallow (2)	American kestrel (1) horned lark (1) house finch (3) warbling vireo (1) white-crowned sparrow (3) yellow-rumped warbler (2)

The only special-status species observed during the spring point-count surveys was Swainson's hawk (*Buteo swainsoni*), categorized as Threatened by the California Department of Fish and Game. Swainson's hawks were observed flying north over the project site during the peak of their northbound migration.

Please contact me or Mike Trotta at (760) 931-5471 if you have any questions about this letter report.

Sincerely

LSA ASSOCIATES, INC.

Mark Billings
Biologist

Attachment: Figure 1: Avian Point-Count Survey Map

LSA

FIGURE 1

LEGEND

- Impact Area plus Buffer
- Existing SDG&E Imperial Valley Substation
- Point-Count Transect
- Point Count (with ID)
- Point Count 100m Radius

N

0 300 600
FEET

SOURCE: Bing Maps (2008)

R:\SGE0905\GIS\Transects.mxd (1/12/2011)

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Avian Point-Count Survey Map

APPENDIX I

NATURAL RESOURCES ASSESSMENT, INC.

Flat-tailed Horned Lizard Survey
San Diego Gas & Electric
Imperial Valley Photovoltaic Project
Imperial County, California

Prepared for:

LSA Associates, Inc.
703 Palomar Airport Road, Suite 260
Carlsbad, CA 92011
760 921 5471

Prepared by:

Natural Resources Assessment, Inc.
3415 Valencia Hill Drive
Riverside, CA 92507
951 686 1141

February 17, 2010, Revised December 2, 2010

Project Number: LSA09-101

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

December 2, 2010
Date

Table of Contents

Page

Executive Summary S-1
1.0 Introduction 2
2.0 Project Location and Description 2
3.0 Methods 2
3.1 Data Search 2
3.2 Field Surveys 2
4.0 Results 2
4.1 Research 2
4.2 Field Surveys 2
4.2.1 Weather 2
4.2.2 Soils and Topography 2
4.2.3 Plant Communities 2
4.2.4 Wildlife 2
4.3 Disturbances 2
4.4 Sensitive Biological Resources 2
4.4.1 Flat-tailed Horned Lizard 2
5.0 Discussion 2
6.0 References 2

Figures

1 Regional Vicinity and Project Site Map 2
2 Project Aerial 3
3 Project Soils 5
4 Distribution of Sign 10

Site Photos

1 Sonoran creosote bush scrub. Plot 4, looking south from the northeastern corner 8
2 Desert woodland mix. Plot 9, looking southwest 8
3 Flat-tailed horned lizard tracks on an anthill. Plot 2 10
4 Flat-tailed horned lizard scat. Plot 8 10

Appendices

Appendix A - Plant and Animal Species Observed
Appendix B - Field Notes, Forms and Photos

Executive Summary

Natural Resources Assessment, Inc. was contracted by LSA Associates, Inc. (LSA) to conduct a flat-tailed horned lizard survey for the proposed San Diego Gas & Electric (SDG&E) Imperial Valley Photovoltaic Project located on Bureau of Land Management (BLM) public land.

The proposed project is the installation of photovoltaic units in an approximately 100-acre facility within a 300± acre lease area outside of their existing Imperial Valley Substation near El Centro, California. The purpose of the flat-tailed horned lizard (FTHL) survey was to determine the presence or absence of the FTHL within the proposed project area.

The project area is located in the Yuha Desert section of the BLM Yuha Desert Management Area. The regional location is the Imperial Valley, west of El Centro and south of Interstate 8. NRA, Inc., in conjunction with LSA, conducted a data review and protocol surveys of the proposed project area.

Suitable sand habitats preferred by the FTHL are present, and sign of this species was observed on all the survey plots.

1.0 Introduction

San Diego Gas & Electric (SDG&E) is proposing to construct a solar-powered generating facility (photovoltaic array) near their current substation near El Centro in the Imperial Valley. Natural Resources Assessment, Inc. (NRA, Inc.) was contracted by LSA Associates, Inc. (LSA) to conduct a focused flat-tailed horned lizard (*Phrynosoma mcallii)* survey. The purpose of the survey was to determine the presence or absence of the flat-tailed horned lizard (FTHL).

2.0 Project Location and Description

The existing substation and proposed photovoltaic array site are located on land under the jurisdiction of the Bureau of Land Management (BLM). The photovoltaic array site is in the Yuha Desert of lower Imperial Valley, south of Interstate 8 and west of El Centro (Figures 1 and 2). The project area is in Section 3 and the western quarter of the western half of Section 2, Township 16½ south, Range 12 east, Mt. Signal, 7.5' U.S. Geological Survey (USGS) topographic map (Figure 1).

SDG&E proposes to develop, build, own, and operate a photovoltaic (PV) electric generation project in Imperial County, California on previously undisturbed Federal land surrounding the SDGE Imperial Valley Substation. The project's purpose is to generate approximately 12-14 megawatts of renewable energy utilizing the abundant solar resource available in Imperial County. The existing substation and proposed PV array site are located on land under the jurisdiction of the Bureau of Land Management (BLM). The project will be located on approximately 100 acres directly adjacent to SDG&E's Imperial Valley Substation.

3.0 Methods

3.1 Data Search

NRA, Inc. reviewed the accepted protocols for FTHL surveys (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003), and discussed the approach with Ms. Denise Woodward of LSA. The BLM, the oversight agency for the project, requested modifications to the adopted protocol as follows:

- Increasing the survey area from a one-hectare plot to a four-hectare plot.
- Increasing the survey time from one hour to two hours.
- Coverage of all ten plots, regardless of positive or negative findings on any one plot.

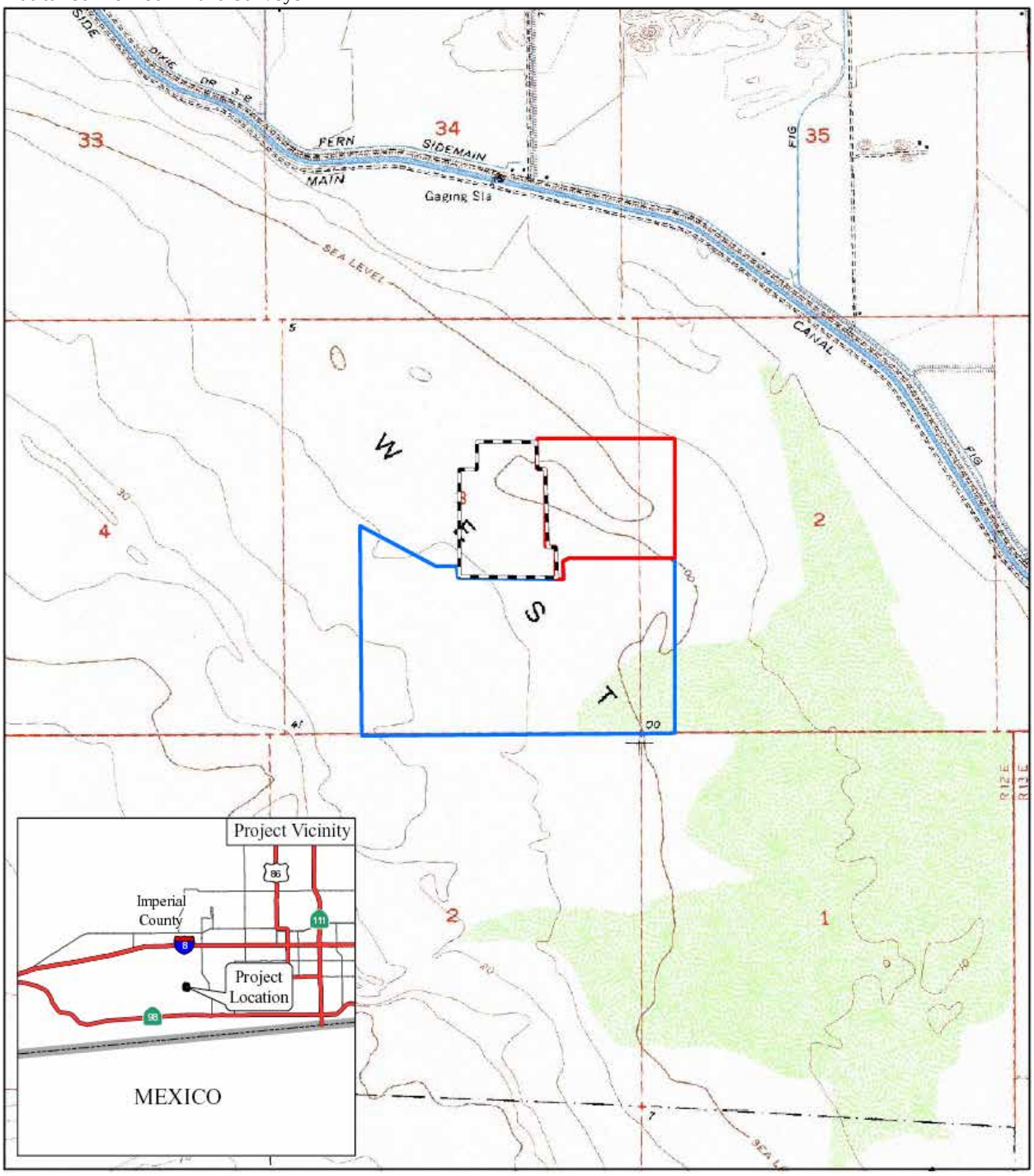
We also reviewed the available data on FTHL and its distribution in and around the project vicinity. Our review included:

- Lists and maps of sensitive biological resources provided by the California Natural Diversity Data Base.
- Available information on the distribution of FTHL habitat.
- General texts and other documents identifying potential resources on the property.

3.2 Field Surveys

Protocol surveys for the project were conducted on September 23, 2009 by Ms. Karen Kirtland of NRA, Inc. and Ms. Denise Woodward, Ms. Jodi Ross and Mr. Tony Belello of LSA. The surveys were focused on the FTHL, but included observations of general biological resources.

Our field surveys followed the revised FTHL survey protocol discussed in Section 3.1. Each plot was 4 hectares in size and was surveyed on foot for two hours, with surveyors searching for animals or evidence of FTHL. A total of ten plots were surveyed.



Base map: Mt. Signal 7.5' USGS topographic map (1976), SDG&E (2009)
Graphic provided by LSA Associates, Inc. (2009)

Figure 1. Regional Vicinity and Project Site Map

LEGEND

Existing SDG&E Imperial Valley Substation

Survey Area

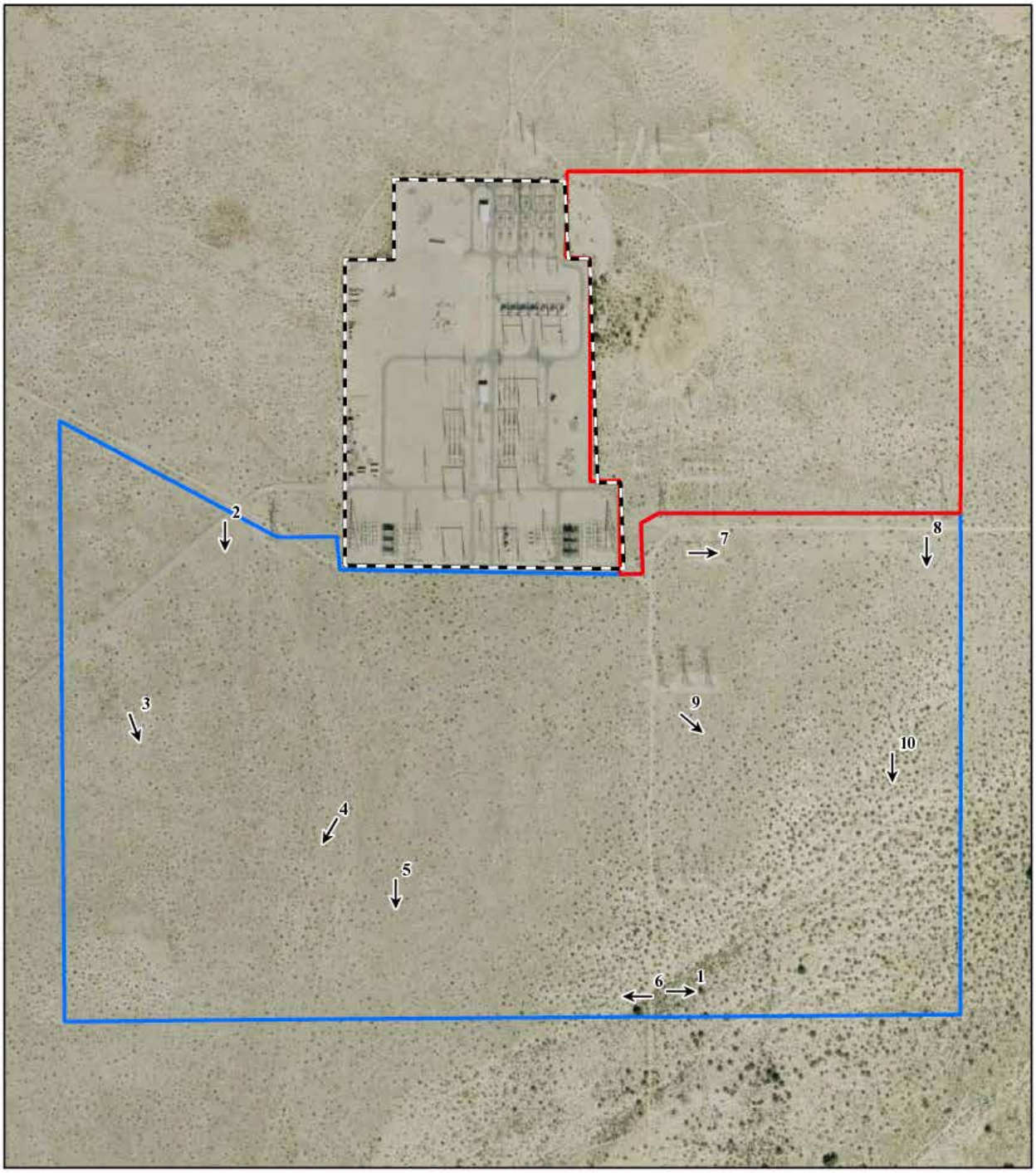
(Area Not Surveyed)

N

Feet (approximate)

0 1000 2000

Flat-tailed Horned Lizard Surveys
Imperial Valley Photovoltaic Project
Imperial County, California



Map base: Bing Maps (2008), SDG&E (2009)
Graphic provided by LSA Associates, Inc. (2009)

Figure 2. Project Aerial and Plot Locations

N

Feet
(approximate)

0 350 700

LEGEND

Existing SDG&E Imperial Valley Substation

Survey Area

(Area Not Surveyed)

Plot Location and Orientation

Flat-tailed Horned Lizard Surveys
Imperial Valley Photovoltaic Project
Imperial County, California

Sign surveyed for included tracks, scat, remains, and live animals. During the surveys, notes were made on the plant and animal species observed, the surface characteristics and topography of the project area, and the suitability of the habitat for FTHL.

At the request of the client, all ten plots were located outside of the existing substation site. The approved survey area is in Areas B and C, entirely south of the substation. Area A, while potentially part of the solar array site, was not part of the survey area (Figure 2).

4.0 Results

4.1 Research

The photovoltaic array site is located in the Yuha Desert Management Area (MA) on Bureau of Land Management (BLM) land (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003). The Yuha Desert MA extends from just west of El Centro west to the West Basin Management Area. BLM surveys of the Yuha Desert MA in 1979, 1984, 1985 and 1986 estimated abundance of FTHL based on scat counts. They found 26 percent of the sections had high abundance, 29 percent had medium abundance and 45 percent had low abundance (California Natural Diversity Data Base 2009). The same survey found eight individuals (four adults, four juveniles) in July 2001 in the northeast quarter of Section 15, Township 17 south, Range 13 east (California Natural Diversity Base 2009).

There is also a FTHL museum record (collection date unknown) reported in 1998 from the Signal Mountain area southeast of the project site (California Natural Diversity Base 2009). The reported site is the northeast quadrant of Section 16, Township 17 south, Range 13 west, between approximately three and four miles east-southeast of the southeastern corner of the project. The location of the museum record is accurate to within one mile.

Mark-recapture surveys in 2008 on Plot 486 found 18 adults and one juvenile in the Pinto Wash, Yuha Basin (=Yuha Desert) Management Area (Flat-tailed Horned Lizard Interagency Coordinating Committee 2009). No information was given regarding Section(s), Township or Range information for Plot 486.

In addition to the mark-recapture surveys, occupancy surveys were conducted on 85 plots in the Yuha Basin Management Area in 2008. The percentage of occupancy was not determined as of the date of the most recent Annual Progress Report (Flat-tailed Horned Lizard Interagency Coordinating Committee 2009). However, the Annual Progress Report for 2009 includes records from 2008 indicating probability of occupancy of lizards (0.56) and scat (1.00) on plots in the Yuha Basin Management Area based on mark-recapture data.

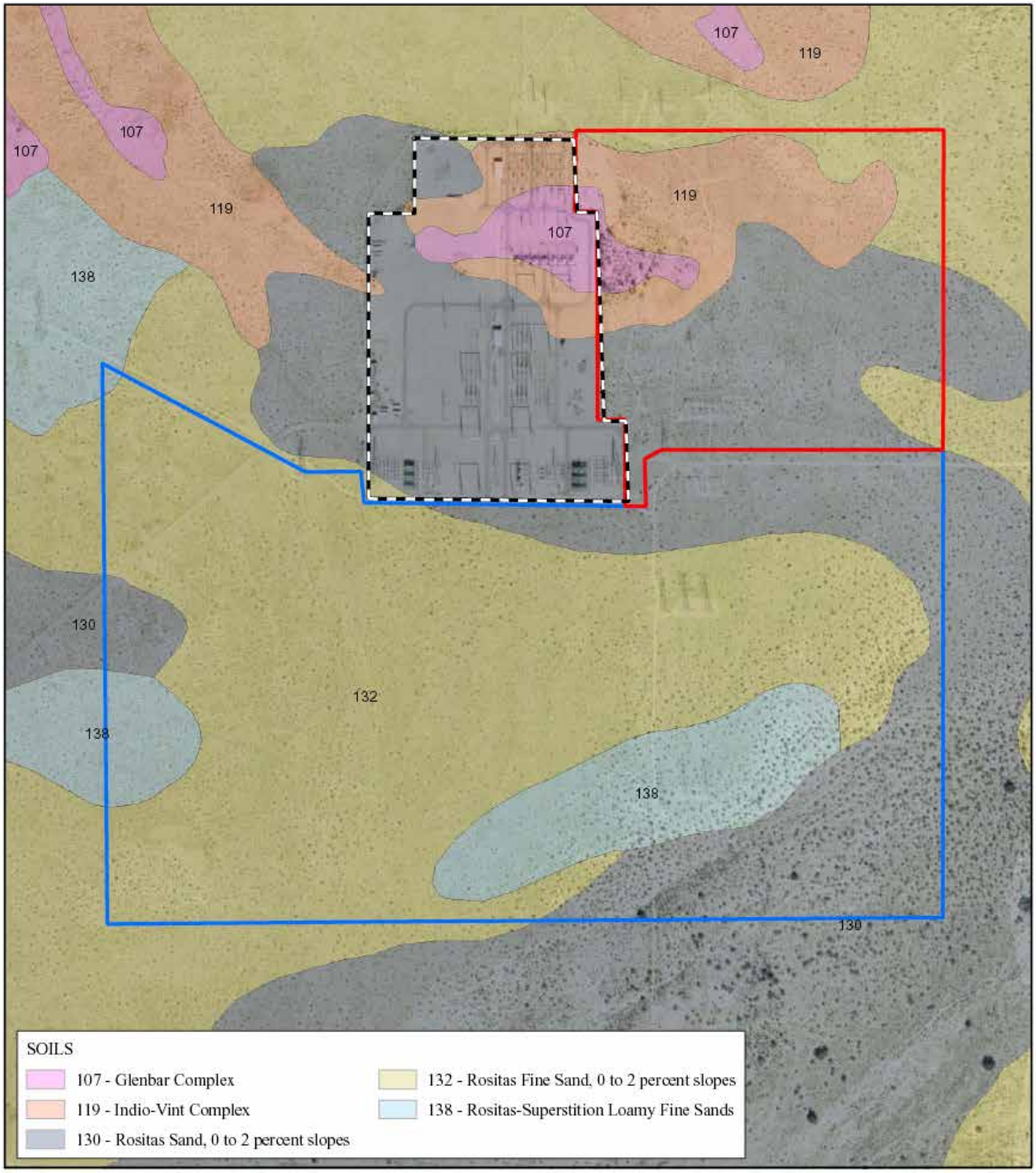
4.2 Field Surveys

4.2.1 Weather

During the field survey on September 23, 2009 the temperature at the beginning of the surveys was 75 degrees Fahrenheit. The skies were clear and winds were less than two miles per hour. At the end of the surveys, the temperature was 101 degrees Fahrenheit, the skies were clear and winds were zero to two miles per hour.

4.2.2 Soils and Topography

The substation and proposed photovoltaic array site occupy a variety of soils (Natural Resources Conservation Service 2009). The photovoltaic array site supports three soils (Figure 3). The majority of the site is occupied by Rositas fine sand (132), found on zero to two percent slopes. It is a fine sand soil, somewhat excessively drained, nonsaline to very slightly saline. It is found on basin floors and forms from either alluvium derived from mixed sources, eolian deposits derived from mixed sources, or both.



Map base: Bing Maps (2008), NRCS (2008), SDG&E (2009)
Graphic provided by LSA Associates, Inc. (2009)

Figure 3. Project Soils

LEGEND
Existing SDG&E Imperial Valley Substation
Survey Area
(Area Not Surveyed)

N
Feet
(approximate)
0 375 750

Flat-tailed Horned Lizard Surveys
Imperial Valley Photovoltaic Project
Imperial County, California

The second most common soil in the survey area is Rosita sand (130), found on zero to two percent slopes. It is a sand soil, somewhat excessively drained soil, nonsaline to very slightly saline. It is found on basin floors from alluvium derived from mixed sources.

The soil occupying the smallest part of the survey area found on site is Rositas-Superstition loamy find sand (138). This soil is derived from two sources. The Rositas is a loamy fine sand, found on basin floors. It is an excessively drained soil formed from either alluvium derived from mixed sources, eolian deposits derived from mixed sources or both. It ranges from nonsaline to very slightly saline.

The other source of the Rositas-Superstition loamy fine sands is Superstition, a loamy fine sand found on basin floors and is formed from alluvium from mixed sources. It is a non-alkaline soil, somewhat excessively drained.

The substation site and the area not surveyed occupy a somewhat different soil grouping. The dominant soil in these two areas is mostly Rosita sand (130). Rosita fine sand (132) occurs in minor amounts along the north and eastern borders of the area not surveyed, and a small portion of the southwest corner of the substation site.

There are two new soils that occur here. The first is the Indio-Vint complex (119), which is the second dominant soil in this area. It occupies most of the northern half of the substation site and the area not surveyed. The Indio-Vint complex are nearly level soils found found on flood plains and alluvial basin floors. This unit is actually composed of several soil groups that are so intricately mixed that they cannot be separated into their respective soil units.

Indio loam and Vint loamy fine sand are the dominant components of this complex. Indio loam comprises approximately 35 percent of the soil complex. This is a very deep and well drained loam soil that is formed from alluvial and eolian sediments of mixed origin.

Vint loamy fine sand comprises approximately 30 percent of the complex. This soil is very deep and well drained. It forms from alluvial and eolian sediments of diverse origin.

Rositas, Meloland and Holtville make up the remaining 30 percent of the complex. These soils are have sand to silt textures, are highly stratified, and occur in narrow areas of two to five percent slopes, and also in areas with hummocky or dune topography.

The Glenbar complex is found in the middle of the substation site and a small part of the area not surveyed. This complex is formed of intricately mixed, very deep and well drained soils that formed in alluvial sediment of a mixed origin. They occur on tilted, folded, faulted unconsolidated stratified sediment along the edges of Imperial Valley. As a result, they are found in narrow and linear areas.

Glenbar soils form about 60 percent of the complex. with ten percent derived from Imperial and Indio soils, five percent each of Meloland, Niland, Holtville, and five percent from Rositas and Vint soils.

The parent material is dominantly silty clay loam, but also includes various strata of silty clay, clay loam, sandy loam, silt loam, loamy very fine sand, and sand. The surface texture is generally silty clay to gravely sand, but sand, fine sand or silt loam form a local alluvial overwash or thin eolian deposits. Most of the fine and moderately textured strata are moderately to strongly saline. Some areas are hummocky.

The surface in some areas is partially covered by a desert pavement composed of thin flat sandstone fragments mixed with water-worn gravel and lime concretions.

The site topography is mostly flat, with a downward trend heading southwest. The extreme southeastern corner of the survey area is crossed by Pinto Wash and has a mixed topography of sand dunes and shallow drainages. Elevations range from sea level to 30 feet below sea level (Figure 1).

4.2.3 Plant Communities

The survey area is located in sparse Sonoran creosote bush scrub (Photo 1). The dominant plants on all the plots but three are creosote bush (*Larrea tridentat*a), burroweed (*Ambrosia dumosa*) and burrobrush (*Ambrosia salsola* var. *salsola*). Shrub density is approximately 20 percent. The average shrub height is 45 centimeters (1.5 feet).

Ground cover was less than 10 percent at the time of the surveys. Scattered patches of Mediterranean grass (*Schismus barbatus*) and camissonia (*Camissonia* sp.) were found throughout the photovoltaic array site and on some of the plots.

Three plots along Pinto Wash in the southeast corner are located in a desert woodland mix (Photo 2). The dominant plants are smoketree (*Psorothamnus spinosus*), desert ironwood (*Olneya tesota*), honey mesquite (*Prosopis glandulosa var. torreyana*), and athel (*Tamarix aphylla*).

All plant species observed are listed in Appendix A.

4.2.4 Wildlife

Wildlife observations made during the surveys included scat, tracks, burrows, nests, calls, and individual animals. In all but the three plots along Pinto Creek, the number of species observed was relatively small, limited mostly to reptiles such as side-blotched lizard (*Uta stansburiana*), sidewinder (*Crotalus cerastes*) and desert iguana (*Dipsosaurus dorsalis*).

On the three plots along Pinto Wash, observations of wildlife included side-blotched lizard, Great Basin whiptail (*Cnemidophorus tigris tigris*), desert iguana, sidewinder and zebra-tailed lizard (*Callisaurus draconoides*).

Except along Pinto Wash, the number of bird species observed was limited to turkey vulture (*Cathartes aura*) and mourning dove (*Zenaida macroura*). Along Pinto Wash, rock pigeon (*Columba livia*), greater roadrunner (*Geococcyx californianus*), black-tailed gnatcatcher (*Polioptila melanura*) and European starling (*Sturnis vulgaris*) were observed.

Common mammal species observed on all ten plots included black-tailed jackrabbit (*Lepus californicus*), Merriam's kangaroo rat (*Dipodomys merriami*), desert kit fox (*Vulpes macrotis*) and coyote (*Canis latrans*).

All wildlife species observed are listed in Appendix A.

4.3 Disturbances

Off-road vehicle (ORV) use, foot traffic, scattered trash and travel along existing dirt roads have disturbed the habitats of the substation site and proposed photovoltaic array site. Substantial trash dumping was not noticeable.

Approximately five percent of Plots 1, 9 and 10 had been impacted by ORV use. Approximately ten percent of Plots 2 and 3 had been impacted by ORV use. The amount of ORV impact was not recorded for Plot 4, 5 or 6.

No appreciable amount of trash was recorded on Plots 2 and 3. Trash cover on Plots 4, 5 and 6 was approximately 10 percent. Trash was observed on Plots 7 and 8, covering approximately two percent of the survey plot area.

Photo 1. Sonoran creosote bush scrub. Plot 4, looking south from the northeastern corner.

Photo 2. Desert woodland mix. Plot 9, looking southwest.

4.4 Sensitive Biological Resources

4.4.1 Flat-tailed Horned Lizard

Flat-tailed horned lizard (*Phrynosoma mcallii*) has been recorded in high numbers in Sonoran desert scrub habitat. Other habitats include mixed scrub and saltbrush scrub plant communities. Once thought restricted to wind-blown sand, the flat-tailed horned lizard (FTHL) has been found in soil covers ranging from sandy flats or areas with a veneer of fine, windblown sand to areas with little or no windblown sand. The California populations occupy sandy flats and hills, badlands, salt flats and gravelly soils (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003).

The FTHL is described as being found from below sea level up to around 600 feet elevation. They feed almost exclusively on ants, foraging by day in temperatures ranging from 75 degrees Fahrenheit up to 120 degrees Fahrenheit. The optimum activity period is between 75 degrees Fahrenheit and 100 degrees Fahrenheit.

The species is listed as a Species of Special Concern by the CDFG. It is not listed by the U.S. Fish and Wildlife Service (USFWS). As of November 3, 2009, a decision was made by the United States Court of Appeals for the Ninth Circuit that reinstates the 1993 Proposed Rule to list the FTHL and orders the USFWS to make a new final listing decision on the Proposed Rule.

Project Site Findings

Horned lizard scat was found on all ten study plots, and tracks were observed on Plot 2 (Figure 4, Photos 3 and 4). No FTHL individuals were observed.

Suitable FTHL habitat is present throughout the photovoltaic array site (Figure 4, Appendix B).

5.0 Discussion

Evidence of a horned lizard species was found on all ten study plots, but no individuals were observed. Since the FTHL and the desert horned lizard (*Phrynosoma platyrhinos*) produce similar scat and tracks, and the project site is located within the known range of both species, the sign could belong to either of the two species, or to both.

However, the following should be noted: The 2003 Plan project evaluation protocol (Appendix 6) states that: "Resource and land management agencies have mapped areas of known FTHL occurrence . . . . **Within the historical range, assume the species is present if [emphasis added]:**

1.1. There is a locality record within two miles; and,

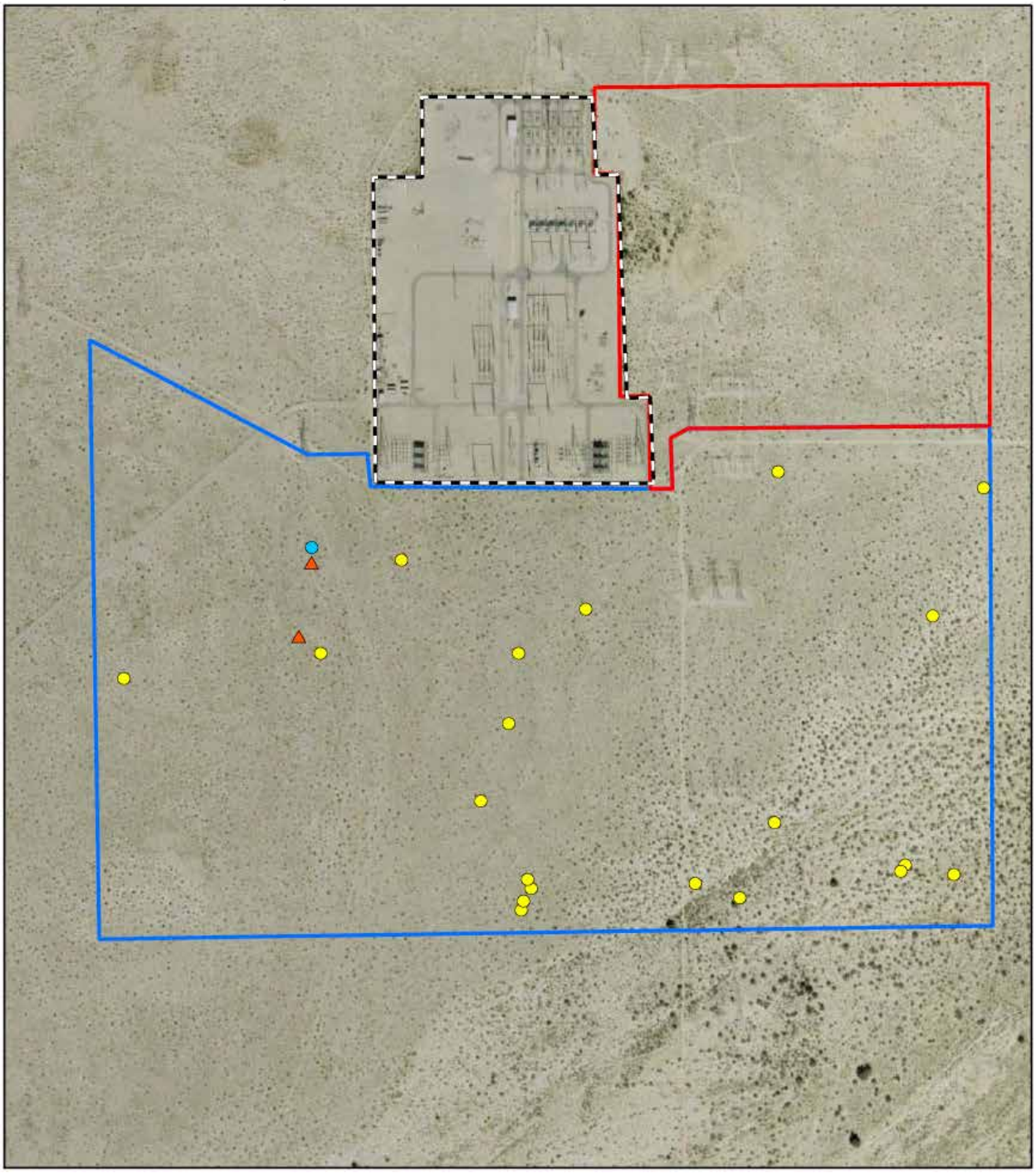
1.2. The habitat is continuous (i.e., not divided by impermeable barriers such as a canal) and suitable between the locality and the project site; and,

1.3. Major habitat alteration or conversion has not taken place since the species was detected."

Based on this, the following points support our conclusion that the sign found during the surveys belongs to the FTHL:

1. The project site is within the historical range of the FTHL.
2. The project site is within at least two miles of a recorded FTHL population (California Natural Diversity Data Base 2009, Flat-tailed Horned Lizard Interagency Coordinating Committee 2009).
3. The plots were located in an area that supports suitable habitat for the FTHL. The habitat is contiguous throughout the project site and the surrounding area, extending into areas known to support FTHL.
4. There are no barriers between the project site and areas of known occupation by the FTHL.
5. The project site is located in the Yuha Desert MA, which has been set aside for the preservation of habitat for the FTHL. From the 2003 Plan: "MAs [Management Areas] were designed to include most FTHL habitat identified as key areas in previous studies. . . ".

Finally, Stebbins (1985) notes that the FTHL and the desert horned lizard have been found together, but "in general, the two species seldom appear to coexist". He records the closest known area of coexistence of the two species as near Octotillo, south of the Salton Sea.



Map base: Bing Maps (2008), SDG&E (2009)
Graphic provided by LSA Associates, Inc. (2009)

LEGEND

- Existing SDG&E Imperial Valley Substation
- Survey Area
- (Area Not Surveyed)
- Flat-tailed Horned Lizard Scat
- Flat-tailed Horned Lizard Tracks
- Kit Fox Burrow/Den

N

0 350 700

Flat-tailed Horned Lizard Surveys
Imperial Valley Photovoltaic Project
Imperial County, California

Photo 3. Flat-tailed horned lizard tracks on an anthill. Plot 2.

Photo 4. Flat-tailed horned lizard scat. Plot 8.

6.0 References

Burt, W. H., 1986. *A Field Guide to the Mammals in North American North of Mexico*. Houghton Mifflin Company, Boston, Massachusetts.

California Natural Diversity Data Base, 2009. Data Base report on threatened, endangered, rare or otherwise sensitive species and communities in the vicinity of the SDG&E Substation, El Centro, California.

Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003. *Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision*. 80 pp. plus appendices.

_____, 2009. *Annual Progress Report: Implementation of the Flat-tailed Horned Lizard Rangewide Management Strategy, January 1, 2008- December 31, 2008*. 28 pp plus appendices.

Grenfell, W. E., M. D. Parisi, and D. McGriff, 2003. "A Check-list of the Amphibians, Reptiles, Birds and Mammals of California". California Wildlife Habitat Relationship System, California Department of Fish and Game, Sacramento, California.

Jennings, M.R. and M.P. Hayes, 1994. *Amphibians and Reptile Species of Special Concern in California*. Inland Fisheries Division, California Department of Fish and Game.

Munz, P.A., 1974. *A Flora of Southern California*. University of California Press, Berkeley, California.

Natural Resources Conservation Service 2009. Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app.

Stebbins, R.C., 1985. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company, Boston.

U.S. Fish and Wildlife Service, 2008. *Review of plant and animal taxa for listing as endangered or threatened species; notice of review*. Federal Register Vol. 61, No. 40.

Appendix - Plant and Animal Species Observed

* denotes non-native species

Plants

GYMNOSPERMAE	**NAKED SEED PLANTS**
Ephedraceae	**Ephedra family**
Ephedra trifurca	Longleaf jointfir
ANGIOSPERMAE: DICOTYLEDONES	**DICOT FLOWERING PLANTS**
Asteraceae	**Sunflower family**
Ambrosia dumosa	Burroweed
Ambrosia salsola var. *salsola*	Burrobrush
Boraginaceae	**Borage family**
Cryptantha sp.	Cryptantha
Brassicaceae	**Mustard family**
**Brassica tournefortii*	Sahara mustard
Chenopodiaceae	**Saltbush family**
**Salsola tragus*	Russian thistle
Euphorbiaceae	**Spurge family**
Croton californica	Croton
Fabaceae	**Pea family**
Acacia greggii	Catclaw
Olneya tesota	Ironwood
Prosopis glandulosa var. *torreyana*	Honey mesquite
Psorothamnus spinosa	Smoketree
Fouquieriaceae	**Ocotillo family**
Fouquieria splendens	Ocotillo (1 plant, Plot 3)
Salicaceae	**Willow family**
Populus fremontii	Fremont cottonwood
Tamaricaeae	**Tamarisk family**
**Tamarix aphylla*	Athel
Zygophyllaceae	**Caltrop family**
Larrea tridentata	Creosote bush

ANGIOSPERMAE: MONOCOTYLEDONAE	**MONOCOT FLOWERING PLANTS**
Poaceae	**Grass family**
**Schismus barbatus*	Mediterranean grass

Taxonomy and nomenclature follow Hickman 1993 and Munz 1974.

Animals

INSECTA	**INSECTS**
Apidae	**Bees**
Apis mellifera	Honey bee
Libellulidae	**Skimmers**
Tramea lacerata	Black saddlebags
REPTILIA	**REPTILES**
Iguanidae	**Iguanas and their allies**
Dipsosaurus dorsalis	Desert iguana
Phryonosomatidae	**Spiny lizards and their allies**
Callisaurus draconoides	Zebra-tailed lizard
Uta stansburiana	Side-blotched lizard
Phrynosoma mcallii	Flat-tailed horned lizard
Teiidae	**Whiptails and their allies**
Cnemidophorus tigris tigris	Great Basin whiptail
Viperidae	**Vipers**
Crotalus cerastes	Sidewinder
AVES	**BIRDS**
Cathartidae	**Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Kites, hawks and eagles**
Buteo jamaicensis	Red-tailed hawk
Columbidae	**Pigeons and doves**
Columba livia	Rock dove
Zenaida macroura	Mourning dove
Cuculidae	**Typical cuckoos**
Geococcyx californianus	Greater roadrunner
Sylviidae	**Old World warblers, gnatcatchers and allies**
Polioptila melanura	Black-tailed gnatcatcher

Sturnidae	**Starlings**
Sturnus vulgaris	European starling

MAMMALIA	**MAMMALS**
Leporidae	**Rabbits and hares**
Lepus californicus deserticola	Black-tailed jackrabbit
Heteromyidae	**Pocket mice and kangaroo rats**
Dipodomys sp.	Kangaroo rat
Canidae	**Foxes, wolves and relatives**
Canis latrans	Coyote
Vulpes macrotis	Kit fox

Nomenclature follows Grenfell et al. 2003, Hall 1981, and Stebbins 1966.

Appendix B - Field Notes, Forms and Photos

Distribution Monitoring Data Sheet **Sheet #** 1/1

(Time should be recorded in 24:00 clock) Use NAD27 projection and specify UTM Zone_____

Observer	Date	Start time	End time	Easting (UTM)	Northing (UTM)	Plot #	Photo #
KK	23Sep09	0800	0901			A	

NOTES: 75°F no clouds, <2mph wind F Soils a coarse sand w/ lights
~~H 2 f~~ bas temp 91.5 end temp expected surface flat, slo trend

FTHL	DHL	Scat	GrSq	Ztail	<500 m from development?	Disturbance	Ggrass
X 1	0	1	0	0	yes power substation	vehicles walkers <10%	0
Record these as 1 = present; 0 = absent. Record FTHL measurements on FTHL observation data sheet.					If yes, specify type (road, ag, housing)	Values between 0 and 50 from toe-point samples	

X-scat owner 0, footprints

Observer	Date	Start time	End time	Easting (UTM)	Northing (UTM)	Plot #	Photo #
KK	23Sep09	1003	1210			B3	

NOTES: 92°F starting temp 99°F end clear no wind

FTHL	DHL	Scat	GrSq	Ztail	<500 m from development?	Disturbance	Ggrass
X	0	1	0	0	substation	vehicle <10%	0
Record these as 1 = present; 0 = absent. Record FTHL measurements on FTHL observation data sheet.					If yes, specify type (road, ag, housing)	Values between 0 and 50 from toe-point samples	

X-scat owner

Observer	Date	Start time	End time	Easting (UTM)	Northing (UTM)	Plot #	Photo #
KK+DW							

NOTES:

FTHL	DHL	Scat	GrSq	Ztail	<500 m from development?	Disturbance	Ggrass
Record these as 1 = present; 0 = absent. Record FTHL measurements on FTHL observation data sheet.					If yes, specify type (road, ag, housing)	Values between 0 and 50 from toe-point samples	

KK = Karen Kirtland
DW = Denise Wardward

Plot 1. Looking towards the southwest.

Plot 2. Looking south toward Mt. Signal.

Plot 3. Looking north towards the substation. From the southwest corner.

Plot 4. Looking southwest from the northeast corner.

Plot 5. Looking north towards the substation. From the southeast corner.

Plot 6. Looking south at Mt. Signal. From the northeast corner.

Plot 7. Looking north towards Interstate 8.

Plot 8. Looking south toward Mt. Signal.

Plot 9. Looking northwest toward the substation.

Plot 10. Looking west..

APPENDIX J

LSA

LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614

949.553.0666 TEL
949.553.8076 FAX

BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

June 3, 2010

Edalia Olivo-Gomez
Environmental Specialist
8315 Century Park Court, CP21E
San Diego, CA 92123-1548

Subject: Letter Report Summary of the Breeding Season Burrowing Owl Surveys, Ocotillo Sol Project, Imperial County, California

Dear Ms. Olivo-Gomez:

LSA Associates, Inc. (LSA) has prepared this letter report for the San Diego Gas & Electric Company (SDG&E) Imperial Valley Ocotillo Sol (Ocotillo Sol) photovoltaic (PV) project to document the results of 2010 breeding season surveys for burrowing owl (*Athene cunicularia*). Surveys were conducted in preparation of the proposed project in Imperial County, California on previously undisturbed Federal land surrounding the SDG&E Imperial Valley Substation (Figure 1; all figures attached).

Burrowing owls are known from the survey area, but no breeding burrowing owls were detected in 2010; however, burrowing owls were found to use the survey area during the 2009/2010 winter season.

Methodology

In October 2009 and May 2010, LSA Senior Biologist Ingri Quon and Assistant Biologist Mark Billings conducted a total of six field visits to the study area. Survey visits included a preliminary burrow survey in 2009 followed by subsequent focused breeding season surveys in 2010. The site was surveyed for breeding owls under moderate to favorable weather conditions (Table A).

A general burrow survey of the study area was conducted on October 26 and 27, 2009, and included the entire project area and areas within 150 meters (approximately 500 feet) of the project area (Figure 2). The burrow survey was conducted by two biologists walking parallel transects, allowing for 100 percent visual coverage of the ground. In October 2009, and again during visits in May 2010, the biologists mapped the locations of all potential burrowing owl burrows (Figure 2), and all burrows that were not collapsed, ultimately narrowed in the back, or blocked by cobwebs or debris at the entrance were investigated during each of the four breeding season surveys.

Burrowing owl burrows are determined to be occupied by either observing a burrowing owl at the burrow or finding recently molted feathers, cast pellets, prey remains, or excrement at or near the burrow entrance. If degraded whitewash and/or pellets were found at or around a burrow, this was an indication that the burrow had not been used in several months (e.g., since the winter season).

Table A: Breeding Season Burrowing Owl Survey Dates, Weather Conditions, and Results

Date (2010)	Time (24-Hr Clock) Start–Finish	Temperature Start–Finish	Weather Conditions/Wind	Burrowing Owl Results
May 10	1715–2015	81–69 ºF	Clear, 10–17 mph, 26% humidity. Clear, average 10 mph west (maximum 20 mph).	No breeding season owls detected. Winter season sign (e.g., whitewash, pellets) found.
May 11	0615–0915	61–70 ºF	20% cloud cover, 0–2 mph, 47% humidity. Clear, 0–2 mph, 31% humidity.	No breeding season owls detected. Winter season sign (e.g., whitewash, pellets) found.
May 13	1745–2045	91–80 ºF	10% cloud cover, 3–6 mph, 17% humidity. 10% cloud cover, <5 mph, 17% humidity.	No breeding season owls detected. Winter season sign (e.g., whitewash, pellets) found.
May 14	0515–0815	64–82 ºF	Clear, 1 mph, 35% humidity. Clear, 0–1 mph, 27% humidity.	No breeding season owls detected. Winter season sign (e.g., whitewash, pellets) found.

ºF = degrees Fahrenheit
Hr = hour
mph = miles per hour

Results

During the burrow survey in the winter of 2009, many potentially suitable burrows were mapped and at least three adult burrowing owls were found occupying burrows within the study area. In addition, during focused surveys for other species, an adult burrowing owl was detected at a burrow just outside the southwest portion of the study area and an owl in flight was observed in the southeast portion of the study area.

On May 10–11 and 13–14, 2010, the four focused breeding season field visits found these same occupied burrows inactive and investigated approximately 25 suitable burrowing owl burrows (see Figure 2). Overall, most burrows in the study area were suitably sized for use by burrowing owls, clear of debris and cobwebs, and in marginally suitable foraging habitat (Figure 2). Overall, most burrows were being used by reptiles (lizards, snakes), rodents, and small mammals, including kit fox (*Vulpes macrotis*).

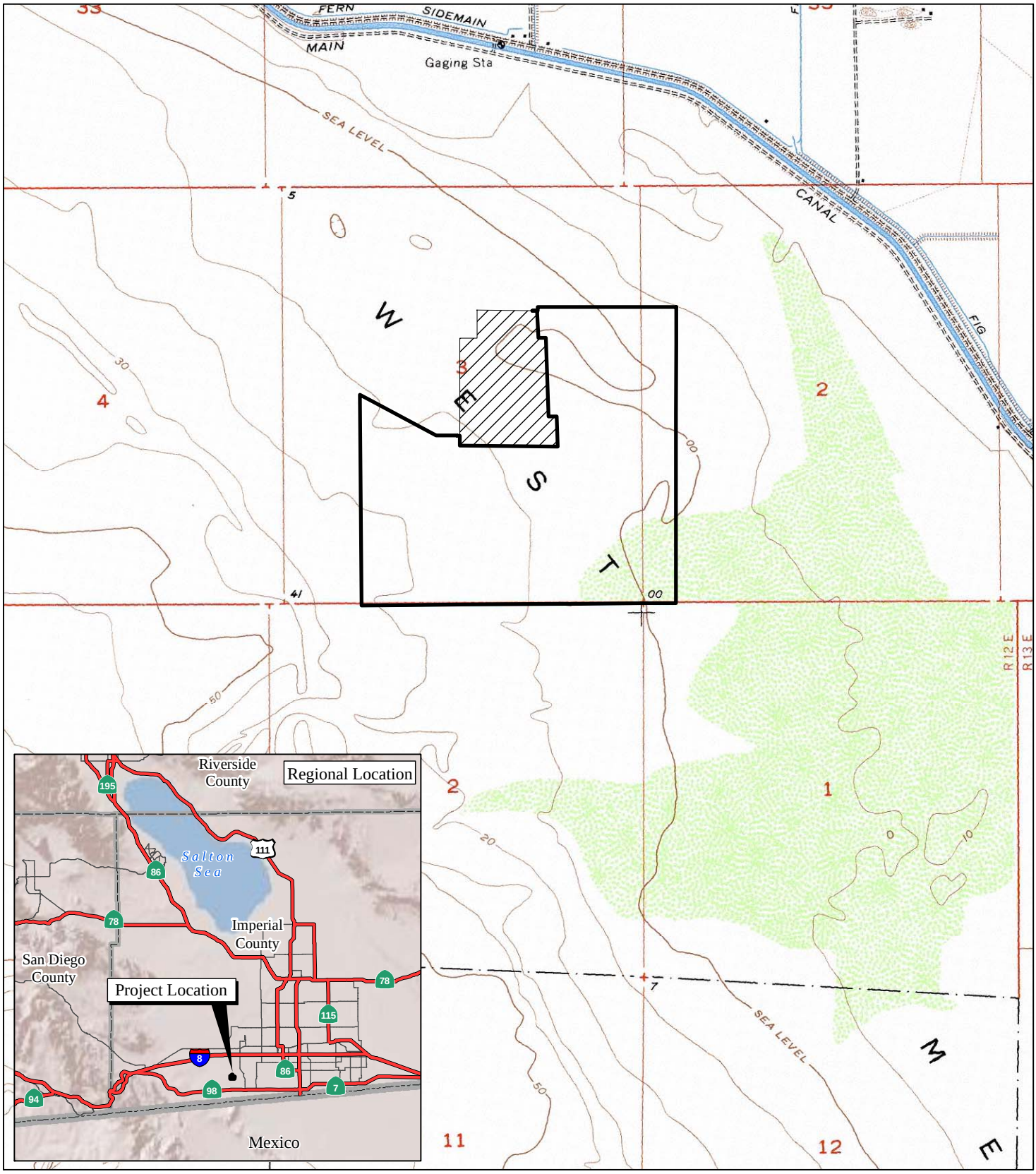
In addition, LSA biologists observed high migratory bird activity in May 2010.

Sincerely,

LSA ASSOCIATES, INC.

Ingri Quon
Senior Biologist

Attachment: Figures 1–2



LSA

LEGEND

Project Location

Existing Imperial Valley Substation (not a part)

FIGURE 1

N

0 1000 2000

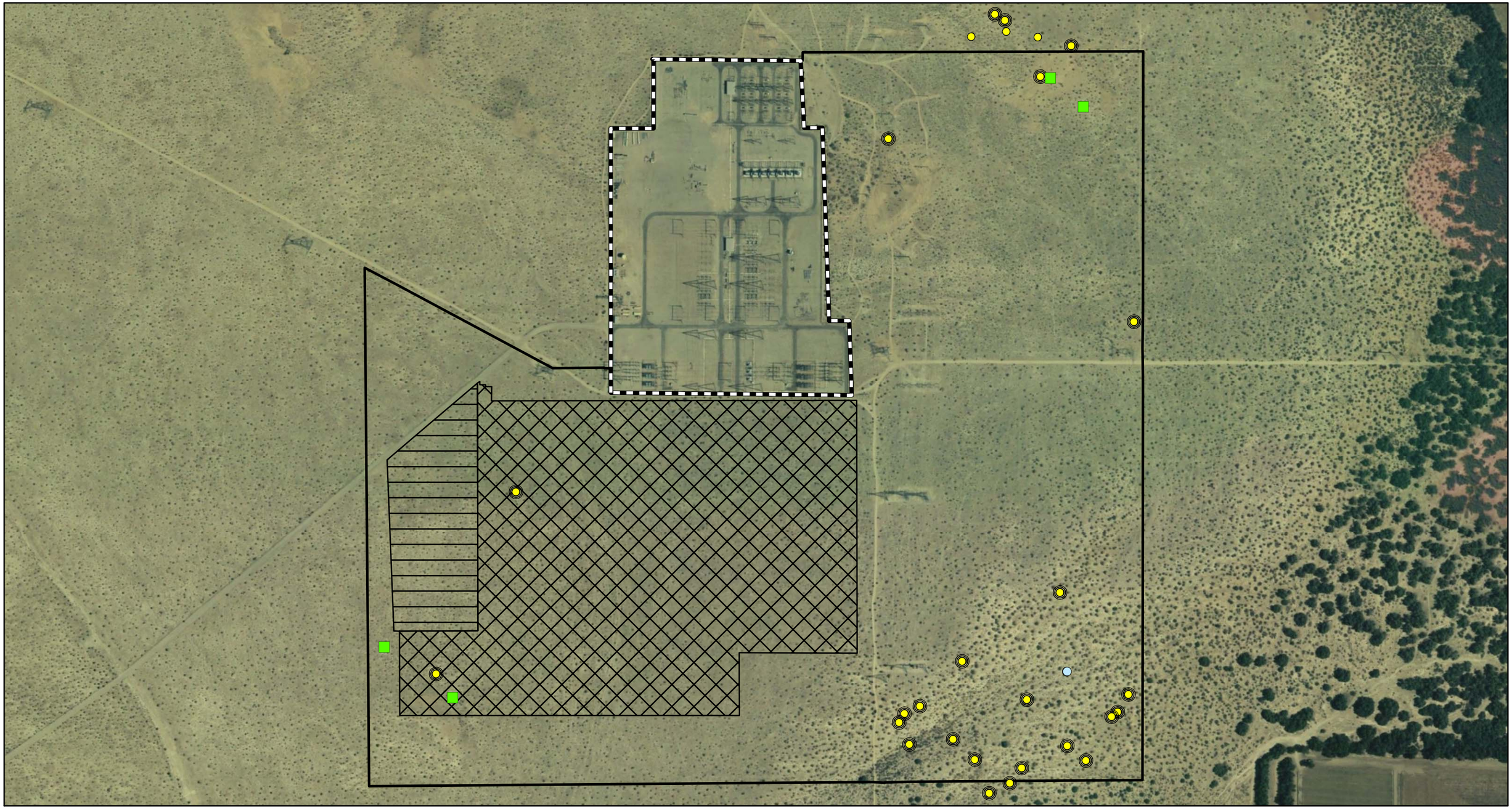
FEET

SOURCE: USGS 7.5' QUAD - Mount Signal ('57); CALIF.

R:\SGE0905\GIS\Regional_Location.mxd (6/11/2010)

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Regional Location Map



LSA

LEGEND

- Survey Area
- Existing SDG&E Imperial Valley Substation
- Photovoltaic Site Boundary (100 acre)
- Temporary Lay Down Area (15 acre)
- Occupied Burrowing Owl Burrow in Winter 2009/2010
- Burrowing Owl
- Artificial Burrowing Owl Burrow
- Potential Burrowing Owl Burrow

N

0 280 560
FEET

SOURCE: Bing Maps (2008)

R:\SGE0905\GIS\LSA_OcotilloSol_Bio.mxd (6/18/2010)

FIGURE 2

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Burrowing Owl Survey Results

APPENDIX K

PALEONTOLOGICAL RESOURCES ASSESSMENT: PRELIMINARY REPORT

OCOTILLO SOL PHOTOVOLTAIC PROJECT

YUHA DESERT

IMPERIAL COUNTY, CALIFORNIA

BLM Permit No. CA-08-00-008P (Exp. 8/2011)

LSA

October 2011

PALEONTOLOGICAL RESOURCES ASSESSMENT: PRELIMINARY REPORT

OCOTILLO SOL PHOTOVOLTAIC PROJECT

YUHA DESERT

IMPERIAL COUNTY, CALIFORNIA

BLM Permit No. CA-08-00-008P (Exp. 8/2011)

Prepared for:

Ms. Tiffany Thomas, Archaeologist
California Desert District
Bureau of Land Management
22835 Calle San Juan de Los Lagos
Moreno Valley, California 92553

Prepared by:

Bob Reynolds and Jason A Miller
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507
(951) 781-9310

LSA Project No. SGE0905

LSA

October 2011

MANAGEMENT SUMMARY

LSA Associates, Inc. (LSA) was retained by San Diego Gas and Electric Company, Inc. (SDG&E) to conduct a paleontological resources assessment for the Ocotillo Sol Photovoltaic Project in an unincorporated portion of Imperial County, California, approximately 10 miles southwest of El Centro, 4.1 miles south of Interstate 8 (I-8), and 2.5 miles north of State Route 98 (SR-98). Specifically, the original 351.25-acre project area is located within Section 3 and the western margin of Section 2, Township 16.5 South, Range 12 East, San Bernardino Baseline and Meridian (SBBM). The proposed 115-acre development area is only within Section 3. The 351.25-acre original study area and the current 115-acre proposed development area are both shown on the United States Geological Survey (USGS) *Mount Signal, California* 7.5-minute topographic quadrangle map.

The Bureau of Land Management (BLM), El Centro Field Office, manages the land considered for development of the solar facility. This report was prepared for the California Desert District Office (Tiffany Thomas, Archaeologist) on behalf of the El Centro BLM Field Office. Consequently, this paleontological assessment followed the scope of work approved by the BLM, utilizing the Potential Fossil Yield Classification System format. This technical report was completed under BLM permit number CA-08-00-008P (exp. August 2011).

An Initial Paleontological Resources Assessment was prepared for the project (Smith, 2011). LSA conducted literature reviews and searches for records through two institutions between November 2010 and July 2011. A field survey of the project area was completed in July 2011. No paleontological resource localities were recorded within the project area. Surface sediments observed during this field survey are of late Holocene or Recent deposition, and contain an expected assemblage of freshwater mollusks. Paleontological investigations of surface exposures on the project have been completed. No significant pre-Holocene paleontological resources were located, but two occurrences of stream rounded Plio-Pleistocene (?) bone and wood are noted on locality forms. Plio-Pleistocene sediments two miles southwest of the project area have a high potential to contain significant nonrenewable paleontological resources (SNPRs) and may be the source of the introduced fossil wood and bone. Based on the currently available data, it is not known at what depth the Plio-Pleistocene sediments will be encountered beneath the Holocene sediments on the project. Consequently, this report is to be considered preliminary pending the results and review of any additional geotechnical study reports for the project. This report will be updated once the geotechnical information is available.

When project design is finalized, and if excavations will extend below Holocene sediments, a project-specific paleontological resources impact mitigation program (PRIMP), including excavation monitoring and fossil salvage by qualified paleontologists, is recommended to accompany development of this project. If further geotechnical reports are not forthcoming, it is recommended that paleontological monitoring be conducted during excavation to mitigate potential impacts to SNPRs. Further geotechnical information on subsurface geology may make possible reduction of resource monitoring during excavation.

TABLE OF CONTENTS

MANAGEMENT SUMMARY i
TABLE OF CONTENTS ii
TABLES, FIGURES, AND APPENDICES iii
TABLES iii
FIGURES iii
APPENDICES iii
CONFIDENTIAL APPENDICES—NOT FOR DISTRIBUTION iii
INTRODUCTION 1
PROJECT LOCATION AND DESCRIPTION 1
SETTING 1
GEOLOGY 3
PALEONTOLOGY 3
PURPOSE OF STUDY 4
PERSONNEL 4
METHODS 4
RESEARCH AND LITERATURE REVIEW 4
FIELDWORK PERMITS 5
FIELD SURVEY 5
PRELIMINARY POTENTIAL FOSSIL YIELD CLASSIFICATION 5
PALEONTOLOGICAL RESOURCE ASSESSMENT RESULTS 7
RESEARCH 7
FIELD SURVEY RESULTS 7
ANALYSIS OF RESEARCH AND FIELD SURVEY 8
FINAL POTENTIAL FOSSIL YIELD CLASSIFICATION 8
PALEONTOLOGICAL RESOURCES EVALUATIONS 8
RECOMMENDATIONS 9
RECOMMENDATIONS FOR SIGNIFICANT FOSSILS IN PFY CLASS 3B 9
RECOMMENDATIONS FOR SIGNIFICANT FOSSILS IN PFY CLASS 2 9
SUMMARY 10
REFERENCES 11

TABLES, FIGURES, AND APPENDICES

TABLES

Table A: Specimens from the Ocotillo Sol Project 7
Table B: Analysis of Potential Fossil Yield Classification for the Ocotillo Sol Project 8
Table C: Significance Criteria for Paleontological Resources 9

FIGURES

Figure 1: Ocotillo Sol Photovoltaic Project Location and Vicinity Map 2
Figure 2: Geologic Map Ocotillo Sol Photovoltaic Project..... 6

APPENDICES

Appendix A: Relevant Federal Legislation
Appendix B: Paleontological Resources Use Permit
Appendix C: Bureau of Land Management Criteria for Evaluation (IM 2008–009)
Appendix D: Résumés

CONFIDENTIAL APPENDICES—NOT FOR DISTRIBUTION

Appendix E: Locality Search Results: Request and Responses
Appendix F: Field Assessment Localities/Photos

INTRODUCTION

LSA was retained by San Diego Gas and Electric Company, Inc. (SDG&E) to conduct a paleontological resources assessment for the proposed Ocotillo Sol Photovoltaic Project (project). The proposed project is located immediately south of the existing SDG&E Imperial Valley Substation, west of the City of El Centro and east of the community of Ocotillo.

The Bureau of Land Management (BLM), El Centro Field Office, manages the land considered for development of the solar facility. This report was prepared for the California Desert District Office (Tiffany Thomas, Archaeologist) on behalf of the El Centro BLM Field Office. Consequently, this paleontological assessment followed the scope of work approved by the BLM, utilizing the Potential Fossil Yield Classification System format. This technical report was completed under BLM permit number CA-08-00-008P (exp. August 2011), Appendix B.

PROJECT LOCATION AND DESCRIPTION

The proposed 115-acre development area of the project (Figure 1) is within Section 3, Township 16.5 South, Range 12 East, San Bernardino Baseline and Meridian (SBBM), as shown on the United States Geological Survey (USGS) *Mount Signal, California* 7.5-minute topographic quadrangle map. The project is located 4.13 miles south of I-8 (Kumeyaah Highway), 2.48 miles north of State Route 98 (SR-98-Yuha Cutoff), and 10.44 miles west southwest of the City of El Centro, California.

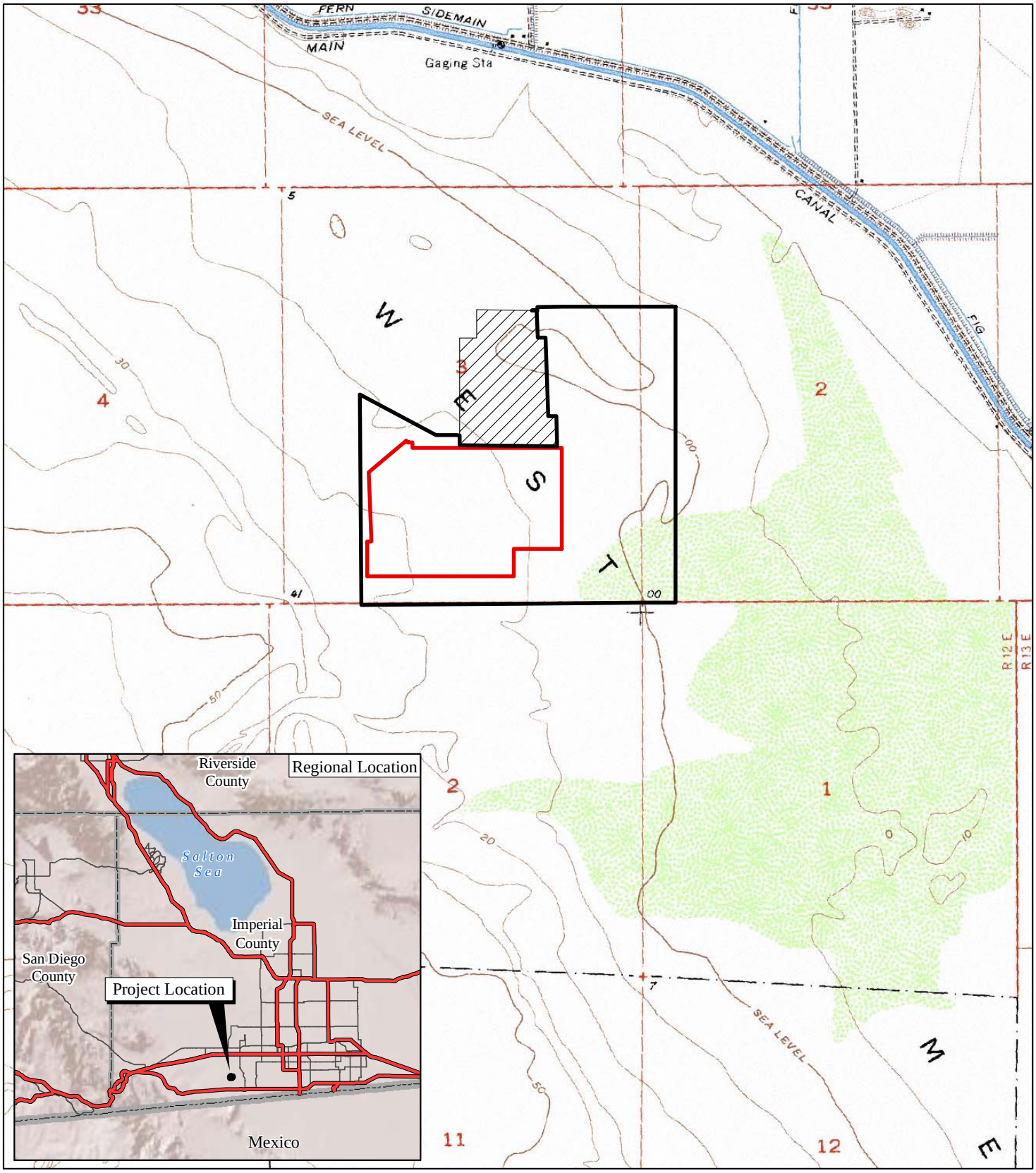
The SDG&E Imperial Valley Substation is located immediately north of the proposed project. Access to the contiguous sites is gained by driving northeast from SR-98 at the construction entrance to the project, located 15.49 miles west of Calexico, or by driving north on the existing SDG&E Imperial Valley Substation transmission line road from SR-98, 12.15 miles west of Calexico.

Site work and solar field foundation preparation will include the following tasks:

- Earthwork will include maintenance of the existing main entrance road off Highway 98, and grading of the construction laydown area, parking area, construction office area, on site access roads, spread footings, mat foundations, and installation of temporary and permanent site utilities.
- Installation of the solar array, sequenced with earthwork as required. It is expected that the PV arrays will be supported on posts that are shaken into the ground; however, final construction methods will be identified after the geotechnical studies are complete.
- Installations of underground electrical systems are typically trenched to a depth of three feet with cables directly buried. A six inch cover of concrete may be required in some locations for protection of the cable.
- Installation of concrete foundations as required for the inverters, transformers, maintenance building, and transmission structures.

SETTING

The project area is located within the Colorado Desert Geomorphic Province (Jahns, 1954). This province is characterized by a low-lying desert basin that ranges in elevation from 245 feet below



LSA

FIGURE 1

LEGEND

Project Location

Original Study Area

Existing Imperial Valley Substation (not a part)

N

0 1000 2000

FEET

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

Project Location Map

SOURCE: USGS 7.5' QUAD - Mount Signal ('57); CALIF.

R:\SGE0905\GIS\Fig1_Proj_Location.mxd (2/11/2011)

mean sea level (bmsl) to 2,200 feet above mean sea level (amsl). It is dominated by the Salton Sea, which currently fills the Salton Trough to an average elevation of 231 feet bmsl (Jennings, 1967; Lynch, 2011).

Geology

The Colorado Desert Geomorphic Province is a depressed block along the west side of the active San Andreas Fault (Steeley and others, 2009). The Salton Trough is a northern extension of the Gulf of California and is several miles wide at San Gorgonio Pass (Proctor, 1968) to the north, and almost 70 miles wide at the United States–Mexico Border (Strand, 1962). The Salton Trough is ringed by mountains except on the south where the Colorado River Delta separates the Salton Trough from the Gulf of California. Over the past three million years (Matti, and Morton, 1993), the Colorado River has changed its course several times from southward into the Gulf of California to northward, filling the Salton Trough with fresh water up to 40–48 feet amsl. At that elevation, water would breach the delta on the southern end and again flow into the Gulf of California. This lake was known as Lake Cahuilla ("Coahuila," Strand, 1962; Jennings, 1967; "Ancient Lake Cahuilla" Waters, 1983). The present margin of the Salton Trough shows travertine beach lines of Lake Cahuilla, and alluvial fans and valleys cut shoreline features that ring the Salton Sea (Rogers, T.H., 1965; Jennings, 1967).

The project is within the Yuha Desert of the southern Imperial Valley. The elevation of the project vicinity varies from 40 feet amsl to 15 feet bmsl. The parcel proposed for development ranges in elevation from 20 feet amsl at the southwest corner to 6 feet amsl at the northeast corner, with the drainage being to the northeast, roughly parallel to that of Pinto Wash, the major drainage through the area. This parcel is very close to the maximum extent of the high shoreline of Lake Cahuilla. The inland lake filled and evaporated several times during the last 20,000 years, in a sequence from fresh, brackish, and saline water to dry (Turner and Reynolds, 1977; Li, 2003). The last major filling episode was as recent as the mid-1700s (SDNHM, 2009). It should be noted that the present-day Salton Sea was filled accidentally after a levee breach between 1905 and 1907. Geologic mapping (Strand, 1962) shows that surface sediments on the project are Quaternary lake deposits from Lake Cahuilla. These lake deposits are a mix of clay, sand, and beach gravel, depending on location, and contain locally abundant non-marine invertebrate fossils.

Paleontology

Recent (late Holocene) sediments from Lake Cahuilla cover the project area (Ql; Strand, 1962; Kahle and others, 1984). These sediments contain non-mineralized mollusks that are 200–300 years old (SDNHM results, Appendix E) and contemporaneous with extant modern species. However, the mollusks do provide an opportunity for scientists to date deposits and conditions in the lake that provided historic habitat for vertebrate animals (Turner and Reynolds, 1977; Wilke, 1978; Reynolds, 2004).

Plio-Pleistocene sediments (Strand, 1962; QPc: sandstone, shale, gravel; Kahle and others, 1984) that crop out on the surface two miles to the southwest of the project have potential to contain significant nonrenewable paleontological resources (SNRPRs). It is unknown at what depth they may occur under the project. Erosion at these outcrops could produce vertebrate fossils and petrified wood that could wash northeast onto the subject parcel.

PURPOSE OF STUDY

The purpose of the study is to determine whether there is the potential for project development to affect SNPRs. This report presents the preliminary results of the paleontological resources assessment for the proposed project, pending the receipt of further geotechnical information on subsurface deposits within the project development area. This report will be updated once the geotechnical information is available.

This paleontological resources assessment was completed in compliance with a scope of work and guidelines from BLM Instructional Memorandum 2008–2009 (IM 2008–009; Appendix C) regarding development of a Potential Fossil Yield Classification (PFYC) System for this project by using the BLM PFYC format for reporting. The National Environmental Policy Act (NEPA) of 1969 recognizes SNPRs including vertebrate fossils and unique or scientifically important invertebrate fossils and remains of fossil plants as important elements of the environment warranting protection. This Paleontological Resources Assessment was prepared in accord with national level guidelines, including those of NEPA (P.L. 91-190, 83 Stat. 852, 42 USC 4321–4327), Federal Land Management and Policy Act of 1976 (FLPMA, P.L. 94-579, 43 USC 1701–1782), and the 1998 BLM Paleontological Resource Management Handbook (Appendix A).

Implementation of these guidelines serves to reduce impacts to nonrenewable paleontological resources to a level that is less than significant. If a potential for encountering resources is determined, a paleontological resource impact mitigation program (PRIMP) would be proposed that would reduce impacts to a less than significant level (Appendix A).

PERSONNEL

Résumés of the principal investigator, crew, and report authors can be found in Appendix D.

METHODS

Research and Literature Review

In June 2011, an Initial Paleontological Resources Assessment letter report (Smith, 2011) was prepared for the project. Researchers at the San Diego Natural History Museum (SDNHM) and the Anza-Borrego Desert State Park (ABDSP) Colorado Desert District Stout Research Center (CDDSRT) performed record searches to locate paleontological resource localities within one mile of the project area.

Available geologic and paleontological literature was collected and consulted to determine the potential for late Holocene and early Pliocene and older Pleistocene sediments underlying and surrounding the proposed project to contain significant, nonrenewable paleontological resources. Literature and paleontological resource localities were reviewed. Record search responses are provided in Appendix E.

Fieldwork Permits

Fieldwork on Federal lands was conducted under BLM Permit No. CA-08-00-008P (exp. August 2011) issued to LSA with Robert E. Reynolds as the project paleontologist (Appendix B). Curation agreements were in place with local museums as part of the BLM permitting requirements in the event that collections were necessary.

Field Survey

The intensive foot-survey in the project area took place on July 6 and 7, 2011. Paleontologists Robert Reynolds and Brooks Smith walked parallel 15-meter transects over the project areas with intuitive deviations to inspect and observe the paleontological potential of surface exposures. Ground visibility was good. The flat surface of the parcel was examined for stratigraphy and paleontological resources.

The primary objective of the field survey was to locate paleontological resource localities within the project. A secondary objective was to verify preliminary PFYC and geology. This task is necessary to characterize and quantify the stratigraphy and extent of potentially fossiliferous sedimentary formations underlying the project, and meet the requirements of BLM Instructional Memorandum No. 2008-009 (Appendix C).

Figure 2 presents a geologic map of the project vicinity.

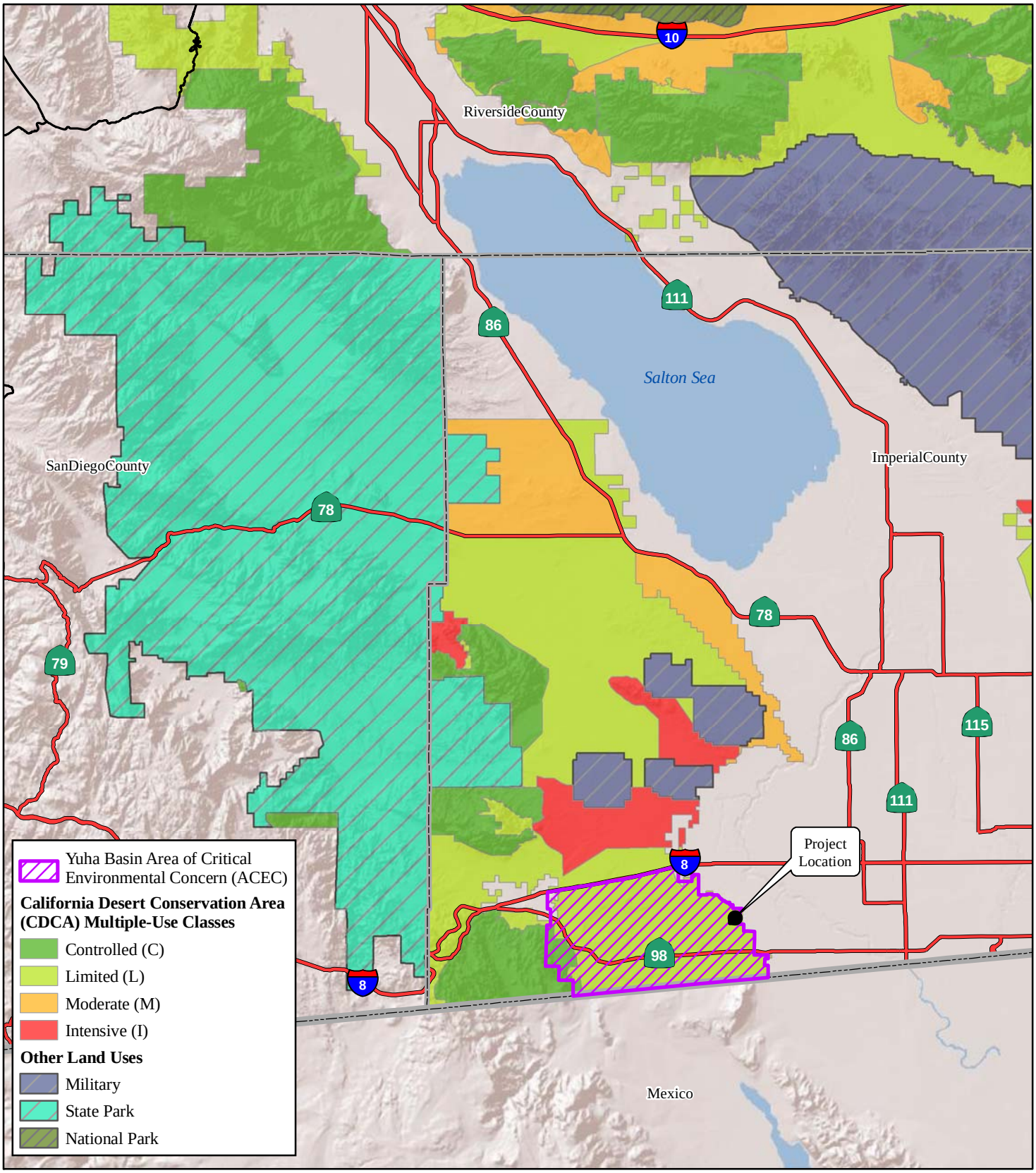
A fossil locality (as used in this report) is defined as one or more vertebrate fossil specimens (one or more vertebrate fossils, and associated invertebrate and plant fossils, and stratigraphic information, SVP, 1995). “It is extremely important to distinguish between archaeological and paleontological (fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontologic sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontologic potential in each case” (SVP, 1995).

Locality data were recorded with Garmin GPS units with accuracy greater than 12 feet (4 meters). This study did not correlate coordinates with previously described localities that were at a distance from the project. Specimen localities within the parcel were recorded on BLM locality forms (Appendix F) using UTM coordinates (Zone 11, NAD 83).

SVP guidelines (1995) state that all vertebrate fossils are significant. When determining potential fossil yield, paleontologists do not exclude non-diagnostic fossils, regardless of size. The presence of non-diagnostic bone fragments that have been introduced to Holocene or recent sediments may not have significance.

Preliminary Potential Fossil Yield Classification

Preliminary potential fossil yield for the project was estimated as Class 3a: Moderate Potential (Smith, 2011) based on results of the records search and reports from the cultural resources survey of mollusks and permineralized bone and wood on the surface. Based on these data, a paleontological



LSA

LEGEND

Project Location

County Boundary

N

0 5 10

Miles

SOURCE: Bing Maps (2008); BLM (2010)

I:\SGE0905\GIS\CDCA_Plan.mxd (3/3/2011)

FIGURE 2

San Diego Gas & Electric Company
Ocotillo Sol Project
Imperial County, California

California Desert Conservation Area Plan

resources field inspection was initiated to evaluate the significance of potential paleontological resources.

PALEONTOLOGICAL RESOURCE ASSESSMENT RESULTS

Research

Records searches (Appendix E) and review of geologic mapping of the area indicate that the sediments that cover the parcel were deposited during the late Holocene (Recent) period (Ql; Strand, 1962; Kahle and others, 1984), during the last incursion of the Colorado River, approximately 300 years ago (SDNHM results, Appendix E). There is a high probability that potentially fossiliferous Plio-Pleistocene sediments, which crop out two miles southwest (Pc; Strand, 1962; QPc; Kahle and others, 1984), are present below the surface of the project. Presently, no geotechnical data are available that indicate at what depth these potentially fossiliferous sediments might be encountered.

Field Survey Results

As shown in Table A, the field survey located abundant specimens of several taxa of late Holocene freshwater mussels and gastropods embedded in the recent lacustrine sediments and loose on the surface of the sediments that cover the parcel.

Table A: Specimens from the Ocotillo Sol Project

Specimens	Aquatic	Land
Anodonta californica (isolated valves, articulated valves)	X	
Physa humerosa	X	
Fluminicola sp.	X	
Tyronia protea (var. smooth)	X	
Tyronia protea spp.	X	
Tyronia clatricata (var. shouldered)	X	
Tyronia (Elimia) sp.	X	
Helisoma ammon	X	

The mollusks are all freshwater forms (Stearns, 1901; Sharpe, 1988; Schneider, 1989; Hershler and Forest, 1996; Hershler, Liu, and Mulvey, 1999) that occur in association with tufa that originally coated lacustrine plants. This suggests that deposition occurred near the time of the freshwater filling stage of the last Colorado River incursion (about 1700 AD, SDNHM results, Appendix E) before Lake Cahuilla evaporated to a brackish or saline condition.

Non-indigenous, well rounded fragments of permineralized wood (Remeika, 2006) and a single fragment of rounded bone were also located on the surface of the late Holocene sediments. Since direction of stream flow across the parcel is from southwest to northeast, it is possible that these fragments were introduced to the parcel from the Plio-Pleistocene sediment outcrops to the southwest. These sediments (QPc: sandstone, shale, gravel; Kahle and others, 1984) may be the equivalent of the lacustrine Tapiado Formation or the fluvial Hueso Formation (Cassiliano, 2002; Dorsey, 2006; Lindsay, 2006).

ANALYSIS OF RESEARCH AND FIELD SURVEY

Paleontological research and field survey did not document localities with significant fossils on the project parcel. The abundant freshwater mollusks are from the Recent time. The rounded, water-worn pieces of permineralized bone and wood have little paleontological significance since they have been introduced to the project site. They do, however, suggest that there is potential for significant paleontological resources in the nearby outcrops of Plio-Pleistocene sediments, which may also be encountered by excavation below the surface of the proposed solar site. Table B presents an analysis of potential fossil yield classification for the proposed project.

Final Potential Fossil Yield Classification

Final Potential Fossil Yield Classifications follow BLM Guidelines (IM 2008–009; Appendix C-1). Quantification is required to use the BLM PFYC system. The number of actual fossil localities, however defined, distinguishes PFY Class 3b from Classes 3a, 4 and 5. No scientifically significant fossil localities were located in surficial late Holocene sediments on the Ocotillo Sol Project site.

PALEONTOLOGICAL RESOURCES EVALUATIONS

The BLM uses a modified U.S. Forest Service (USFS) system for classifying the fossil yield potential (PFYC) of sedimentary formations (Appendix C-2) and an agency system for classifying the significance of fossil specimens (Appendix C-3). Table C tabulates these criteria. Vertebrate fossils may be associated with non-vertebrate environmental indicator fossils, and a representative sample of such non-vertebrates should be collected and their presence documented (SVP, 1995).

Table C: Significance Criteria for Paleontological Resources

Criteria	Appendix C-3
Specimen-based criteria	Represents an unknown or undescribed/unnamed taxon. Represents rare taxa: either absolute rareness or contextual rareness. Represents a vertebrate taxon (invertebrate fossils may also be significant).
Context-based criteria	Is associated with other evidence of scientific interest, providing taphonomic, environmental, or evolutionary information. Is evidence that extends and/or constrains the stratigraphic, chronologic, and/or geographic range of a species or higher-level taxonomic group.

Appendix C; BLM IM 2008–009

Invertebrate specimens and the introduced mineralized bone and wood fragments can be evaluated for significance using criteria (BLM IM 2008–009) presented in Table C. In general, all molluscan specimens on the project are recent and, because of their young age, cannot be considered fossils. These mollusks are well represented elsewhere and have been dated as both Holocene (SDNHM results Appendix E) and late Pleistocene (Reynolds, 1989, 2004, 2008; Whistler and others, 1995). The single non-indigenous fragment of mineralized bone is removed from its original stratigraphic context and, therefore, is not considered a significant vertebrate fossil. It does, however, suggest that there is potential for significant paleontological resources in the Plio-Pleistocene sediments that may be encountered below the surface of the project and also crop out to the southwest.

RECOMMENDATIONS

This paleontological resources assessment did not recognize any significant fossil localities within the proposed project boundaries. This report presents the preliminary results of the assessment for the proposed project, pending the receipt of further geotechnical information on subsurface deposits within the project development area. This report will be updated once the geotechnical information is available. Project-related excavation has potential to encounter sediments containing paleontological resources. If additional geotechnical data are obtained that relate the depth of the potentially fossiliferous subsurface Plio-Pleistocene sediments to the depth of project excavation, the recommendations of this report should be reevaluated. A project-specific paleontological resource impact mitigation program (PRIMP) cannot be presented until project design has been completed.

Recommendations for Significant Fossils in PFY Class 3b

Geologic units of unknown potential exhibit geologic features and preservational conditions that suggest significant fossils could be present, and that the project could affect the paleontological resources. The unknown potential of the units in this Class should be carefully considered when developing mitigation actions, including monitoring or avoidance.

PFY Class 3b sediments that may occur beneath the surface of the project are described as Plio-Pleistocene in age. Southwest of the project, these sediments exhibit geologic features and preservational conditions that suggest significant fossils could be present, and may be the source of the mineralized bone and wood fragments found on the surface of the project. If project excavation may encounter these potentially fossiliferous sediments, a sample mitigation program, including excavation monitoring during excavation, would reduce impacts below a level of significance. A project-specific PRIMP should be developed when geotechnical investigations are complete and when project design is finalized.

Recommendations for Significant Fossils in PFY Class 2

The potential for affecting vertebrate fossils or uncommon invertebrate or plant fossils is low. No assessment or mitigation is necessary except in rare circumstances.

SUMMARY

The records search identified no fossil localities in the project. The field inventory located one vertebrate fossil that had been introduced onto the project by stream action. Recent molluscan specimens and mineralized wood and bone are not considered “scientifically significant” fossils (SVP, 1995; Appendix C-1: Memo; BLM Instruction Memorandum No. 2008–009). The lack of paleontological resources encountered during the assessment on the surface of the project suggests there is no need to modify preliminary project design or avoid specific areas within the project.

If project excavations will extend below the depth of Holocene sediments, a PRIMP (SVP, 1995), including excavation monitoring and curation of specimens recovered, should be developed and implemented prior to facility and infrastructure construction. Review of further geotechnical

information regarding subsurface geology may make reduction of resource monitoring during excavation possible. This report will be updated once the geotechnical information is available. Compliance with such BLM conditions will ensure that excavation impacts to paleontological resources are maintained below a level of significance.

REFERENCES

Cassiliano, M.L. 2002. Revision of the Stratigraphic Nomenclature of the Plio-Pleistocene Palm Spring Group (new rank), Anza-Borrego Desert, Southern California. Proceedings of the San Diego Society of Natural History 38:1–30.

Dorsey, R.J. 2006. Stratigraphy, Tectonics and Basin Evolution in the Anza-Borrego Desert Region. *In* The Fossil Treasures of the Anza-Borrego Desert, edited by G.T. Jefferson and L. Lindsay, Sunbelt Publications, San Diego, California, p. 89–104.

Hershler, R., and T.J. Forest. 1996. A Review of the North American Freshwater Snail Genus *Fluminicoloa* (Hydrobiidae). Smithsonian Contributions to Zoology 583, pp. 1–41.

Hershler, R., H-P. Liu, and M. Mulvey. 1999. Phylogenetic Relationships within the Aquatic Snail Genus *Tryonia*: Implications for Biogeography of the North American Southwest. Molecular Phylogenetics and Evolution, vol. 13, no. 2, November, pp 377–391.

Jahns, R.H. 1954. Geology of the Peninsular Range Province, Southern California. Geology of Southern California, Chapter 7, Part II, Geology of the Natural Provinces, California. California Division of Mines and Geology Bulletin 170, p. 5–30.

Jefferson, G.T., and L. Lindsay (editors). 2006. The Fossil Treasures of the Anza-Borrego Desert, Sunbelt Publications, San Diego, California, pp. 394.

Jennings, C.W. 1967. Geologic Map of California, Salton Sea Sheet, 1:250,000. California Division of Mines and Geology.

Kahle, J.E., P.A. Bodin, and G.J. Morgan, 1984. Preliminary Geologic map of the California-Baja California Border Region. California Department of Conservation, Division of Mines and Geology. Open-file report 84-59 LA.

Li, H-C. 2003. A 20-kyr Climatic and Hydrological History of Salton Basin, California Recorded by Geochemical Proxies in Lacustrine Deposits, *in* Land of Lost Lakes, R. E. Reynolds (ed). California State University Fullerton, p. 57–60.

Lindsay, L. 2006. Appendix Table 4: Stratigraphic Names Correlation Table. *In* The Fossil Treasures of the Anza-Borrego Desert, edited by G.T. Jefferson and L. Lindsay, Sunbelt Publications, San Diego, California p. 365.

Lynch, David K. 2011. The Coming Land Bridge to Mullet Island. *In* The Incredible Shrinking Pliocene, R.E. Reynolds (ed). California State University Fullerton, p. 96–100.

Matti, J.C., and D.M. Morton. 1993. Paleogeographic Evolution of the San Andreas Fault in Southern California: A Reconstruction Based on a New Cross-Fault Correlation, *in* Powell, R.E., R.J. Weldon, and J.C. Matti, eds., The San Andreas Fault System: Displacement, Palinspastic Reconstruction, and Geologic Evolution: Geological Society of America Memoir 178, p. 107–159.

Proctor, R.J. 1968. *Geology of the Desert Hot Springs Upper Coachella Valley Area, California*. California Division of Mines and Geology, Special Report 94.

Remeika, P. 2006. Ancestral Woodlands of the Colorado River Delta Plain. *In* The Fossil Treasures of the Anza-Borrego Desert, edited by G.T. Jefferson and L. Lindsay, Sunbelt Publications, San Diego, California p. 75–87.

Reynolds, R.E. 1989. Paleontological Monitoring and Salvage: Imperial Irrigation District Transmission Line, Riverside and Imperial Counties, California. Prepared for Mission Power and Engineering Company, Irvine, California. p. 258.

Reynolds, R.E. 2004. Results of Paleontological Resources Monitoring Program. The Grove/ Mountain View Country Club, City of La Quinta, Riverside County, CA, For Toll Brothers, Inc. p. 30.

Reynolds, R.E. 2008. New Pleistocene Records of the Tiger Salamander (*Ambystoma tigrinum*) in Riverside County, California. 2008 Desert Symposium Volume, California State University, Desert Studies Consortium. p. 143–146.

Rogers, T.H. 1965. *Geologic Map of California, Santa Ana Sheet*. California Division of Mines and Geology, Scale 1:250,000.

San Diego Natural History Museum. 2009. http://www.sdnhm.org/research/paleontology/ lakecahuilla.html, accessed December 2009.

Schneider, J.S. 1989. Fresh Water Bivalves as Paleoenvironmental Indicators. Abstracts of Proceedings, 1989 Mojave Desert Quaternary Research Symposium, San Bernardino County Museum Association Quarterly, 36(2), p. 65.

Sharpe, S.E. 1988. Using Lake, Spring, and Wetland Mollusks as Indicators of Modern and Paleohydrochemistry. Ph.D. dissertation, University of Nevada, Reno, 148 p.

Smith, Brooks. 2011. Paleontological Resources Assessment for the Ocotillo Sol Photovoltaic Project. Letter Report: LSA Project No. SGE0905-T009B to T. Thomas, California Desert District Bureau of Land Management, Moreno Valley, CA 92553, June 2011.

Society of Vertebrate Paleontology (SVP). 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines. SVP News Bulletin No. 163:22–27.

Stearns, R.E.C. 1901. The Fossil Fresh-Water Shells from the Colorado Desert, their Distribution, Environment, Variation. Proceedings of the U.S. Natural Museum, Smithsonian Institute, Vol. 24 (1256) p. 271–299.

Steeley A.N., S.U. Janecke, R.J. Dorsey, and G.J. Axen. 2009. Early Pleistocene Initiation of the San Felipe Fault Zone, SW Salton Trough, during Reorganization of the San Andreas Fault System. Geological Society of America Bulletin 121:663–687.

Strand, R.G. 1962. Geologic Map of California, San Diego-El Centro sheet, 1:250,000. California Division of Mines and Geology.

Turner, W.G., and R.E. Reynolds. 1977. Dating the Salton Sea Petroglyphs. Science News, 111 (February).

Waters, M.R. 1983. Late Holocene Lacustrine Chronology and Archaeology of Ancient Lake Cahuilla, California. Quaternary Research, Vol. 19, No. 3, May 1983, pp 373–387.

Whistler, D.P., E.B. Lander, and M.A. Roeder. 1995. A Diverse Record of Microfossils and Fossil Plants, Insectivores, and Small Vertebrates from the Late Holocene Lake Cahuilla Beds, Riverside County, California. *In* P. Ramika and A. Sturz (eds.), Paleontology and Geology of the Western Salton Trough Detachment, Anza-Borrego Desert State Park, California, p. 109–118.

Wilke, P. J. 1978. *Late Prehistoric Human Ecology at Lake Cahuilla, Coachella Valley, California.* Contributions of the University of California Archaeological Research Facility 38.

APPENDIX A

RELEVANT FEDERAL LEGISLATION

SUMMARY OF FEDERAL LEGISLATION

A variety of Federal statutes specifically address paleontological resources. They generally become applicable to specific projects if that delivery crosses Federal lands or involves a Federal agency license, permits, approval, or funding. This section summarizes Federal and regulations pertaining to paleontological resources and how these integrate with project development and delivery activities. Policies and/or contact information for Federal land managing and regulatory agencies that have paleontological authorities and responsibilities are provided. In the event that a project involves land owned or administered by another Federal or State agency, that agency should be contacted in order to ascertain specific requirements they may have relative to paleontological resources.

Antiquities Act of 1906 (16 United States Code [USC] 431-433)

The Antiquities Act of 1906 states, in part: That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court. Although there is no specific mention of natural or paleontological resources in the Act itself, or in the Act's uniform rules and regulations (Title 43 Part 3, Code of Federal Regulations [43 CFR 3]), "objects of antiquity" has been interpreted to include fossils by the National Park Service (NPS), the Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and other Federal agencies. Permits to collect fossils on lands administered by Federal agencies are authorized under this Act (see "Permit Requirements of Federal Agencies section, below). Therefore, projects involving Federal lands will require permits for both paleontological resource evaluation and mitigation efforts.

Archaeological and Paleontological Salvage (23 USC 305)

Statute 23 USC 305 amends the Antiquities Act of 1906. Specifically, it states: Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the preservation of American Antiquities," approved June 8, 1906 (PL 59-209; 16 USC 431-433), and State laws where applicable.

This statute allows funding for mitigation of paleontological resources recovered pursuant to Federal aid highway projects, provided that "excavated objects and information are to be used for public purposes without private gain to any individual or organization" (Federal Register [FR] 46(19): 9570; [Also see FHWA policy section, below]).

National Registry of Natural Landmarks (16 USC 461-467)

The National Natural Landmarks (NNL) program was established in 1962 and is administered under the Historic Sites Act of 1935. Implementing regulations were first published in 1980 under 36 CFR

1212 and the program was re-designated as 36 CFR 62 in 1981. A National Natural Landmark is defined as:

> *…an area designated by the Secretary of the Interior as being of national significance to the United States because it is an outstanding example(s) of major biological and geological features found within the boundaries of the United States or its Territories or on the Outer Continental Shelf (36 CFR 62.2).*

National significance describes:

> *… an area that is one of the best examples of a biological community or geological feature within a natural region of the United States, including terrestrial communities, landforms, geological features and processes, habitats of native plant and animal species, or fossil evidence of the development of life (36 CFR 62.2).*

Federal agencies (e.g., FHWA) and their agents (e.g., Caltrans) should consider the existence and location of designated NNLs, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under section 102(2)(c) of the National Environmental Policy Act (NEPA) (42 USC 4321). The NPS is responsible for providing requested information about the National Natural Landmarks Program for these assessments (36 CFR 62.6(f)). However, other than consideration under NEPA, NNLs are afforded no special protection. Furthermore, there is no requirement to evaluate a paleontological resource for listing as an NNL. Finally, project proponents (State and local) are not obligated to prepare an application for listing potential NNLs, should such a resource be encountered during project planning and delivery. For an up-to-date listing of NNLs, visit the National Natural Landmarks website.

National Environmental Policy Act of 1969 (42 USC 4321)

The National Environmental Policy Act (NEPA) directs Federal agencies to use all practicable means to "Preserve important historic, cultural, and natural aspects of our national heritage…" (Section 101(b)(4)). Regulations for implementing the procedural provisions of NEPA are found in 40 CFR 1500-1508.

If the presence of a significant environmental resource is identified during the scoping process, Federal agencies and their agents must take the resource into consideration when evaluating project effects. Consideration of paleontological resources may be required under NEPA when a project is proposed for development on Federal land, or land under Federal jurisdiction. The level of consideration depends upon the Federal agency involved (see section, below, entitled Identification of Regulatory/Management Agencies.

- **1872 Mining Law, amended 1988.** Excludes fossils (including petrified wood) from claim or patent. USFS and BLM regulate surface effects of development under this law. BLM regulations specifically state that operators may not knowingly disturb or destroy any scientifically important paleontological remains on Federal lands; that they notify an authorized officer of such finds; and that said officer shall take action to protect or remove the resource(s).

- **Mineral Leasing Act of 1920 (sec. 30).** Requires and provides for the protection of interest of the United States. Natural resources, including paleontologic resources, are commonly regarded as such interests.
- **Executive Order 11593, May 31, 1971, Protection and Enhancement of the Cultural Environment (36 CFR 8921).** Requires Federal agencies to inventory and protect properties under their jurisdiction. NPS regulations under 36 CFR provide that Paleontologic specimens may not be disturbed or removed without a permit.
- **Archaeological and Historic Data Preservation Act of 1974 (P.L. 86-253, as amended by P.L. 93-921, 16 U.S.C. 469).Act of May 24, 1974 (88 Stat 174, sec. 3 a0, 4a).** Provides for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a Federal, Federally licensed, or Federally funded project. A "Statement of Program Approach" was published in the *Federal Register* on March 26, 1979 (40 FR 18117) to advise the manner in which this law will be implemented.
- **Federal Land Management and Policy Act of 1976 (FLPMA, P.L. 94-579, 43 U.S.C. 1701-1782)**. Provides authority for BLM to regulate lands under its jurisdiction, managed in a manner to "protect the quality of scientific, scenic, historic, ecological, environmental...and archaeological values." Authority is given to establish areas of critical environmental concern (ACEC).
- **Surface Mining Control and Reclamation Act of 1977 (SMCRA, P.L. 95-87, 30 U.S.C. 1201-1328).** Regulates surface coal mining and provides designation as unsuitable for surface mining if mining would "...result in significant damage to important cultural, scientific, and esthetic values and natural systems...."
- **Paleontological Resource Management 1998, Bureau of Land Management Handbook H-8270-1** General Procedural Guidance for Paleontological Management.

APPENDIX B

PALEONTOLOGICAL RESOURCES USE PERMIT

Insert:
BLM Paleo Permit and Field Work Authorization

APPENDIX C

BUREAU OF LAND MANAGEMENT CRITERIA FOR EVALUATION (IM 2008-009)

APPENDIX C-1:

BLM INSTRUCTION MEMORANDUM NO. 2008-009

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Washington, D.C. 20240
October 15, 2007

In Reply Refer To:
1610, 8270 (240) P
EMS TRANSMISSION 10/18/2007
Instruction Memorandum No. 2008-009
Expires: 09/30/2009
To: All State Directors
From: Assistant Director, Renewable Resources and Planning

Subject: Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands

Program Areas: Paleontological Resources Management, Resource Management Planning, Lands and Realty Management, Minerals Management, Range

Purpose: This Instruction Memorandum (IM) transmits the Bureau of Land Management (BLM) classification system for paleontological resources on public lands. The classification system is based on the potential for the occurrence of significant paleontological resources in a geologic unit, and the associated risk for impacts to the resource based on Federal management actions. Copies of the classification system and implementation guidance are attached.

Policy/Action: The Potential Fossil Yield Classification (PFYC) system will be used to classify paleontological resource potential on public lands in order to assess possible resource impacts and mitigation needs for Federal actions involving surface disturbance, land tenure adjustments, and land-use planning. Implementation of the PFYC system will not mandate changes to existing land use plans, project plans, or other completed efforts. Integration into plans presently being developed is discretionary. All efforts subsequent to issuance of this IM should incorporate the PFYC system. This system will replace the current Condition Classification in the Handbook (H-8270-1) for Paleontological Resource Management.

Timeframe: This guidance is effective immediately for all BLM offices.

Background: This classification system for paleontological resources is intended to provide a more uniform tool to assess potential occurrences of paleontological resources and evaluate possible impacts. It uses geologic units as base data, which is more readily available to all users. It is intended to be applied in broad approach for planning efforts, and as an intermediate step in evaluating specific

projects. This is part of a larger effort to update the Handbook H-8270-1 (General Procedural Guidance for Paleontological Resource Management) Chapter III (Assessment & Mitigation) and Chapter II.A.2 and will be incorporated into that Handbook update.

Impact on Budget: Costs for the initial classification of geologic units for those States that have not already determined the classification will be borne by each Office. Implementation of the PFYC system will have no additional costs.

Manual/Handbook Affected: Supersedes H-8270-1 (General Procedural Guidance for Paleontological Resource Management) Chapter II.A.2.

Coordination: The classification system is the product of the BLM's regional paleontologists, other BLM employees, and outside reviewers. This system is very similar to the Forest Service's Fossil Yield Potential Classification and will enable closer coordination of paleontological resource management between the agencies.

Contact: For questions regarding application of this policy and guidance, please contact Lucia Kuizon, National Paleontologist, at (202) 452-5107 or lkuizon@blm.gov.
Signed by: Authenticated by: IM 2008-009, Potential Fossil Yield Classification (PFYC) System for Paleontological Re... Page 1 of 2
http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national.1/18/2010

2 Attachments:
1 – The Potential Fossil Yield Classification (PFYC) System (4 pp)
2 – Guidance for Implementing the PFYC System (5 pp)

Todd S. Christensen
Acting, Deputy Assistant Director
Renewable Resources and Planning

Robert M. Williams
Division of IRM Governance

Guidance for implementing the Potential Fossil Yield Classification (PFYC) System

Introduction

The Potential Fossil Yield Classification (PFYC) system will aid in assessing the potential for discovery of significant paleontological resources or the impact of surface disturbing activities to these resources.

It is intended to assist in determining proper mitigation approaches for surface disturbing activities, disposal or acquisition actions, recreation possibilities or limitations, and other BLM-approved activities. It will provide consistent information for input and analysis during planning efforts. The PFYC system can also highlight the area's most likely to be a focus of paleontological research efforts or illegal collecting. It is hoped that this system will allow BLM to direct management efforts toward potentially significant areas and reduce efforts in areas of lower potential.

This classification system was originally developed by the Forest Service's Paleontology Center of Excellence and the Region 2 (FS) Paleontology Initiative in 1996. Modifications were made by the BLM's Paleontological Resources staff in subsequent years.

Paleontological resources are closely associated with the geologic rock units containing them; that is, fossils are found more frequently in some rock units than others. The management of paleontological resources can thus be tied to the geologic units present at or near the ground surface, with greater management emphasis aimed at higher potential geologic units.

Uses

This PFYC system is utilized for land use planning efforts and for the preliminary assessment of potential impacts and proper mitigation needs for specific projects. It is intended to provide a tool to assess potential occurrences of significant paleontological resources. It is meant to be applied in broad approach for planning efforts, and as an intermediate step in evaluating specific projects.

There are five Classes with Class 1 being Very Low Potential and Class 5 being Very High Potential. Although granite, lava beds, and other igneous or metamorphic rock types are usually considered to be void of any fossils, outcrops of these rocks may have fissure fillings, cave-like structures, sinkholes, and other features that may preserve significant paleontological resources or information, so the potential is not zero; therefore Class 1 is applied to these rock types usually considered not to contain fossil resources.

It is intended that this system replace the current Condition Classification in the Handbook (H-8270-1), for Paleontological Resource Management. In general, the following is a comparison of the Condition Classification rankings to the new PFYC.

Classes: Condition (from H-8270-1)	PFYC Class (this Instruction Memorandum)
Condition 1 – Areas known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. (Note: this refers to known localities or groups of localities)	PFYC Class 4 (High) or Class 5 (Very High), based on geologic unit.
Condition 2 – Areas with exposures of geological units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.	PFYC Class 3 (Moderate), Class 4 (High), or Class 5 (Very High), based on geologic unit.
Condition 3 – Areas that are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.	PFYC Class 1 (Very Low) or Class 2 (Low).

Assignment of Classes

A separate class ranking is assigned to each recognized geologic formation or member present at the surface. Deposits of young alluvium (post-Pleistocene) or thick soils can often be ignored. However, geologic mapping may not separate the older Pleistocene alluvium which, may contain significant vertebrate fossils, and thus these

units need to be carefully considered. Available geologic mapping, depending on map scale, may combine multiple formations or units. In these cases, the assigned classification should use the highest class of those included units. For ease of application, the classifications should be integrated into a Geographic Information System (GIS) based geologic map.

The classification is initially determined by the Regional Paleontologist; the State Office Paleontology Lead in collaboration with the Regional Paleontologist; or by knowledgeable individuals from a paleontology museum, university paleontology department, or consulting firm working under a formal agreement. Several States have already completed an initial classification and are incorporating the system into new planning and mitigation efforts.

To maintain consistency in planning efforts, mitigation requirements, and other management approaches, the classification should be applied to each formation on a state-wide basis, and even across State boundaries. But in some situations, geologic characteristics within formations may change across the State or region and may alter the potential for fossil occurrence. These differences may be a characteristic of the formation, be variable in occurrence, and unmappable at a workable scale; or may indicate a regional gradient, where a formation is highly fossiliferous in one portion of the State, but has lowered potential in another area. A variable occurrence in potential may be included in the general information about the formation. A regional gradient can be addressed by assigning a different class for separate areas.

Multiple class assignments for an individual formation should be applied in consultation with the State Office to maintain consistency across Field Office boundaries.

Over time, additional information may be acquired or developed that may suggest that a change in the class assignment is appropriate, especially from the Unknown Class (3b) to a higher or lower class. The classification should reflect the most current information, and recent research or discoveries may indicate a change is warranted. However, any changes should be measured against existing applications or use of the current classification, such as usage in Resource Management Plans (RMPs) or other planning or management documents.

Application

In planning documents and other general applications, these classes allow for uniform discussion of the paleontologic resource, potential adverse impacts, and management approaches. Assessment of general conditions, such as acres or percentages of each class, or spatial identification of important areas can be determined and presented in simple manner. Identification of areas of potential concern with other resources can be identified using GIS mapping or explained in the text body in simple fashion.

The PFYC classes may also be utilized to assess the possibility of adverse or beneficial impacts from land tenure adjustment (disposal or acquisition) proposals prior to on-the-ground surveys.

A primary purpose of the PFYC is to assess the possible impacts from surface disturbing activities and help determine the need for pre-disturbance surveys and monitoring during construction. This assessment should be an intermediate step in the analysis process; and local conditions such as amount of exposed bedrock should be considered when final mitigation needs are determined. The determination should also be supplemented by occurrences of known fossil localities and local geologic and topographic knowledge.

Mitigation Needs Assessment

Impacts of most surface-disturbing activities, and the need for mitigation efforts, are addressed by the local Field Office. Some larger actions, such as major pipeline projects, may be handled by the State Office, or even as multi-State projects. In all these cases, the assessment of impacts to paleontological resources and need for mitigation can be addressed in similar fashion through a progression of steps. The following outlines the general steps used to apply the PFYC system to this mitigation process.

1. **Identify the proposed action and affected area.** Consider the area directly impacted by the action, as well as areas that may be impacted by vehicle drive ways, equipment parking, storage areas, and increased access. Also consider the depth of disturbance to determine possible subsurface impacts.

2. **Identify the potential impacts to paleontological resources.** Determine the geologic units that may be impacted and the associated PFYC classes, and consult other sources of information about known localities or paleontological research that may have been done previously.

   Based on the PFYC class and any additional resource information, determine the probability of impacting significant paleontological resources. If known localities are in the area of possible impact, determine if those localities can be avoided by altering the proposed action, such as repositioning a well pad location or rerouting a pipeline around a locality.

3. **Determine the need for field survey or other mitigation efforts.** On-the-ground field surveys, on-site monitoring, spot-checking at key times during construction, or locality avoidance are all possible mitigation approaches to lessen adverse impacts.

   - If the PFYC class for the impacted area is Class 1 or 2, and there are no known localities within the area, no further assessment is typically needed.
   - If a Class 3a (Moderate Potential) unit underlies the area, the local geologic conditions should be considered, as well as any known localities in the region. It may be necessary to consult with the Regional Paleontologist or other qualified paleontologist to assess the local conditions.
   - If a Class 3b (Unknown Potential) unit underlies the area, it may be appropriate to require an on-site preliminary assessment by a qualified paleontologist.
   - If the area is a Class 4b (buried bedrock with High Potential) or Class 5b (buried bedrock with Very High Potential), an assessment of the possible impacts to bedrock units must be made. If the proposed action will not penetrate the protective soil or alluvial layer, a pre-work survey or monitoring during the activity may not be necessary. If the potential exists to remove the protective layer and impact the bedrock unit below, it may be prudent to require a pre-work field survey and/or on-site monitoring during disturbance or spot-checks at key times. Because the bedrock unit is typically buried for much of the area in question, a pre-work survey may not always be necessary, as the fossil material may not be visible. However, it may then be more important to have an on-site monitor during disturbance or spot-checks at key times.
   - If it is a Class 4a (exposed bedrock with High Potential) or Class 5a (exposed bedrock with Very High Potential) area, it will be necessary in most (Class 4a) or almost all (Class 5a) situations to require a pre-activity field survey of the areas directly and indirectly impacted.

   Larger projects may impact multiple geologic units with differing PFYC Classes. In those cases, field survey and monitoring may be applied at differing levels. For example, surveys may be appropriate only on the Class 4 and 5 formations and not the Class 2 formations along a pipeline project. Careful mapping and detailed field notes should reflect the differing survey/monitoring intensities, and should be included in the consultant's report to BLM.

APPENDIX C-2

POTENTIAL FOSSIL YIELD CLASSIFICATION (PFYC) SYSTEM

Occurrences of paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Therefore, geologic mapping can be used for assessing the potential for the occurrence of paleontological resources.

Using the Potential Fossil Yield Classification (PFYC) system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential. This classification is applied to the geologic formation, member, or other distinguishable unit, preferably at the most detailed mappable level. It is not intended to be applied to specific paleontological localities or small areas within units. Although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher class; instead, the relative abundance of significant localities is intended to be the major determinant for the class assignment.

The PFYC system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. The classification should be considered at an intermediate point in the analysis, and should be used to assist in determining the need for further mitigation assessment or actions.

The descriptions for the classes below are written to serve as guidelines rather than as strict definitions. Knowledge of the geology and the paleontological potential for individual units or preservational conditions should be considered when determining the appropriate class assignment. Assignments are best made by collaboration between land managers and knowledgeable researchers.

Class 1 **– Very Low**. Geologic units that are not likely to contain recognizable fossil remains.

- Units that are igneous or metamorphic, excluding reworked volcanic ash units.
- Units that are Precambrian in age or older.

(1) Management concern for paleontological resources in Class 1 units is usually negligible or not applicable.

(2) Assessment or mitigation is usually unnecessary except in very rare or isolated circumstances.

The probability for impacting any fossils is negligible. Assessment or mitigation of paleontological resources is usually unnecessary. The occurrence of significant fossils is non-existent or extremely rare.

Class 2 **– Low**. Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils.

- Vertebrate or significant invertebrate or plant fossils not present or very rare.
- Units that are generally younger than 10,000 years before present.
- Recent aeolian deposits.
- Sediments that exhibit significant physical and chemical changes (i.e., diagenetic alteration).

(1) Management concern for paleontological resources is generally low.

(2) Assessment or mitigation is usually unnecessary except in rare or isolated circumstances.

The probability for impacting vertebrate fossils or scientifically significant invertebrate or plant fossils is low. Assessment or mitigation of paleontological resources is not likely to be necessary. Localities containing important resources may exist, but would be rare and would not influence the classification. These important localities would be managed on a case-by-case basis.

Class 3 – **Moderate** or **Unknown**. Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

- Often marine in origin with sporadic known occurrences of vertebrate fossils.
- Vertebrate fossils and scientifically significant invertebrate or plant fossils known to occur intermittently; predictability known to be low.

(or)

- Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

Class 3a – **Moderate Potential.** Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for hobby collecting. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.

Class 3b – **Unknown Potential.** Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this Class may eventually be placed in another Class when sufficient survey and research is performed. The unknown potential of the units in this Class should be carefully considered when developing any mitigation or management actions.

(1) Management concern for paleontological resources is moderate; or cannot be determined from existing data.

(2) Surface-disturbing activities may require field assessment to determine appropriate course of action.

This classification includes a broad range of paleontological potential. It includes geologic units of unknown potential, as well as units of moderate or infrequent occurrence of significant fossils. Management considerations cover a broad range of options as well, and could include pre-disturbance surveys, monitoring, or avoidance. Surface-disturbing activities will require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action, and whether the action could affect the paleontological resources. These units may contain areas that would be appropriate to designate as hobby collection areas due to the higher occurrence of common fossils and a lower concern about affecting significant paleontological resources.

Class 4 – **High**. Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface disturbing activities may adversely affect paleontological resources in many cases.

Class 4a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres. Paleontological resources may be susceptible to adverse impacts from surface disturbing actions. Illegal collecting activities may impact some areas.

Class 4b – These are areas underlain by geologic units with high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.

- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

(1) Management concern for paleontological resources in Class 4 is moderate to high, depending on the proposed action.

(2) A field survey by a qualified paleontologist is often needed to assess local conditions.

(3) Management prescriptions for resource preservation and conservation through controlled access or special management designation should be considered.

(4) Class 4 and Class 5 units may be combined as Class 5 for broad applications, such as planning efforts or preliminary assessments, when geologic mapping at an appropriate scale is not available. Resource assessment, mitigation, and other management considerations are similar at this level of analysis, and impacts and alternatives can be addressed at a level appropriate to the application.

The probability for impacting significant paleontological resources is moderate to high, and is dependent on the proposed action. Mitigation considerations must include assessment of the disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access resulting in greater looting potential. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.

Class 5 **– Very High**. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two contiguous acres. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions. Unit is frequently the focus of illegal collecting activities.

Class 5b – These are areas underlain by geologic units with very high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has very high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.
- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

(1) Management concern for paleontological resources in Class 5 areas is high to very high.

(2) A field survey by a qualified paleontologist is usually necessary prior to surface disturbing activities or land tenure adjustments. Mitigation will often be necessary before and/or during these actions.

(3) Official designation of areas of avoidance, special interest, and concern may be appropriate.

The probability for impacting significant fossils is high. Vertebrate fossils or scientifically significant invertebrate fossils are known or can reasonably be expected to occur in the impacted area. On-the-ground surveys prior to authorizing any surface disturbing activities will usually be necessary. On-site monitoring may be necessary during construction activities.

4. Conduct Pre-work Field Survey. Field surveys are almost always needed for Class 4 and 5 units, especially exposed bedrock areas (Class 4a and 5a). Class 3 units may or may not require a survey. Local conditions, such as vegetated areas or pockets of bedrock exposure, may affect the need and intensity of field surveys.

The consultant is required to submit a report of findings after completion of the field survey. In addition to standard reporting information, the report should contain the consultants' recommendations for further mitigation, and this recommendation should be considered when determining the need for and type of on-site monitoring or locality avoidance.

5. Monitor during disturbance activities. Those areas that have been determined to have a Very High potential (Class 5) for adverse impacts should typically be monitored at all times when surface-disturbing activities are occurring. If the area has a High potential (Class 4), it may be appropriate to examine the exposed unit, including the spoil or storage piles, only at key times. These times are dependent on the activity, but typically are: when bedrock is initially exposed, occasionally during active excavation, and when the maximum exposure is reached and before backfilling has begun. This monitoring and spot-checking must be performed by a permitted paleontologist or their BLM-approved representative. The monitor has the authority to briefly pause any activity to inspect a possible find. These pauses are intended to allow for identification of possible fossil resources and should only last a few minutes to a couple hours.

6. Evaluate significant finds. If significant paleontological resources are discovered during surface disturbing actions or at any other time, the proponent or any of his agents must: (a) stop work immediately at that site; (b) contact the appropriate BLM representative, typically the project inspector or Authorized Officer, as soon as possible; and (c) make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Work may not resume at that location until approved by the official BLM representative. In some cases, such as recovery of a dinosaur, further activity at that site may be delayed until the discovered fossils are recovered, or until the project is modified to avoid impacting the find. Because of the potential for lengthy delays, the BLM should assure that the project proponent understands this possibility prior to approval to begin work.

These steps are included here to provide general guidance, and it may be appropriate to modify or skip them for various situations. However, a brief discussion of the background and reason for modification should be placed in the project file.

For all surface-disturbing activities occurring within Class 3 or higher units, a stipulation should be included in the permitting document.

Further Information

Detailed information on the geologic units and paleontological resources within a State can often be obtained from State geological surveys, geological or paleontological museums, geology departments at universities or colleges, paleontological permittees or other researchers or within the BLM from Regional Paleontologists or knowledgeable Geologists.

Scientific publications, such as professional journals or State geological survey reports, often contain general and detailed information about paleontological and geological resources relevant to fossil potential and occurrences for specific areas. Current and past paleontological permittee reports usually include precise locality data and maps, and often contain discussions of findings and their significance.

APPENDIX C-3:

SIGNIFICANCE CRITERIA FOR PALEONTOLOGICAL RESOURCES: VERTEBRATE, INVERTEBRATE, PLANT AND TRACE FOSSILS

The Forest Service paleontological resources program focuses its management activities on scientifically significant fossil resources. Scientific significance may be attributed to the fossil specimen or trace fossil itself, and to its context, i.e., its location in time and space, or association with other relevant evidence. As a general rule, fossil specimens that are scientifically significant are management-relevant resources. The scientific significance of a paleontological specimen or trace, and its context, is determined by meeting any one of the following criteria:

Specimen-based criteria:

- Represents an unknown or undescribed/unnamed taxon.
- Represents a rare taxon, or rare morphological/anatomical element or feature. The "rareness" criterion comprises either absolute rareness in the fossil record, or relative or contextual rareness as described below.
- Represents a vertebrate taxon (trace, Plant, and Invertebrate fossils may also be significant).
- Exhibits an exceptional type and/or quality of preservation.
- Exhibits remarkable or anomalous morphological/anatomical character(s) or taphonomic alteration.
- Represents "soft tissue" preservation or presence.
- Exhibits cultural affiliation, e.g., alteration or use by ancient humans. (Resources matching this criterion are protected under the Archaeological Resources Protection Act of 1979 and are not considered in the PFYC.)

Context-based criteria:

- Is associated in a relevant way with other evidence of scientific interest, providing taphonomic, ecologic, environmental, behavioral, or evolutionary information.
- Is evidence that extends and/or constrains the stratigraphic, chronologic and/or geographic range of a species or higher-level taxonomic group.

APPENDIX D:

RÉSUMÉS

Insert Bob Reynolds, Brooks Smith, Rory Goodwin, Jason Miller résumés PDF

CONFIDENTIAL—NOT FOR DISTRIBUTION

APPENDIX E

LOCALITY SEARCH RESULTS: REQUEST AND RESPONSES

Insert:

SDNHM Paleo Request.pdf

SDNHM Results.pdf

ABDSP-SRC Search Results.pdf

CONFIDENTIAL—NOT FOR DISTRIBUTION

APPENDIX F

FIELD ASSESSMENT LOCALITIES/PHOTOS

A1 BLM locality form: Late Holocene Mollusks for 115-acre project
A2 Photo: Late Holocene Mollusks

B1 BLM locality form: Plio-Pleistocene bone fragment
B2 Photo: Plio-Pleistocene bone fragment

C1 BLM locality form: Plio-Pleistocene wood fragment
C2 Photo: Plio-Pleistocene wood fragment

D1 Photo with Caption: "Outcrop of resistant Plio-Pleistocene sediments two miles southwest of Ocotillo Sol Photovoltaic Project"

APPENDIX L

United States Department of the Interior Bureau of Land Management **Scenic Quality Field Inventory**	Date & Evaluator:	March 14, 2011 RECON (Woods)
	District & Field Office:	California Desert District El Centro Field Office
	Project:	**Ocotillo Sol PV**
	Scenic Quality Rating Unit:	**Creosote Flats SQRU 12a**

Landscape Character: (*see representative photos*)

	Landform/Water	Vegetation	Structure (General)
Form	Relatively level, slightly hummocky	Open and rounded	Open
Line	Horizontal	Spherical	Substation vertical supports, horizontal supports, horizontal line
Color	Light tan soils	Olive green creosote; Light green/tan/brown ground cover; seasonal with wildflower color	Steel-grey/silver
Texture	Fine (sandy soils)	Medium to coarse	Smooth

Narrative: Sparsely vegetated open area with slightly rounded, raised hummocks (low mounds). Vegetation consists primarily of creosote shrubs, with some occasional occurrences of mesquite and acacia. The ground plane is seasonally colorful when wildflowers are in bloom.

Views North: Views of Imperial Valley substation and transmission lines dominate the foreground views to the north and screen background and middle-ground views of areas further north.

Views West: Foreground and middleground views of creosote flats, and distant background views of the Jacumba Mountains and Wilderness, 11+ miles to the west.

Views South: Distant background views to the south of Mount Signal in Mexico (4+ miles), and linear alignment of transmission lines and support structures.

Views East: Existing unpaved road and continued creosote flats in foreground, and distant, linear grove of tamarisk trees, which screen middleground and background views of agricultural cultivated lands further east.

Scenic Quality Score & Classification:					
	High (4-5)	Medium (3)	Low (1-2)	Rationale	Scenic Quality Classification
Landform			2	Relatively level terrain; only minor variations in topography	☐ A (>18)
Vegetation			2	Sparse cover of creosote and other small shrubs. Seasonal variations	☐ B (12-18)
Water	-	-	-	No water bodies present	☒ C (<12)
Color			2	Varying tones and shades of green and tan; seasonal wildflower bloom	
Adjacent Scenery			2	Far distant views of mountains	
Scarcity			1	Common within the Yuha and Lower Colorado Deserts	
Cultural Modification			-	Highly modified adjacent substation, transmission lines and structures, and unpaved roads nearby	
Totals:			9		

Description:	**Representative Photographs:**
View north, across project site, from location near east boundary of project site. Imperial Valley Substation structures are visible to the north, as are existing power lines and structures outside the project site's eastern boundary.	
View west, across site. Jacumba Mountains visible in distant background. Note slight variations in topography. Vegetation is relatively sparse, and dominated by creosote shrubs.	

Description:	**Representative Photographs:**
View east, off-site, to dense band of tamarisk trees that generally parallel the alignment of an irrigation canal. Canal location is approximately 1 mile east of project site.	
View south, from northwestern corner of project site. Vegetation grows increasingly sparse in the northern portion of the project site. Transmission line alignment extends south, parallel with project site's east boundary. Signal Mountain (in Mexico) is visible in background, approximately 5-6 miles south of this project site. The International Boundary is 4.5 miles south of the project site's north boundary.	

VISUAL RESOURCE INVENTORY CLASSIFICATION MATRIX

		Visual Sensitivity Levels						
		High			Medium			Low
Special Areas		**I**	I	I	**I**	**I**	**I**	**I**
Scenic Quality	**A**	**II**	**II**	**II**	**II**	**II**	**II**	**II**
	B	II	III	III* IV*	III	IV	IV	IV
	C	III	IV	IV	IV	IV	IV	IV
		f/m	b	s/s	f/m	b	s/s	s/s
		Distance Zones						

* If adjacent areas are Class I, II, or III, assign Class III; if Class IV, assign Class IV.

Scenic Quality: C

Sensitivity Level: Low to moderately low

Distance Zone: Foreground–Middleground, Background, and Seldom Seen

Inventory Classes: **IV**

Class IV Management Objective: The objective of this class is to provide for management activities which require **major modifications** of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Discussion: Inventory Class IV is appropriate for the greatest portion of the project site due to its low scenic quality, low sensitivity level, and its distant location relative to areas with potentially sensitive viewers.

Considerations for assigning Interim Management Class: VRM Class IV is recommended as the Interim Management Class for the Ocotillo Sol Project site.

United States Department of the Interior Bureau of Land Management **Scenic Quality Field Inventory**	Date & Evaluator:	March 14, 2011 RECON (Woods)
	District & Field Office:	California Desert District El Centro Field Office
	Project:	**Ocotillo Sol PV**
	Scenic Quality Rating Unit:	**Pinto Wash Xeroriparian-Shrub-scrub SQRU 12b**

Landscape Character: (*see representative photos*)

	Landform/Water	Vegetation	Structure (General)
Form	Relatively level, slightly hummocky	Open and rounded	Open
Line	Horizontal	Spherical	Substation vertical supports, horizontal supports, horizontal line
Color	Light tan soils	Olive green creosote; Light green/tan/brown ground cover; seasonal with wildflower color	Steel-grey/silver
Texture	Fine (sandy soils)	Medium to coarse	Smooth

Narrative: This unit is limited to the southeastern area of the site. Visual character and scenic quality are similar to SQRU 12a (i.e., sparsely vegetated with slight variations in predominantly flat terrain), but with somewhat higher degree of vegetative structure and species diversity, due to hydrology (surface flows associated with Pinto Wash) and resulting in several xero-riparian plant species: smoke tree, mesquite, acacia, Mormon tea.

Views North: Views of Imperial Valley substation and transmission lines dominate the foreground views to the north and screen background and middle-ground views of areas further north.

Views West: Foreground and middleground views of creosote flats xeroriparian shrub-scrub, and distant background views of the Jacumba Mountains and Wilderness, 11+ miles to the west.

Views South: Distant background views to the south of Mount Signal in Mexico (4+ miles), and linear alignment of transmission lines and support structures.

Views East: Existing unpaved road and continued creosote flats in foreground, and distant, linear grove of tamarisk trees, which screen middleground and background views of agricultural cultivated lands further east.

Scenic Quality Score & Classification:

	High (4-5)	Medium (3)	Low (1-2)	Rationale	Scenic Quality Classification
Landform			2	Relatively level terrain; only minor variations in topography	☐ A (>18)
Vegetation		3		Xeri-riparian shrubs and trees associated with nearby Pinto Wash hydrology. Seasonal variations	☒ B (12-18)
Water	-	-	-	No water bodies present	☐ C (<12))
Color		3		Varying tones and shades of green and tan; seasonal wildflower bloom	
Adjacent Scenery			2	Far distant views of mountains	
Scarcity			2	Representative of washes of the Yuha Desert area which have slightly higher water availability than adjacent areas	
Cultural Modification			-	Highly modified adjacent substation, transmission lines and structures, and unpaved roads nearby	
Totals:		6	6	12	

Description:	**Representative Photographs:**
View north, across project site, from location near southeast corner of project site. Imperial Valley Substation structures are visible to the north, as are existing power lines and structures outside the project site's eastern boundary.	
Xeri-riparian vegetation associated with Pinto Wash watercourse includes creosote, as elsewhere within project site, but other plant species such as smoke tree, mesquite, acacia, and Mormon tea are also present. Color variation is much greater after spring foliage and wildflowers appear. (Photos taken in early March, as new growth was just starting and only a few wildflowers had blossomed.)	

Description:	**Representative Photographs:**
View south, from unpaved road along project site's east boundary. Transmission line alignment extends south, parallel with project site's east boundary, and crosses Pinto Wash. Steep, rugged, mountainous terrain of Signal Mountain (in Mexico) is visible in background, approximately 5-6 miles south of this project site. The International Boundary is 4 miles south of the project site's south boundary.	

VISUAL RESOURCE INVENTORY CLASSIFICATION MATRIX

		Visual Sensitivity Levels						
		High			Medium			Low
Special Areas		**I**	I	I	**I**	**I**	**I**	**I**
Scenic Quality	**A**	**II**	**II**	**II**	**II**	**II**	**II**	**II**
	B	II	III	III* IV*	III	IV	IV	IV
	C	III	IV	IV	IV	IV	IV	IV
		f/m	b	s/s	f/m	b	s/s	s/s
		Distance Zones						

* If adjacent areas are Class III or lower, assign Class III; if higher, assign Class IV.

Scenic Quality: B

Sensitivity Level: Low to moderately low

Distance Zone: Foreground–Middleground, Background, and Seldom Seen

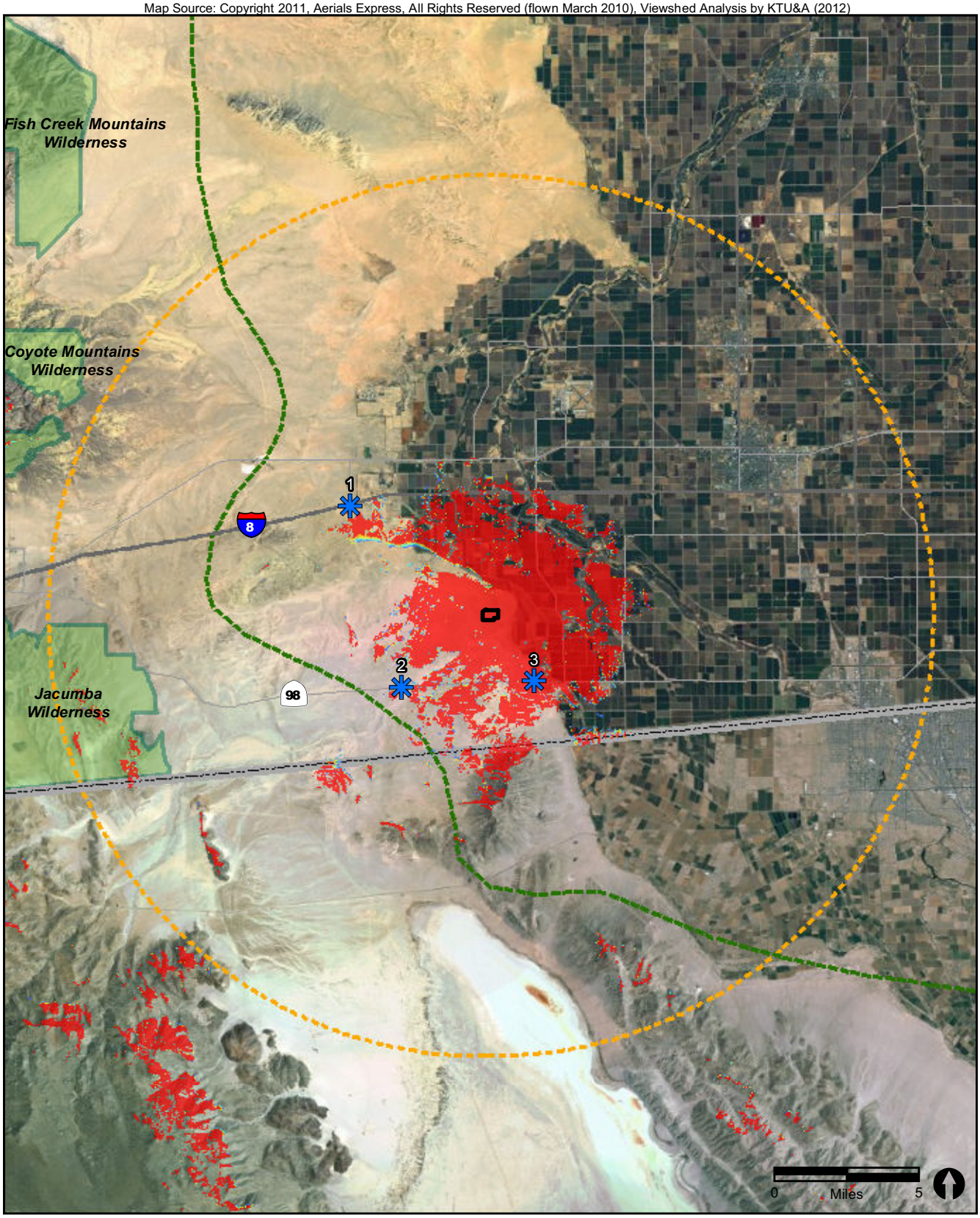
Inventory Classes: **III or IV**

Class IV Management Objective: The objective of this class is to provide for management activities which require **major modifications** of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Discussion: Inventory Class III or IV is appropriate for this SQRU 12b due to its medium-low scenic quality, low to moderately low sensitivity level, and its distant location relative to areas with potentially sensitive viewers.

Considerations for assigning Interim Management Class: VRM Class IV is recommended as the Interim Management Class for this SQRU, which is outside of the Ocotillo Sol Project site boundaries.

Map Source: Copyright 2011, Aerials Express, All Rights Reserved (flown March 2010), Viewshed Analysis by KTU&A (2012)



Project Boundary

15 mile Buffer

Key Observation Point

BLM Wilderness Areas

Juan Bautista De Anza Trail

Viewshed *

High : 20

Low : 0

*Viewshed analysis based on USGS National Elevation Dataset 1 arc-second (data was reprojected to stateplane NAD83 Cal Zone 6)

Viewshed does not take into account structures or interceding vegetation that may block or obscure project features

RECON

M:\JOBS4\6129\common_gis\AppJ.mxd 3/20/2012

Appendix L

Viewshed Analysis: Ocotillo Sol Project

KOP #1

United States Department of the Interior Bureau of Land Management **Visual Contrast Rating Worksheet**	Evaluators:	RECON (Woods/Morales)
	District & Field Office:	California Desert District El Centro Field Office
	Project:	**Ocotillo Sol**
	Activity / Program:	**Photovoltaic Solar Plant**

Section A. Project Information

1. Project Name: SDG&E Ocotillo Sol PV Solar Energy Facility	4. Location: Township: 16 South Range: 11 East Section: 23
2. Key Observation Point: **KOP 1: 5.6 miles northwest of site, along I-8 @ Dunaway Road Interchange**	
3. VRM Interim Management Class: IV	

Section B. Characteristic Landscape Description

	Landform/Water	Vegetation	Structure (General)
Form	Even-sloped, relatively level terrain and roads	low rounded forms of shrubs where present	Vertical angular and linear forms of adjacent electrical substation, transmission lines, and support structures
Line	Horizontal and sloped	Rounded and spiky where present	Vertical and horizontal
Color	grays and tans	Light to dark green where present	Grays and tans
Texture	Fine to medium	Smooth to moderately coarse	smooth

Section C. Proposed Activity Description

Narrative: Proposal is to install photovoltaic solar panels on approximately 100 acres. Creosote scrub vegetation would be removed from the project area. Mass grading is not proposed; existing terrain is relatively level and will require grading for installation of PV panel ground mounting equipment and access roads within the project boundaries.

KOP #1

Section C. Proposed Activity Description, cont.

	Landform/Water	Vegetation	Structure (General)
Form	Even-sloped, relatively level terrain and roads	(cleared)	Proposed rows of PV solar panels, ground mounted, and transformer boxes, at heights generally <10' ht.; small utility buildings at heights <18' ht.
Line	Horizontal and sloped	(cleared)	Predominantly horizontal lines of PV solar panels
Color	grays and tans	(cleared)	Metal grays, earthtones
Texture	Fine to medium	(cleared)	Predominantly smooth

Section D. Contrast Rating: Expansion Area ☒ Short term ☒ Long term

1. Degree of Contrast		Features												2. Does project design meet visual resource management objectives? YES
		Land				Vegetation				Structures				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended? No
Elements	Form			X				X				X		Evaluators Woods/Morales
	Line			X				X				X		
	Color			X				X				X		
	Texture			X				X				X		

Comments from Item D.2.: Interim VRM Class is IV, which allows for major modifications of the character of the landscape which may dominate the view and be the major focus of viewer attention. The project as proposed meets VRM Class IV management objectives.

This KOP #1 is 5.6 miles northwest of the project area, along I-8. From this distance, views of the Ocotillo Sol Project area are indistinguishable due to the distance, low angle of view, and intervening vegetation, topography, and structures at the existing Imperial Valley Substation. (The Imperial Valley Substation itself is indiscernible at this distance.) The proposed project would not dominate the view or draw the attention of viewers in vehicles traveling along I-8. Visual impacts would be negligible.

KOP #1

Comments from Item D.3.: N.A.

Section E. Photo taken from KOP #1, I-8 @ Dunaway Road Interchange, looking south/southeast towards Ocotillo Sol Project

KOP #2

United States Department of the Interior Bureau of Land Management **Visual Contrast Rating Worksheet**	Evaluators:	RECON (Woods/Morales)
	District & Field Office:	California Desert District El Centro Field Office
	Project:	**Ocotillo Sol**
	Activity / Program:	**Photovoltaic Solar Plant**

Section A. Project Information

1. Project Name: SDG&E Ocotillo Sol PV Solar Energy Facility	4. Location: Township: 16 South Range: 12 East Section: 17
2. Key Observation Point: **KOP 5: 3.6 mi. Southwest of Project Site, along SR98 @ SDG&E access road**	
3. VRM Interim Management Class: IV	

Section B. Characteristic Landscape Description

	Landform/Water	Vegetation	Structure (General)
Form	Even-sloped, relatively level terrain and roads	low rounded forms of shrubs where present	Vertical angular and linear forms of adjacent electrical substation, transmission lines, and support structures
Line	Horizontal and sloped	Rounded and spiky where present	Vertical and horizontal
Color	grays and tans	Light to dark green where present	Grays and tans
Texture	Fine to medium	Smooth to moderately coarse	smooth

Section C. Proposed Activity Description

Narrative: Proposal is to install photovoltaic solar panels on approximately 100 acres. Creosote scrub vegetation would be removed from the project area. Mass grading is not proposed; existing terrain is relatively level and will require grading for installation of PV panel ground mounting equipment and access roads within the project boundaries.

KOP #2

Section C. Proposed Activity Description, cont.

	Landform/Water	Vegetation	Structure (General)
Form	Even-sloped, relatively level terrain and roads	(cleared)	Proposed rows of PV solar panels, ground mounted, and transformer boxes, at heights generally <10' ht.; small utility buildings at heights <18' ht.
Line	Horizontal and sloped	(cleared)	Predominantly horizontal lines of PV solar panels
Color	grays and tans	(cleared)	Metal grays, earthtones
Texture	Fine to medium	(cleared)	Predominantly smooth

Section D. Contrast Rating: Expansion Area ☒ Short term ☒ Long term

1. Degree of Contrast		Features												2. Does project design meet visual resource management objectives? YES
		Land				Vegetation				Structures				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended? No
Elements	Form			X				X				X		Evaluators Woods/Morales
	Line			X				X				X		
	Color			X				X				X		
	Texture			X				X				X		

Comments from Item D.2.: Interim VRM Class is IV, which allows for major modifications of the character of the landscape which may dominate the view and be the major focus of viewer attention. The project as proposed meets Class IV management objectives.

This KOP #2 is 3.6 mi. southwest of the project area, along SR98, Imperial Highway @ the SDG&E access road, at approximately the same elevation. From this distance, views of the Ocotillo Sol Project area are indistinguishable due to the distance, low angle of view, and intervening vegetation and topography. (The Imperial Valley Substation itself is indiscernible at this distance.) The proposed project would not dominate the view or draw the attention of viewers in vehicles traveling along SR 98. Visual impacts would be negligible.

KOP #2

Comments from Item D.3.: N.A.

Section E. Photo taken from KOP #2, SR98 @ SDG&E access road, looking northeast towards Ocotillo Sol Project Area

KOP #3

United States Department of the Interior Bureau of Land Management **Visual Contrast Rating Worksheet**	Evaluators:	RECON (Woods/Morales)
	District & Field Office:	California Desert District El Centro Field Office
	Project:	**Ocotillo Sol**
	Activity / Program:	**Photovoltaic Solar Plant**

Section A. Project Information

1. Project Name: SDG&E Ocotillo Sol PV Solar Energy Facility	4. Location: Township: 16 South Range: 12 East Section: 12/13
2. Key Observation Point: **KOP 3: 2.5 mi. Southeast of Project Site, along SR98 near Mt. Signal Road**	
3. VRM Interim Management Class: IV	

Section B. Characteristic Landscape Description

	Landform/Water	Vegetation	Structure (General)
Form	Even-sloped, relatively level terrain and roads	low rounded forms of shrubs where present	Vertical angular and linear forms of adjacent electrical substation, transmission lines, and support structures
Line	Horizontal and sloped	Rounded and spiky where present	Vertical and horizontal
Color	grays and tans	Light to dark green where present	Grays and tans
Texture	Fine to medium	Smooth to moderately coarse	smooth

Section C. Proposed Activity Description

Narrative: Proposal is to install photovoltaic solar panels on approximately 100 acres. Creosote scrub vegetation would be removed from the project area. Mass grading is not proposed; existing terrain is relatively level and will require grading for installation of PV panel ground mounting equipment and access roads within the project boundaries.

KOP #3

Section C. Proposed Activity Description, cont.

	Landform/Water	Vegetation	Structure (General)
Form	Even-sloped, relatively level terrain and roads	(cleared)	Proposed rows of PV solar panels, ground mounted, and transformer boxes, at heights generally <10' ht.; small utility buildings at heights <18' ht.
Line	Horizontal and sloped	(cleared)	Predominantly horizontal lines of PV solar panels
Color	grays and tans	(cleared)	Metal grays, earthtones
Texture	Fine to medium	(cleared)	Predominantly smooth

Section D. Contrast Rating: Expansion Area ☒ Short term ☒ Long term

1. Degree of Contrast		Features												2. Does project design meet visual resource management objectives? YES
		Land				Vegetation				Structures				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended? No
Elements	Form			X				X				X		Evaluators Woods/Morales
	Line			X				X				X		
	Color			X				X				X		
	Texture			X				X				X		

Comments from Item D.2.: Interim VRM Class is IV, which allows for major modifications of the character of the landscape that may dominate the view and be the major focus of viewer attention. The project as proposed meets Class IV management objectives.

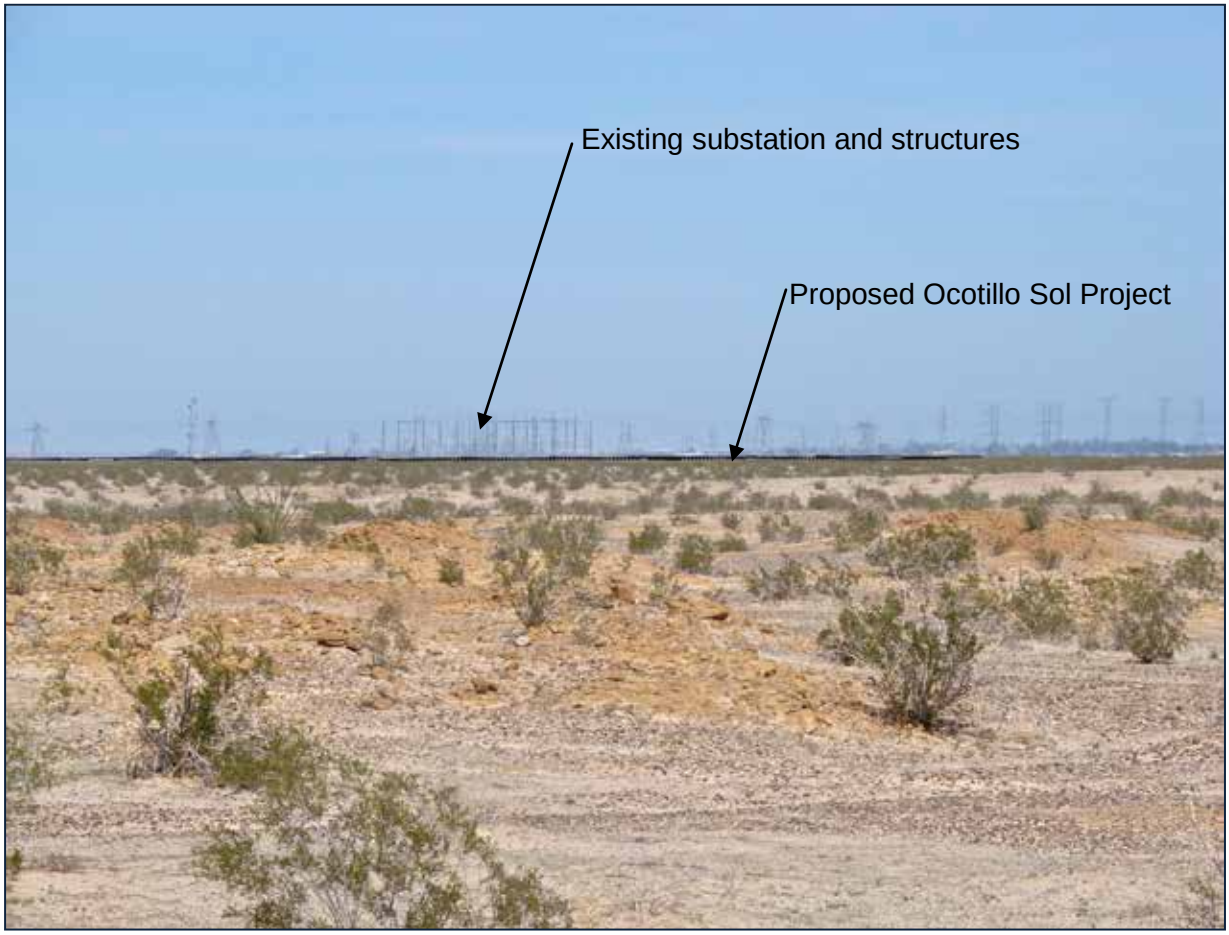
This KOP #3 is approximately 2.5 mi. southeast of the project area, along SR98, Imperial Highway @ the Mt. Signal Road, at approximately the same elevation. From this distance, views of the Ocotillo Sol Project area are nearly indistinguishable due to the distance and intervening vegetation, and topography. (The Imperial Valley Substation and transmission line towers are barely discernible in the distance.) The proposed project would not dominate the view or draw the attention of viewers in vehicles traveling along SR98. Visual impacts would be negligible.

KOP #3

Comments from Item D.3.: N.A.

Section E. Photo taken from KOP #3, SR98 @ Mt. Signal Road, looking northwest towards Ocotillo Sol Project Area

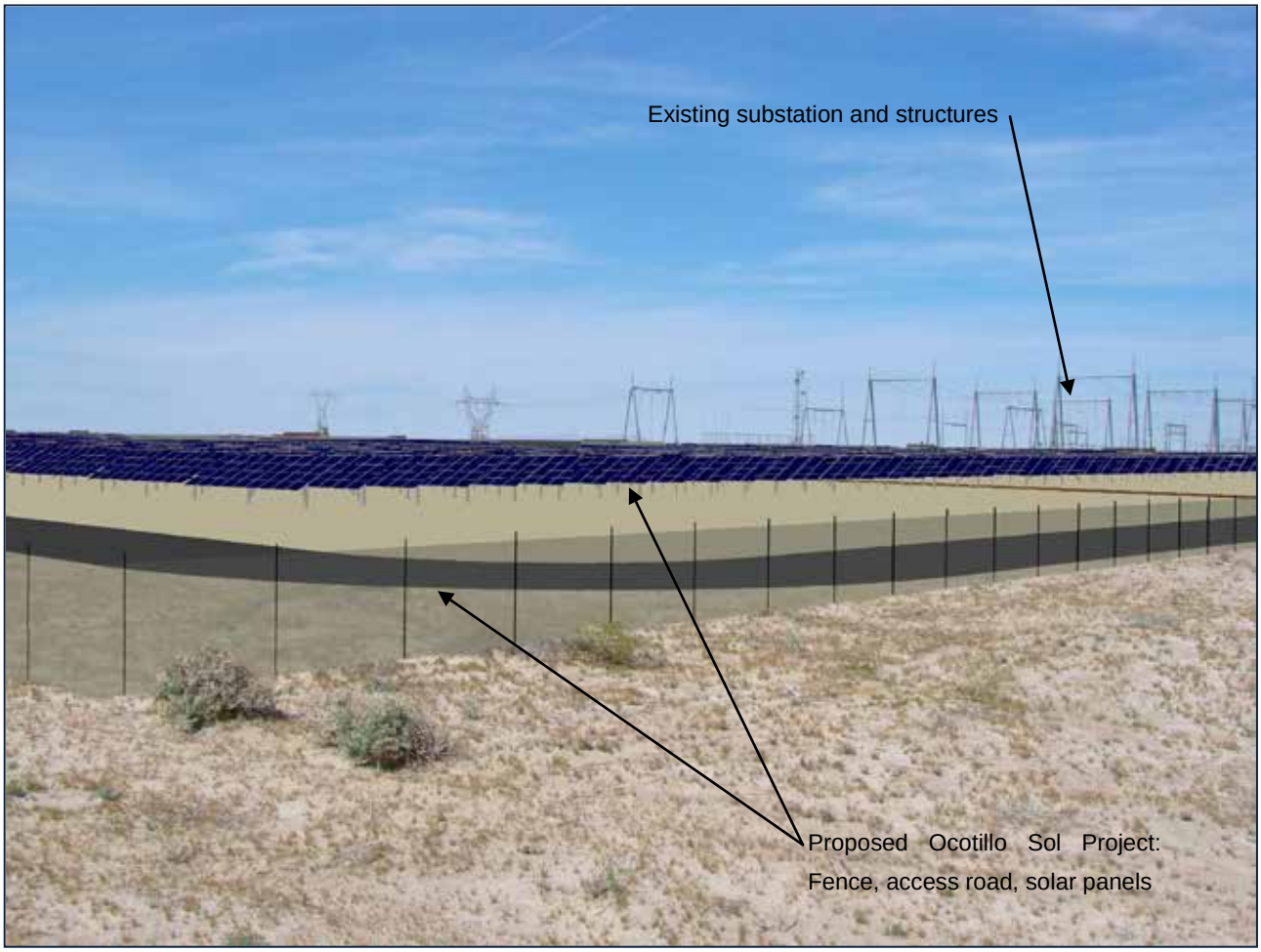
Visual Simulation of post-construction Ocotillo Sol project, as viewed from SR98



This view of the built project is as it would appear from approximately 2 miles south of the project area, along SR98, Imperial Highway.

From this distance, and at this angle of view, project elements would appear as a horizontal band in the distance- visible, but not highly discernible. It would not be a major focus of viewers in vehicles traveling in either direction along SR 98.

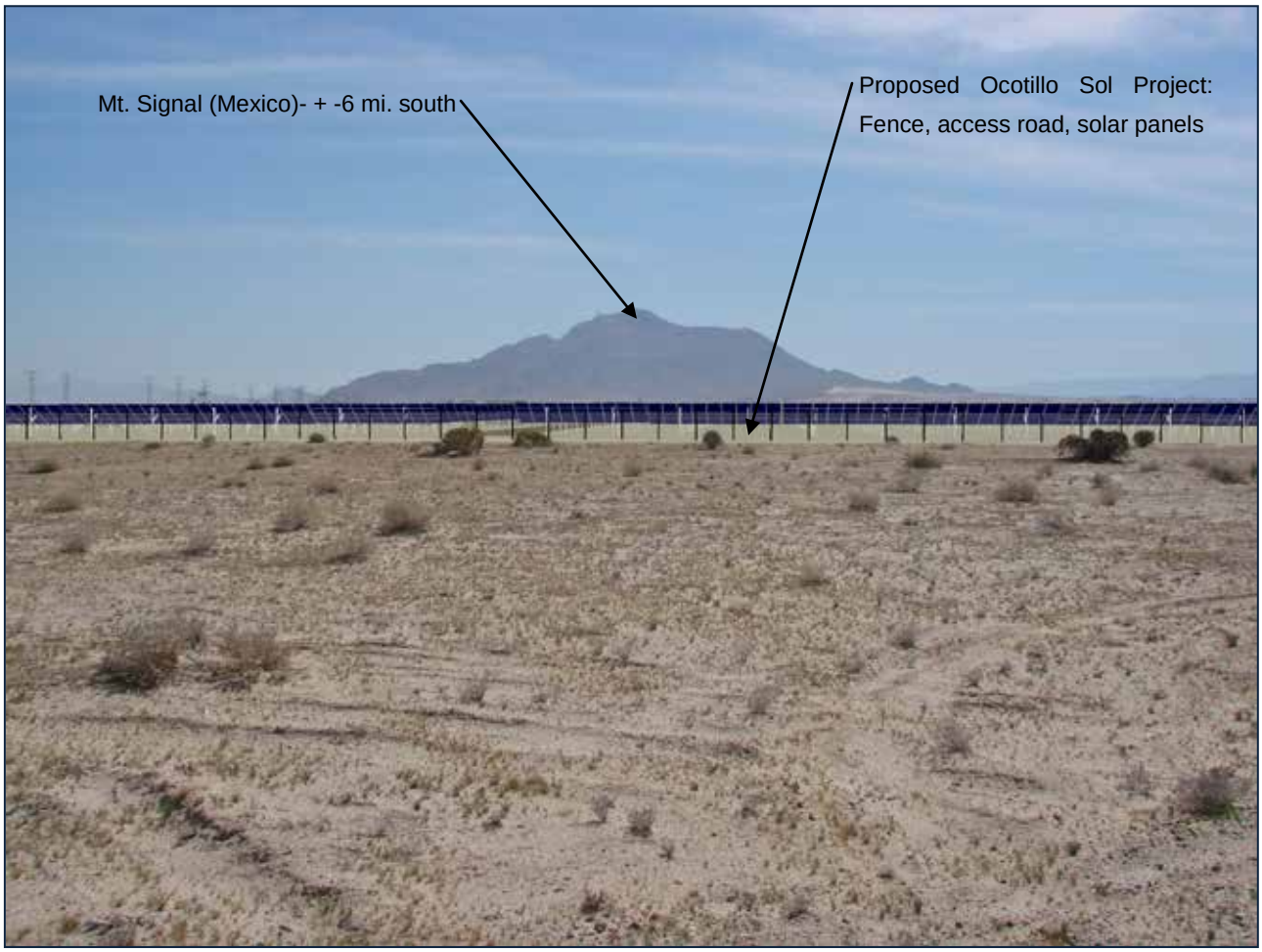
Visual Simulation of post-construction Ocotillo Sol Project, as viewed from location near southeast corner of project area.



This view of the built project is as it would appear from a location near the southeast corner of the project area, along the unpaved route paralleling an existing transmission line corridor. From this close distance, most project elements would be fully visible, and would attract viewer attention.

Visual Simulation of Post-construction Ocotillo Sol Project, as viewed from a Location near Northwest Corner of Project Area

(View South/Southeast)

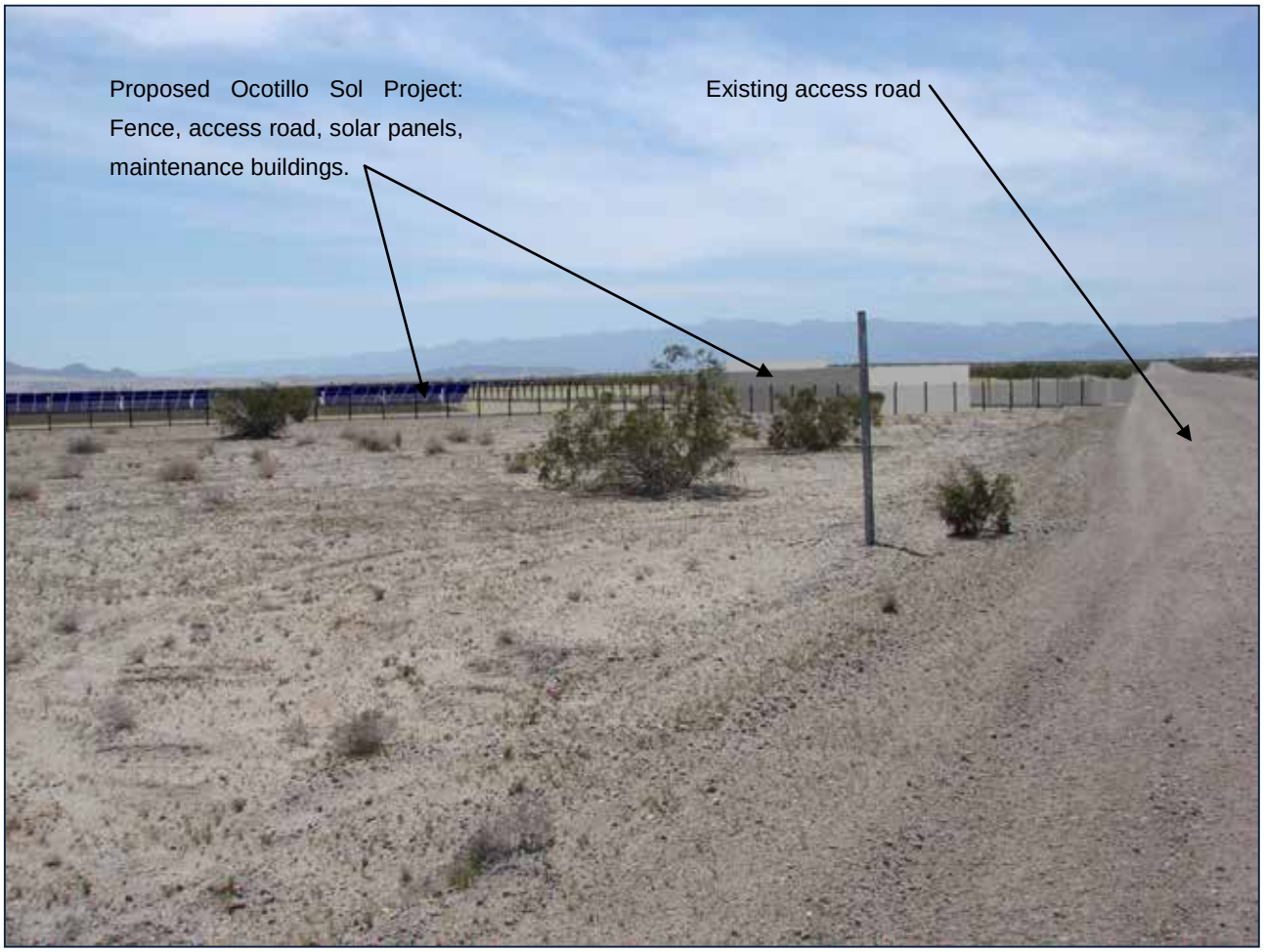


This view of the built project is as it would appear looking south/southeast from a location north of the northwest corner of the project area, along the unpaved SDG&E access route. From this close distance, most project elements would be fully visible, and would attract viewer attention.

Visual Simulation Point #3

Visual Simulation of Post-construction Ocotillo Sol Project, as viewed from KOP #3, near Northwest Corner of Project Area

(View South/South*west*)



This view of the built project is as it would appear looking south/southwest from a location north of the northwest corner of the project area, along the unpaved SDG&E access route. From this close distance, most project elements would be fully visible, and would attract viewer attention.

APPENDIX M

Operational Emissions

Equipment	Fuel Type	Engine hp	Total Annual Operations & Maintenance Hours Per Equipment Category	VMT	EMFAC Emission Factors (grams/mile) ROG	CO	NOX	SO2	PM10	PM2.5	CO2
ATV	gas	50	720	10800	2.380	12.289	1.089	0.002	0.003	0.003	195.937
Flat bed truck	diesel	200	120	1800	0.310	3.233	6.712	0.014	0.379	0.349	1505.000
Semi	diesel	350	20	300	2.022	6.225	13.944	0.025	0.675	0.621	2595.958
Personal cars	gas	150	720	10800	0.468	5.695	0.654	0.006	0.025	0.023	597.267
Cranes/Lifts	diesel	150	40								
Forklift	diesel	100	360								
Water Truck	diesel	350	20								

Equipment	Load Factor*	OFFROAD Equipment Emission Factors (g/bhp-hr) TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes/Lifts	0.43	6.607	0.729	3.41	5.495	0.006	0.314	0.314	568.299	0.065
Forklift	0.3	4.118	0.788	3.953	5.038	0.006	0.434	0.434	568.299	0.071
Water Truck	0.57	3.173	0.452	1.327	3.728	0.005	0.132	0.132	568.299	0.040
Total (grams)										
Total (pounds)										

Equipment	ONROAD Emissions (grams) ROG	CO	NOX	SO2	PM10	PM2.5	CO2
ATV	25704.0	132721.2	11761.2	21.6	32.4	32.4	2116119.6
Flat bed truck	558.0	5819.4	12081.6	25.2	682.2	628.2	2709000.0
Semi	606.6	1867.5	4183.2	7.5	202.5	186.3	778787.4
Personal cars	5054.4	61506.0	7063.2	64.8	270.0	248.4	6450483.6
Total (grams)	31923.0	201914.1	35089.2	119.1	1187.1	1095.3	12054390.6
Total (pounds)	70.38	445.15	77.36	0.26	2.62	2.41	26575.52

Equipment	OFFROAD Emissions (grams) TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes/Lifts	17046.06	1880.82	8797.8	14177.1	15.48	810.12	810.12	1466211.42	167.7
Forklift	44474.4	8510.4	42692.4	54410.4	64.8	4687.2	4687.2	6137629.2	766.8
Water Truck	12660.27	1803.48	5294.73	14874.72	19.95	526.68	526.68	2267513.01	159.6
Total (grams)	74180.7	12194.7	56784.9	83462.2	100.2	6024.0	6024.0	9871353.6	1094.1
Total (pounds)	163.54	26.88	125.19	184.00	0.22	13.28	13.28	21762.72	2.41

Emissions (pounds)

	TOG	ROG	CO	NOX	SO2/SOx	PM10	PM2.5	CO2	CH4
ONROAD	N/A	31923.00	201914.10	35089.20	119.10	1187.10	1095.30	12054390.60	N/A
OFFROAD	163.54	26.88	125.19	184.00	0.22	13.28	13.28	21762.72	2.41
Total	163.54	31949.88	202039.29	35273.20	119.32	1200.38	1108.58	12076153.32	2.41

Emissions (tons)

	TOG	ROG	CO	NOX	SO2/SOx	PM10	PM2.5	CO2	CH4
ONROAD	N/A	15.9615	100.95705	17.5446	0.05955	0.59355	0.54765	6027.1953	N/A
OFFROAD	0.081770685	0.013442426	0.062594998	0.0920018	0.0001105	0.0066404	0.006640358	10.88136162	0.001206045
Total	0.08	15.97	101.02	17.64	0.06	0.60	0.55	6038.08	0.00

Emissions (kg)

CO2	CH4
5,477,651.01	1.09

Emissions (metric tons)

CO2	CH4	
5,477.65	0.00	
1	21	
5,477.65	0.02	5,477.67

Operational Emissions

Equipment	Fuel Type	Engine hp	Total Annual Operations & Maintenance Hours Per Equipment Category	VMT	EMFAC Emission Factors (grams/mile) ROG	CO	NOX	SO2	PM10	PM2.5	CO2
ATV	gas	50	720	10800	2.380	12.289	1.089	0.002	0.003	0.003	195.937
Flat bed truck	diesel	200	120	1800	0.310	3.233	6.712	0.014	0.379	0.349	1505.000
Semi	diesel	350	20	300	2.022	6.225	13.944	0.025	0.675	0.621	2595.958
Personal cars	gas	150	720	10800	0.468	5.695	0.654	0.006	0.025	0.023	597.267
Cranes/Lifts	diesel	150	40								
Forklift	diesel	100	360								
Water Truck	diesel	350	20								

Equipment	Load Factor*	OFFROAD Equipment Emission Factors (g/bhp-hr) TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes/Lifts	0.43	6.607	0.729	3.41	5.495	0.006	0.314	0.314	568.299	0.065
Forklift	0.3	4.118	0.788	3.953	5.038	0.006	0.434	0.434	568.299	0.071
Water Truck	0.57	3.173	0.452	1.327	3.728	0.005	0.132	0.132	568.299	0.040
Total (grams)										
Total (pounds)										

Equipment	ONROAD Emissions (grams) ROG	CO	NOX	SO2	PM10	PM2.5	CO2
ATV	25704.0	132721.2	11761.2	21.6	32.4	32.4	2116119.6
Flat bed truck	558.0	5819.4	12081.6	25.2	682.2	628.2	2709000.0
Semi	606.6	1867.5	4183.2	7.5	202.5	186.3	778787.4
Personal cars	5054.4	61506.0	7063.2	64.8	270.0	248.4	6450483.6
Total (grams)	31923.0	201914.1	35089.2	119.1	1187.1	1095.3	12054390.6
Total (pounds)	70.38	445.15	77.36	0.26	2.62	2.41	26575.52

Equipment	OFFROAD Emissions (grams) TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes/Lifts	17046.06	1880.82	8797.8	14177.1	15.48	810.12	810.12	1466211.42	167.7
Forklift	44474.4	8510.4	42692.4	54410.4	64.8	4687.2	4687.2	6137629.2	766.8
Water Truck	12660.27	1803.48	5294.73	14874.72	19.95	526.68	526.68	2267513.01	159.6
Total (grams)	74180.7	12194.7	56784.9	83462.2	100.2	6024.0	6024.0	9871353.6	1094.1
Total (pounds)	163.54	26.88	125.19	184.00	0.22	13.28	13.28	21762.72	2.41

Emissions (pounds)

	TOG	ROG	CO	NOX	SO2/SOx	PM10	PM2.5	CO2	CH4
ONROAD	N/A	31923.00	201914.10	35089.20	119.10	1187.10	1095.30	12054390.60	N/A
OFFROAD	163.54	26.88	125.19	184.00	0.22	13.28	13.28	21762.72	2.41
Total	163.54	31949.88	202039.29	35273.20	119.32	1200.38	1108.58	12076153.32	2.41

Emissions (tons)

	TOG	ROG	CO	NOX	SO2/SOx	PM10	PM2.5	CO2	CH4
ONROAD	N/A	15.9615	100.95705	17.5446	0.05955	0.59355	0.54765	6027.1953	N/A
OFFROAD	0.081770685	0.013442426	0.062594998	0.0920018	0.0001105	0.0066404	0.006640358	10.88136162	0.001206045
Total	0.08	15.97	101.02	17.64	0.06	0.60	0.55	6038.08	0.00

Emissions (kg)

CO2	CH4
5,477,651.01	1.09

Emissions (metric tons)

CO2	CH4	
5,477.65	0.00	
1	21	
5,477.65	0.02	5,477.67

Operational Emissions

Equipment	Fuel Type	Engine hp	Total Annual Operations & Maintenance Hours Per Equipment Category	VMT	EMFAC Emission Factors (grams/mile) ROG	CO	NOX	SO2	PM10	PM2.5	CO2
ATV	gas	50	720	10800	2.380	12.289	1.089	0.002	0.003	0.003	195.937
Flat bed truck	diesel	200	120	1800	0.310	3.233	6.712	0.014	0.379	0.349	1505.000
Semi	diesel	350	20	300	2.022	6.225	13.944	0.025	0.675	0.621	2595.958
Personal cars	gas	150	720	10800	0.468	5.695	0.654	0.006	0.025	0.023	597.267
Cranes/Lifts	diesel	150	40								
Forklift	diesel	100	360								
Water Truck	diesel	350	20								

Equipment	Load Factor*	OFFROAD Equipment Emission Factors (g/bhp-hr) TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes/Lifts	0.43	6.607	0.729	3.41	5.495	0.006	0.314	0.314	568.299	0.065
Forklift	0.3	4.118	0.788	3.953	5.038	0.006	0.434	0.434	568.299	0.071
Water Truck	0.57	3.173	0.452	1.327	3.728	0.005	0.132	0.132	568.299	0.040
Total (grams)										
Total (pounds)										

Equipment	ONROAD Emissions (grams) ROG	CO	NOX	SO2	PM10	PM2.5	CO2
ATV	25704.0	132721.2	11761.2	21.6	32.4	32.4	2116119.6
Flat bed truck	558.0	5819.4	12081.6	25.2	682.2	628.2	2709000.0
Semi	606.6	1867.5	4183.2	7.5	202.5	186.3	778787.4
Personal cars	5054.4	61506.0	7063.2	64.8	270.0	248.4	6450483.6
Total (grams)	31923.0	201914.1	35089.2	119.1	1187.1	1095.3	12054390.6
Total (pounds)	70.38	445.15	77.36	0.26	2.62	2.41	26575.52

Equipment	OFFROAD Emissions (grams) TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes/Lifts	17046.06	1880.82	8797.8	14177.1	15.48	810.12	810.12	1466211.42	167.7
Forklift	44474.4	8510.4	42692.4	54410.4	64.8	4687.2	4687.2	6137629.2	766.8
Water Truck	12660.27	1803.48	5294.73	14874.72	19.95	526.68	526.68	2267513.01	159.6
Total (grams)	74180.7	12194.7	56784.9	83462.2	100.2	6024.0	6024.0	9871353.6	1094.1
Total (pounds)	163.54	26.88	125.19	184.00	0.22	13.28	13.28	21762.72	2.41

Emissions (pounds)

	TOG	ROG	CO	NOX	SO2/SOx	PM10	PM2.5	CO2	CH4
ONROAD	N/A	31923.00	201914.10	35089.20	119.10	1187.10	1095.30	12054390.60	N/A
OFFROAD	163.54	26.88	125.19	184.00	0.22	13.28	13.28	21762.72	2.41
Total	163.54	31949.88	202039.29	35273.20	119.32	1200.38	1108.58	12076153.32	2.41

Emissions (tons)

	TOG	ROG	CO	NOX	SO2/SOx	PM10	PM2.5	CO2	CH4
ONROAD	N/A	15.9615	100.95705	17.5446	0.05955	0.59355	0.54765	6027.1953	N/A
OFFROAD	0.081770685	0.013442426	0.062594998	0.0920018	0.0001105	0.0066404	0.006640358	10.88136162	0.001206045
Total	0.08	15.97	101.02	17.64	0.06	0.60	0.55	6038.08	0.00

Emissions (kg)

CO2	CH4
5,477,651.01	1.09

Emissions (metric tons)

CO2	CH4	
5,477.65	0.00	
1	21	
5,477.65	0.02	5,477.67

APPENDIX N

ETHNOGRAPHIC ASSESSMENT SUMMARY

INTRODUCTION

During consultation with the BLM, per Section 106 of the National Historic Preservation Act (Section 106), Native American Tribal representatives expressed concern that construction of the Ocotillo Sol project and its operation would adversely affect cultural resources, traditional use areas, and places of spiritual significance to Native American people. Specifically, Tribes recommended that an ethnographic study be conducted and be included in the cultural resources analysis for the project in order to better assess the value of the resources in a larger landscape context reflecting Tribal traditions and use areas. The ethnographic study was intended to contribute to a more complete understanding of the Native American places of cultural and spiritual significance that might be affected by the proposed project, with the goal of assisting in the development of appropriate management measures and treatment strategies. As a result, an Ethnographic Assessment was prepared for the Ocotillo Sol project. The scope of the assessment includes the project location and the traditional territories of the Kumeyaay, Quechan, Cahuilla, and Cocopah Tribes in relation to and primarily encompassing the southern boundary of ancient Lake Cahuilla within Imperial County, California.

PURPOSE AND INTENT

The purpose of the Ethnographic Assessment for the proposed Ocotillo Sol project was to identify places of cultural and spiritual significance to Native American Tribes that are indigenous to the project vicinity. The intent of the assessment was to provide information to be used in current and future cultural resources management decisions. Government-to-government consultation has shown that local Native American Tribes recommend ethnographic research to aid in identifying places of traditional use or of cultural and religious significance to their people in order to more completely understand the impacts to cultural resources by alternative energy projects like Ocotillo Sol. This recommendation is supported by the California State Historic Preservation Officer (SHPO). The information gathered for the Ethnographic Assessment was used to identify Native American cultural resources and/or Traditional Cultural Properties (TCPs) in the Ocotillo Sol Area of Potential Effects (APE) that are potentially eligible for listing in the National Register of Historic Places (National Register). The interviews conducted for this study did not constitute government-to-government consultation, nor were they intended to replace the responsibility of the BLM to conduct consultation.

The study area for the assessment consisted of the Ocotillo Sol APE and the surrounding area of indirect effects. The geographic boundaries of the study area were loosely based on the southern boundaries of ancient Lake Cahuilla, within Imperial County, California.

The research and outreach for the Ethnographic Assessment was conducted in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended; the National Historic Preservation Act (NHPA) of 1966, as amended; the Native American Graves Protection and Repatriation Act of

1990 (NAGPRA), as amended; the American Indian Religious Freedom act of 1978; and Presidential Executive Orders (EOs) 13007 and 13175 on consultation and sacred places. In accordance with Section 304 of the National Historic Preservation Act, the assessment will remain confidential to the fullest extent possible because some of what it contains can be considered sensitive ethnographic information. Therefore, the results of the investigation are not attached to this Environmental Impact Statement (EIS), but a summary is provided here that does not disclose confidential information.

TRIBAL PARTICIPATION

Tribes to be involved in the Ethnographic Assessment included the Kumeyaay, Quechan, Cocopah, and Cahuilla groups, all of which claim cultural affiliation to the study area and had been notified of the Ocotillo Sol project. Some of these Tribes had entered into formal government-to-government consultation with the Bureau of Land Management (BLM) El Centro Field office for the project. All of the Tribes in Table A were contacted and invited to participate.

Table A: Native American Tribes Contacted for the Ocotillo Sol Project

Tribe	Tribe
Barona Band of Mission Indians	La Posta Band of Kumeyaay Indians
Campo Band of Mission Indians	Manzanita Band of Kumeyaay Indians
Cocopah Indian Tribe	Mesa Grande Band of Mission Indians
Ewiiaapaayp Band of Kumeyaay Indians	San Pasqual Band of Diegueño Indians
Fort Yuma Quechan Indian Tribe	Sycuan Band of the Kumeyaay Nation
Jamul Indian Village	Torres-Martinez Desert Cahuilla Indians
Kwaaymii Laguna Band of Indians	Viejas Band of Kumeyaay Indians
Santa Ysabel Band of Diegueño Indians	Inaja-Cosmit Band of Mission Indians

METHODS

After hearing objections from the Tribes to the original three-month time frame for the ethnographic study at a Section 106 consultation meeting held at the BLM El Centro Field office on October 17, 2013, a six-month schedule was agreed to by the BLM, SDG&E, and the Kumeyaay and Quechan

representatives that were present. Hence, the time frame for interviewing and obtaining feedback for the study from the Tribes was established as commencing on November 1, 2012, and ending on April 30, 2013.

Invitations to participate in the study were extended to all of the tribes listed in Table A by telephone and email through the remainder of October 2012. During that time it was established that the Kwaaymii Laguna Band of Indians and the Torres-Martinez Desert Cahuilla Indians would not participate. The Fort Yuma Quechan Indian Tribe responded in a meeting on October 26, 2012 that they would likely decline participation, but that could change over time. No response was received from the Inaja-Cosmit Band of Mission Indians.

Tribes that agreed to participate included the Cocopah Indian Tribe and a consortium of Kumeyaay Tribes that are part of the Kumeyaay Historic Preservation Committee (KHPC). The KHPC is represented by twelve Kumeyaay tribes, with the exception of the Inaja-Cosmit Band of Mission Indians: Barona Band of Mission Indians, Campo Band of Mission Indians, Ewiiaapaayp Band of Kumeyaay Indians, Jamul Indian Village, Santa Ysabel Band of Diegueño Indians, La Posta Band of Kumeyaay Indians, Manzanita Band of Kumeyaay Indians, Mesa Grande Band of Mission Indians, San Pasqual Band of Diegueño Indians, Sycuan Band of Kumeyaay Nation, and the Viejas Band of Kumeyaay Indians. The KHPC became the designated point of contact for these Kumeyaay tribes.

The work plan for the ethnographic study was revised based on the six-month schedule and submitted for review to the BLM and SDG&E. Subsequently, a draft work plan was sent to participating tribes for review and comment on November 13, 2012. The work plan contained the following six steps:

1. Identification of Tribes and the Study Area
2. Formalization of Tribal Involvement
3. Archival and Literature Review
4. Fieldwork and Interviews
5. Draft Report Production
6. Tribal Review and Final Report Production

It was agreed that a summary of results of the ethnographic study would be provided to SDG&E prior to the completion of the Final Report to be incorporated into the Final EIS. However, as stated in the introduction to this section, and in accordance with Section 304 of the National Historic Preservation Act, this document will remain confidential to the fullest extent possible because of the sensitive information contained therein. Therefore, the final document is not attached to the EIS.

Feedback on the work plan was obtained through meetings with the Cocopah Indian Tribe and the KHPC from the end of October 2012, throughout November and December 2012, and into the first three weeks of January 2013, until the scope and general direction of the study were agreed upon by all involved. The work plan was also distributed to the Fort Yuma Quechan Indian Tribe, although no feedback was received.

FIELD STUDIES, INTERVIEWS, AND RESEARCH

Representatives of the KHPC were taken onto the Ocotillo Sol site for a field meeting on January 28, 2013. A language immersion cultural event was attended at the invitation of the KHPC on April 20, 2013. In addition, several research visits to the Kumeyaay Community College Library archives were made during the months of March and April 2013.

A Cocopah Water Ceremony was attended on March 2, 2013. Presentations regarding the ethnographic study were made to Cocopah Elders on March 26 and April 3, 2013. Representatives of the Cocopah Indian Tribe were taken onto the Ocotillo Sol site for field meetings on April 4 and 8, 2013. Other individual interviews were held at the Cocopah reservation between April 10 and April 30, 2013.

The Fort Yuma Quechan Indian Tribe continued to decline participation. However, a meeting with their cultural resources coordinator was held on April 10, 2013 to update the tribe on the status of the study. It should be stated that the reason for their reluctance to participate rests with what they consider to be a lack of "meaningful consultation" on the part of the BLM. They are very disappointed and upset by the way energy projects have been handled throughout Imperial County and by the destruction they have seen as a result. They consider the ethnographic study a part of a project they do not approve of, and do not want to participate in anything that contributes to the continued destruction of their traditional lands and cultural resources.

RESULTS

No TCPs or National Register-eligible resources were identified within the direct Ocotillo Sol Area of Potential Effects (APE) during the field visits, meetings, or interviews. However, the Cocopah, Kumeyaay, and Quechan people consider the project APE and wider vicinity to be part of their traditional use areas, and all of the Native Americans that participated stated that the project APE and the ethnographic study area are culturally important, and that the negative effects of the Ocotillo Sol project on cultural resources will be significant. None of the Native American representatives for the Cocopah, Kumeyaay, or Quechan tribes approve of the project. In addition, all believe that there is a very high potential for buried cultural resources and/or human remains to be present within the APE, and that they will be disturbed once construction of the project begins.

While discussing the viewshed (the setting or visual context of a site) at the field visits with the Cocopah and Kumeyaay, it was unanimous between those that attended that all of the prominent landforms that define the horizon to the south, west and north and are visible from the project area are known and named in their native languages. Several of these landforms play significant roles in the myths, creation stories, and spirituality of the Tribes, and the valley from the Jacumba Mountains east is known to the Kumeyaay as a "sacred valley." In addition, there are many native plants located throughout the study area, some of which continue to be gathered and used for ceremonial, practical, and medicinal purposes. The plants and animals that are indigenous to the study area are named in their native languages and also play roles in their myths and stories. All stated that the ethnographic study area is a cultural landscape that was important to their ancestors, and that remains important to their present culture and to that of future generations.

CULTURAL LANDSCAPES

The purpose of this discussion on cultural landscapes is to consider cultural resources in the current project area within a larger framework. The National Park Service defines a cultural landscape as "a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity or person or exhibiting other cultural or aesthetic values". Within this definition there are four categories of cultural landscapes to consider: historic designed landscape; historic vernacular landscape; historic sites; and ethnographic landscape. The fourth category, ethnographic landscape, is the category applicable to the Ocotillo Sol project. Ethnographic landscapes contain a variety of natural and cultural resources that associated people define as heritage resources. Such resources can include massive geological formations, small plant communities, animals, subsistence grounds and ceremonial grounds (National Preservation Institute 2013). The appropriate treatment of cultural landscapes includes the identification and preservation of significant archaeological resources. These resources should also be evaluated within the larger context of the cultural landscape.

CONCLUSION

No TCPs or National Register-eligible cultural resources were identified in the Ocotillo Sol APE by the Native American tribal representatives who participated in the Ethnographic Assessment. However, through the interview and research processes, it became clear that the Ocotillo Sol project APE is located within a cultural landscape that is very important and significant to the Tribes. The Tribes whose ancestors lived in the study area continue to utilize the land for religious, practical, and personal reasons. That these practices or use of specific places are not divulged to the agencies or the general public does not diminish their significance.

The Tribes regard the valley where the Ocotillo Sol project is located and the surrounding mountains and landforms as sacred to their past, present, and future. They are inherent symbols of their culture. Furthermore, the current state of the Cocopah, Kumeyaay, and Quechan cultures is alive and thriving. All of these groups support native language education programs, continue traditional practices, and intend to pass this knowledge on to future generations. It is important to understand that the land and resources are not something that was important, but something that is important to the current descendants of the first people to inhabit the study area today.

A recurring theme throughout the interview process was the lack of “meaningful consultation” by lead agencies. Meaningful and vigilant consultation should start at the very beginning of the EIS process in order to minimize destructive impacts to cultural resources, landscapes, and other places that are significant to consulting Native American Tribes. Evaluation of these places and the impacts to them should be undertaken with the approach that the history of the native people that inhabited the land that is now the United States is not separate from, but an integral part of, American history.

Reference

Landscape Preservation: An Introduction. National Preservation Institute, February 2013

APPENDIX O

OCOTILLO SOL PROJECT

BLM Land Use Application

Case File # CACA-51625

FINAL SCOPING REPORT
RESULTS OF SCOPING
January 2012

California Desert District Office
22835 Calle San Juan De Los Lagos
Moreno Valley, CA 92553

Approved by: _____ _____

Field Manager Date

TABLE OF CONTENTS

1.0 Introduction 1
1.1 Brief Description of the Project 1
1.2 Pre-Notice of Intent Meetings 3
1.2.1 Meetings Between BLM and Applicant 3
1.2.2 Meetings With Other Agencies 4
1.2.3 Meetings With Tribes (Government-to-Government) 5
2.0 Scoping Process Summary 6
2.1 Notice of Intent 6
2.2 Public Notification 6
2.3 Public Scoping Meeting 7
2.4 Written Comments 7
2.5 Oral Comments 7
3.0 Commenter Demographics 7
4.0 Comment Summary and Analysis 7
4.1 Effects Analysis 8
4.1.1 Purpose and Need 8
4.1.2 Resource Issues 8
4.1.3 Other Issues 13
4.2 Alternative Development Process and Preliminary Results 14
4.3 Issues or Concerns Outside the Scope of the EIS 14
Acronyms 16

FIGURE

1: Project Location 2

APPENDICES

A: List of Recipients that Received Scoping Meeting Announcement
B: Public Scoping Attendance Sign-In Sheets
C: Meeting Handouts and PowerPoint Presentation
D: Comment Letters

FINAL PUBLIC SCOPING REPORT FOR THE OCOTILLO SOL PROJECT

1.0 INTRODUCTION

The Bureau of Land Management (BLM) has received a right-of-way (ROW) application from San Diego Gas and Electric (the Applicant, SDG&E) to construct, operate, maintain, and decommission the Ocotillo Sol project, a solar photovoltaic (PV) power plant facility, on approximately 115 acres of BLM-administered public lands in Imperial County, California.

Scoping was initiated with the release of the Notice of Intent (NOI). This report describes the scoping process and the results. This report also documents and summarizes all of the public comments that have been received through the scoping activities.

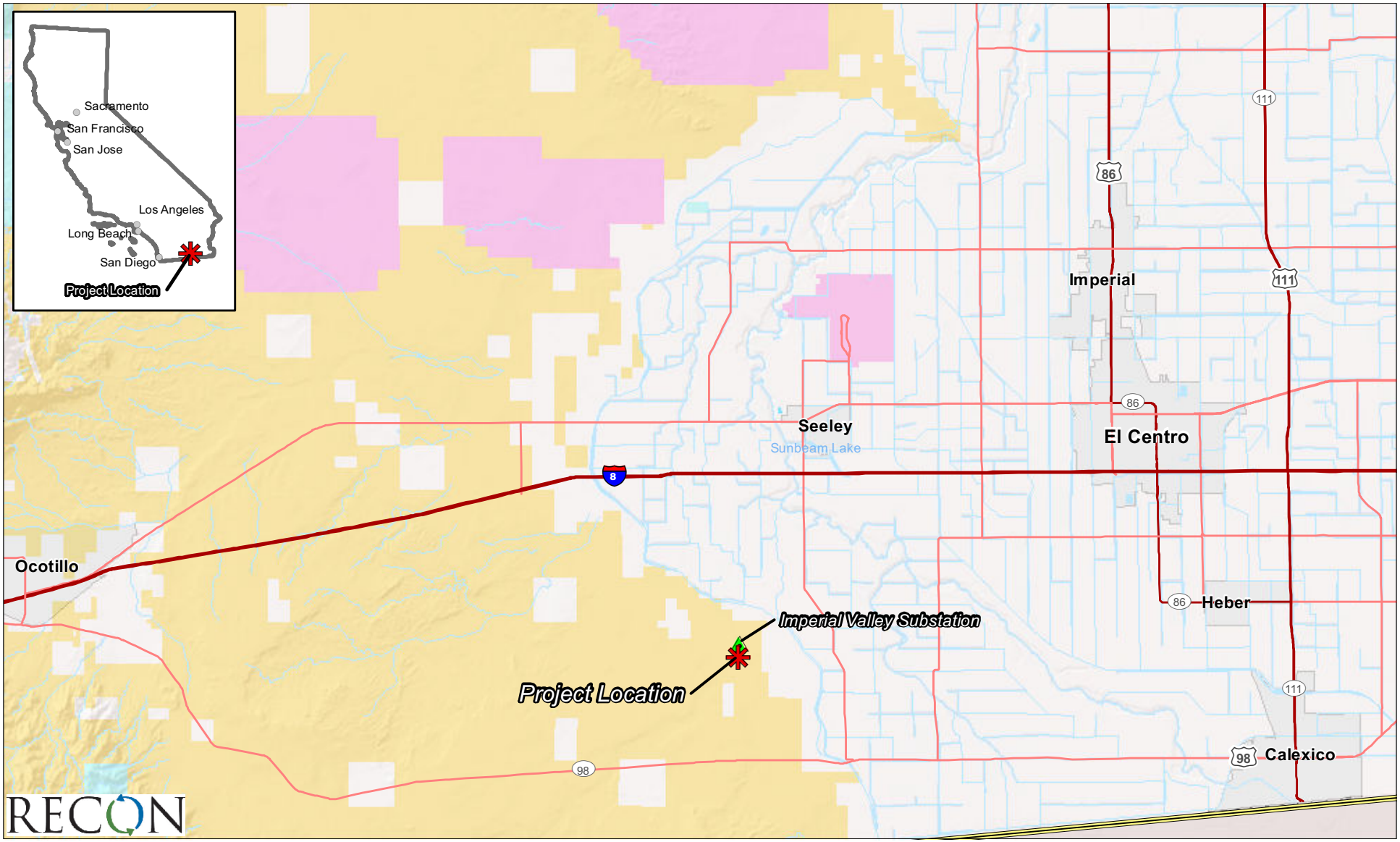
1.1 BRIEF DESCRIPTION OF THE PROJECT

The site for the solar facility would be adjacent to the existing Imperial Valley Substation, 4 miles south of Interstate 8, approximately 5 miles north of the United States (U.S.)-Mexico border, 5 miles south of Seely, about 9 miles southwest of El Centro, and 82 miles east of San Diego (Figure 1). The proposed project site would also be located within the BLM California Desert Conservation Area (CDCA).

All proposed project components, including a temporary 15-acre construction lay-down area, would be located on BLM-administered lands subject to a ROW grant. The proposed Ocotillo Sol project components would include the PV modules and mounting structures, a maintenance building with an associated parking area, internal roads, inverters, transformers, and the combining switchgear. An existing road to the Imperial Valley Substation would provide access to the proposed project site. New, minor internal roads would be constructed between the module rows.

Once approved and operational, the proposed Ocotillo Sol project is expected to have a 20-megawatt (MW) generating capacity.

In accordance with the Federal Land Policy and Management Act (FLPMA; Section 103(c)), public lands are to be managed for multiple use that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant ROWs on public lands for systems of generation, transmission, and distribution of electric energy (Section 501(a)(4)). Taking into account the BLM's multiple use mandate, the purpose and need for the proposed action is to respond to a FLPMA ROW application submitted by the Applicant to construct, operate, maintain, and decommission a solar PV facility and associated infrastructure on public lands administered by the BLM in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws and policies.



Primary Limited Access or Interstate
Primary US and State Highways
Secondary State and County
Railroads
Rivers and Canals
International Boundary
Substation

Land Jurisdiction
Bureau of Land Management
Military
State

0 Miles 4

FIGURE 1
Project Location

In conjunction with FLPMA, the BLM's applicable authorities include the following:

- Executive Order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the production and transmission of energy in a safe and environmentally sound manner.
- Section 211 of the Energy Policy Act of 2005, which establishes a goal for the Secretary of the Interior to approve 10,000 MW of non-hydropower renewable energy on public lands by 2015.
- Secretarial Order 3285A1, dated February 22, 2010, which establishes the development of renewable energy as a priority for the Department of the Interior.

The BLM will decide whether to deny the proposed ROW, grant the ROW, or grant the ROW with modifications. The BLM may include any terms, conditions, and stipulations it determines to be in the public interest, and may include modifying the proposed use or changing the route or location of the proposed facilities (43 Code of Federal Regulations 2805.10(a)(1)).

In connection with its decision on the proposed Ocotillo Sol project, the BLM's action will also include consideration of potential amendments to the CDCA land use plan, as analyzed in the Draft Environmental Impact Statement (EIS) alternatives. The CDCA plan, while recognizing the potential compatibility of solar energy facilities on public lands, requires that all sites associated with power generation or transmission not identified in that plan be considered through the land use plan amendment process. BLM policy encourages the avoidance of development on lands with high conflict or sensitive resource values (Instruction Memorandum 2011-061). While the BLM is not required to formally determine whether certain high conflict lands are or are not available for solar development, if BLM decides to make that decision, it must amend the CDCA plan. The BLM is deciding whether to amend the CDCA plan to identify the Ocotillo Sol project site available, and whether to amend the CDCA plan to make the application area unavailable for solar development.

1.2 PRE-NOTICE OF INTENT MEETINGS

In March 2009, the Applicant began holding meetings with the BLM and other interested parties about the potential for developing a PV solar project in the Imperial Valley. The Applicant held a total of seven meetings between March 2009 and September 2010. Interested parties included the BLM California State Office, BLM El Centro Field Office, U.S. Army Corps of Engineers, and Imperial County. The Applicant submitted the ROW application in December 2009.

1.2.1 MEETINGS BETWEEN BLM AND APPLICANT

The BLM hosted five meetings with the Applicant prior to issuance of the NOI. These meetings were held to discuss the ROW application, plan of development, project issues, and to initiate government-to-government consultation with interested Tribes (see Section 1.2.3 below).

1.2.2 MEETINGS WITH OTHER AGENCIES

1.2.2.1 April 2011 Affected Agency Meeting

BLM hosted an initial affected agency meeting on April 20, 2011 at the El Centro Field Office in El Centro, California. In addition to BLM staff, attendees included U.S. Border Patrol, California Department of Fish and Game, the Applicant, and RECON Environmental.

BLM summarized the new BLM guidance requiring affected agency meetings early in the application process and prior to release of the NOI. BLM also summarized the approximate timeline of the National Environmental Policy Act (NEPA) process.

The Applicant provided a general overview of the project, its location, and a description of the proposed site. The Applicant also provided a summary of the constraints analysis and technical studies completed to date. The constraints analysis included the review of private versus public land sites, lands in proximity to the Imperial Valley substation, infrastructure requirements and access, and resource impacts.

BLM stated that the flat-tailed horned lizard management area development/disturbance limits were being reviewed. The BLM will decide how to best manage the area considering the multiple requests for development within the area and the one percent disturbance limit.

BLM provided an overview of the Section 106 process for the project. Cultural surveys of the proposed project area found one site. A Determination of Findings will be completed once the geotechnical report has been completed. The Area of Potential Effect for the historic built environment will be determined. The likely resources in the project area include railroads, canals, and homes.

The U.S. Border Patrol noted some concern for the location of the project site due to its proximity to State Route 98. The Border Patrol also noted that they would need access to the site to perform law enforcement activities if warranted. Overall, the Border Patrol did not feel that the proposed solar field would cause any visual impedance to their activities.

BLM indicated that Tribes in the area have expressed concerns related to visual impacts to Mount Signal. A discussion of this issue should be included in the EIS related to reduced visibility resulting from the proposed solar field. BLM will discuss Tribal concerns related to Mount Signal and conduct Tribal coordination prior to release of the NOI.

BLM discussed potential biological resources issues related to the proposed solar field, including the need for golden eagle surveys, plant surveys, and avian point count surveys.

The California Department of Fish and Game noted potential biological concerns for the proposed project, including impacts to state listed species, BLM sensitive species, and golden eagles.

1.2.2.2 August 2011 Affected Agency Meeting

BLM hosted a second affected agency meeting on August 1, 2011 at the El Centro Field Office in El Cento, California. In addition to BLM staff, attendees included Imperial County, the Applicant, LSA, and VAP Enterprises.

The Applicant provided a general overview of the Ocotillo Sol project and proposed technology, their proposed project's location (within Imperial Valley and adjacent to the Imperial Valley Substation and transmission lines), as well as a description of the internal process for determining the location.

BLM summarized the Section 106 process to date for the project. Tribal consultation was initiated in December 2010. Cultural surveys of the proposed project area found one site and 12 isolates within the proposed footprint. A draft Class III survey report has been provided to interested Tribes (see below). A Determination of Findings will be completed once the geotechnical report has been completed.

Imperial County indicated that they would provide a building permit only if the proposed Ocotillo Sol project were to be approved. The proposed project is not subject to the California Environmental Quality Act as it lies entirely on federal (BLM) land.

BLM is required to consider the future use of the energy corridor and potential constraints that the development of the proposed Ocotillo Sol project might have on the corridor. Based on the Applicant's constraints analysis, the proposed Ocotillo Sol project would not constrain any future use of the corridor.

1.2.3 MEETINGS WITH TRIBES (GOVERNMENT-TO-GOVERNMENT)

BLM initiated Tribal consultation for the proposed Ocotillo Sol project in December 2010. In addition, several Tribes (listed below) were invited to the August 2011 affected agency meeting.

- Barona Band of Mission Indians
- Campo Kumeyaay Nation
- Cocopah Indian Tribe
- Ewiiaapaayp Band of Kumeyaay Indians
- Fort Yuma Indian Reservation
- Jamul Indian Village
- Kwaaymii Laguna Band of Indians
- La Posta Band of Kumeyaay Indians
- Manzanita Band of Kumeyaay Indians
- Mesa Grande Band of Mission Indians
- San Pasqual Band of Diegueno Indians
- Santa Ysabel Band of Diegueno Indians

- Sycuan Band of the Kumeyaay Nation
- Torres-Martinez Desert Cahuilla Indians
- Viejas Band of Kumeyaay Indians

None of the above invited Tribes attended the meeting.

2.0 SCOPING PROCESS SUMMARY

Scoping is a timeframe during which public and agency input is solicited to identify the range, or scope, of issues to be addressed during the planning and environmental analysis for a proposed project. As the federal lead agency on the proposed Ocotillo Sol project, BLM solicits comments from relevant agencies and the public, organizes and analyzes the comments received, identifies the issues that will be addressed during the environmental analysis, and compiles this information into an organized report (the Scoping Report). A scoping process is required to be a minimum of 30 days beginning with the publication of the NOI in the *Federal Register*. The official scoping period for the proposed Ocotillo Sol project commenced on July 15, 2011 and concluded on August 25, 2011. Comments received within this period were used to compile this scoping report.

2.1 NOTICE OF INTENT

The public scoping process for the Ocotillo Sol project officially began with the publication in the *Federal Register* of the "Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Ocotillo Sol Solar Project, Imperial County, CA; Possible Land Use Plan Amendment; and Notice of Segregation of Public Lands." The NOI was published on Friday, July 15, 2011.

2.2 PUBLIC NOTIFICATION

The Ocotillo Sol project scoping meetings were announced through media releases, e-mail, and the BLM California Desert District Web site. In addition, postcards announcing the scoping meetings were sent to more than 100 addresses (Appendix A).

The BLM prepared a media release to introduce the project to the public and provide information about scoping meetings. The announcement was issued on July 15, 2011 to local and regional newspapers, television and radio stations, and via the BLM Web site. Because the announcement was voluntary on the part of the media, the BLM was unable to track which media ran the announcements.

2.3 PUBLIC SCOPING MEETING

The BLM hosted two public scoping meetings in El Centro, California, on August 10, 2011. Both the afternoon (2:00-4:00 PM) and evening (6:00-8:00 PM) meetings were held at the Imperial County Executive Office. Approximately 18 people attended the two meetings (Appendix B).

Both meetings were conducted as an open house, allowing participants to review maps, display boards, and ask specific questions of BLM staff available at the display stations. A letter from the BLM to the public provided information about the scoping meetings and process, and was made available as a handout for the public. Fact sheets about the project and NEPA process were also made available, along with comment forms. Appendix C includes all meeting handouts and the PowerPoint presentation.

The public comment form requested the public's input on the proposed project and any potential issues, concerns, or alternatives. The BLM invited participants to submit comments in formats other than comment forms, including letters and e-mail.

2.4 WRITTEN COMMENTS

No written comments were submitted during the scoping meetings. Thirteen written comment letters were received via e-mail during the public scoping period. These comments are included in Appendix D.

2.5 ORAL COMMENTS

No oral comments were given or recorded at either of the public scoping meetings.

3.0 COMMENTER DEMOGRAPHICS

Two federal agencies, eight special interest (environmental) organizations (many of which combined their comments), and three individuals provided comments on the proposed Ocotillo Sol project during the scoping period. The majority of the comments received were from California, while the rest of the comments did not have identifying information (e.g., sent via e-mail without a physical address).

4.0 COMMENT SUMMARY AND ANALYSIS

Comment letters were reviewed and the following section provides a summary of the issues and concerns raised by the commenters. The comments discussed below are summarized or

paraphrased from the original comment letters. For this report, the issues have been grouped into one of the three following categories:

- Issues or concerns that could be addressed by effects analysis
- Issues or concerns that could develop an alternative and/or a better description or qualification of the alternatives
- Issues or concerns outside the scope of the EIS.

Original comment letters may be reviewed upon request at the BLM California Desert District Office at 22835 Calle San Juan De Los Lagos, Moreno Valley, California 92553, during normal business hours (8:00 AM–4:00 PM, Monday through Friday).

4.1 EFFECTS ANALYSIS

Comments under the Effects Analysis category will be addressed in the affected environment section of the Draft EIS or in the environmental consequences section for each alternative.

4.1.1 PURPOSE AND NEED

§ Purpose and need should discuss the project in the context of the larger energy market and how the project would assist with meeting California Renewable Portfolio Standards goals.

§ Purpose and need should disclose the need for the project based on existing demands and generation in the Applicant's service area.

§ Purpose and need should go beyond BLM's need to respond to Applicant's request for a ROW.

4.1.2 RESOURCE ISSUES

4.1.2.1 General

§ Quantify the impacts of alternatives to the greatest extent possible (e.g., acres of disturbance, tons of emissions).

§ Describe the rationale for determining significance (consider context and intensity) of impacts.

§ Disclose cumulative projects and impacts, including those to public and private communication systems.

§ Disclose impacts on grid reliability with numerous projects proposed to connect to the Imperial Valley substation, Southwest Powerlink, and Sunrise Powerlink.

§ Disclose proposed mitigation and funding prior to the end of the public comment period.

4.1.2.2 Water Resources

- Estimate the quantity of water required by the Ocotillo Sol project, describe the source of water, and detail the potential effects on other water users and natural resources.
- The Draft EIS should describe reasonably foreseeable direct, indirect, and cumulative impacts to water resources.
- Should groundwater be used for the Ocotillo Sol project, identify the affected groundwater basin, analyze the potential for subsidence, and analyze impacts to other water bodies and biological resources.
- The Draft EIS should include a discussion of the availability of groundwater and annual recharge rates. The water rights permitting process and status of water rights within the basin (including analysis regarding whether there has been any over-allocation) should also be discussed.
- Discuss cumulative impacts to the groundwater supply, including impacts from proposed large-scale solar facilities.
- Discuss feasibility of using water sources other than groundwater (e.g., potable, irrigation canal, wastewater, deep aquifer).
- Analyze the potential for adverse aquatic impacts (e.g., water quality and aquatic habitats).
- The Draft EIS should disclose the amount of process water to be disposed on-site and containment methods.
- Describe all water conservation measures to be used for the project.
- Analyze the effects of project discharges on surface water quality and designated beneficial uses of affected waters.
- Discuss water reliability for the Ocotillo Sol project and how water source(s) may be affected by climate change. Also provide qualitative analysis of impacts to water supply and adaptability of the project to these changes.
- The Applicant should coordinate with the U.S. Army Corps of Engineers to determine if the Ocotillo Sol project requires a Section 404 permit. Alternatives should be analyzed to determine compliance with 404(b)(1) guidelines.
- The Draft EIS should describe all Waters of the U.S. that could be affected (acreages, channel lengths, habitat types, values, and functions), and provide maps identifying those waters in the project area.
- A jurisdictional delineation should be included for all Waters of the U.S. in the project area.
- Describe the existing natural drainage patterns and drainage during project operation. Identify whether Ocotillo Sol project components are within a 50- or 100-year floodplain. Include location and function of ephemeral washes and any mitigation measures.
- Provide information of Clean Water Act Section 303 impaired waters in the project area and efforts to develop/revise total maximum daily loads. Describe existing restoration/enhancement efforts, how the project will coordinate with these efforts, and mitigation measures.

- The commenter recommends the following mitigation measures for drainages, ephemeral washes, and floodplain: (1) using existing natural drainage channels on-site and more natural features, such as earthen berms or channels, rather than concrete-lined channels; and (2) committing to the use of natural washes, in their present location and natural form and including adequate natural buffers, for flood control to the maximum extent practicable.
- Discuss the availability of compensation lands (within the project's watershed) to offset loss of desert wash functions.
- Determine the need for a California State Water Resources Control Board General Permit. If required, include a description of the stormwater pollution control and mitigation measures.

4.1.2.3 Biological Resources

- Identify all petitioned and listed threatened and endangered species and critical habitat. Quantify which species or critical habitat may be directly, indirectly, or cumulatively affected and mitigate these impacts. Emphasize protection and recovery of these special status species.
- Consult with the U.S. Fish and Wildlife Service regarding the presence of threatened or endangered species and prepare a Biological Opinion if warranted. Discuss consultation process and outcome.
- Analysis of impacts and mitigation for threatened and endangered species should include the following: (1) baseline conditions of habitats and population of covered species; (2) clear description of how avoidance, mitigation, and conservation measures will protect and encourage recovery of covered species and their habitat in the project area; (3) monitoring, reporting, and adaptive management efforts to ensure species and habitat conservation effectiveness.
- Indicate mitigation measures to protect important wildlife habitat areas from adverse effects of construction, operation, maintenance, and decommissioning of the Ocotillo Sol project.
- Discuss impacts associated with increase in shade on vegetation and species.
- Discuss impacts associated with fence construction, and consider options that could facilitate better protection of species.
- Include an invasive plant management plan in the Draft EIS.
- The commenter expressed concern that authorization of the Ocotillo Sol project would provide additional perches for raptors, in turn furthering predation pressures on flat-tailed horned lizard.
- Disclose cumulative impacts on flat-tailed horned lizard and other special status species. Include Ocotillo Express wind project, Imperial Solar Energy Center South and West, Sunrise Powerlink, and projects constructed in the West Chocolate Mountains Renewable Energy Evaluation Area/Renewable Energy Zone.
- Analyze impacts to wildlife from night lighting during project construction and operation.
- The commenter expressed concern about impacts of transmission lines on natural resources, particularly wildlife.

4.1.2.4 Climate Change

- Consider how climate change could affect the Ocotillo Sol project, and assess how the projected impacts could be exacerbated by climate change.
- Quantify the anticipated climate change benefits of solar energy. Quantify greenhouse gas emissions from different types of generating facilities and comparing these values.
- Analyze greenhouse gas emissions during construction and operation.

4.1.2.5 Air Quality

- Provide detailed discussions for air quality existing conditions, and potential air quality impacts.
- Describe construction and maintenance air emissions, and include mitigation measures to minimize those emissions.
- The commenter recommends an evaluation of the following measures to reduce emissions of criteria and hazardous air pollutants: existing conditions, quantify emissions, specific emission sources, construction emissions mitigation plan, fugitive dust source controls, mobile and stationary source controls, and administrative controls.
- Analyze particulate emissions during construction and operation, and in the context of the impaired air quality in Imperial County. Also consider Environmental Protection Agency regulations for Imperial County.

4.1.2.6 Public Health and Safety

- Address potential impacts of hazardous waste from construction/operation activities.
- Identify hazardous waste types, volumes, storage, disposal, and management. Mitigation should also be included.
- The Draft EIS should include a requirement for a decommissioning and site restoration plan to include: (1) cost estimates; (2) time allotted to complete; (3) description of facilities/ structures to be removed; and (4) description of restoration measures.
- Discuss electromagnetic field, RFR, electromagnetic interference.

4.1.2.7 Cultural Resources

- Address the existence of Indian sacred sites in project area, Executive Order 13007, and discuss avoidance measures.
- Summarize all coordination with Tribes and the State Historic Preservation Officer, include identification of sites eligible for listing to the National Register of Historic Places and the development of a Cultural Resources Management Plan.

4.1.2.8 Environmental Justice

Include an evaluation of environmental justice populations. Analyze the potential for disproportionate impacts to these populations. Discuss the public participation approach for these populations.

4.1.2.9 Special Designations

- The commenter expressed concern that project would be located entirely within Yuha Area of Critical Environmental Concern (ACEC) and the potential impacts on flat-tailed horned lizard. The commenter believes that the Yuha ACEC is not receiving protective management, particularly as required by the 2003 Rangewide Management Strategy for flat-tailed horned lizard (i.e., locate projects outside of management area; permit ROWs only along the boundaries of management area and only if impacts can be mitigated).
- Special management areas (e.g., ACECs, wildlife management areas) should be off limits to renewable energy projects to protect those areas. Renewable resource development should be directed outside of these areas.
- Discuss the full history of the Yuha ACEC.
- Discuss the actions BLM will take to protect other ACECs and flat-tailed horned lizard management areas from inconsistent uses (including renewable energy projects). Detail plans to ensure the decision does not set a precedent for reallocating ACECs from resource protection to renewable energy production.
- Examine cumulative impacts to ACECs, flat-tailed horned lizard management areas, and other flat-tailed horned lizard habitat from renewable projects and associated transmission lines.
- Demonstrate how the project would not cumulatively disturb more than 1 percent of the flat-tailed horned lizard management area.
- Analyze cumulative impacts on the Yuha ACEC in relation to visual and greenhouse gas impacts of Sunrise Powerlink, impacts from legal and illegal off-road vehicle use, Border Patrol activities, and other proposed development activities in the Yuha Basin.
- Also, cumulative impacts on the flat-tailed horned lizard management area must be analyzed in similar context.

4.1.2.10 Socioeconomics

- Provide a cost/benefit analysis for the project.
- Discuss Imperial Valley local labor commitment for the project.

4.1.2.11 Visual Resources

- Discuss light and glare resulting from the project.
- Analyze impacts to visual resources.

4.1.3 OTHER ISSUES

4.1.3.1 Information Requests

§ Request for two hard copies and two CD copies of the Draft EIS.
§ Request to be added to the project mailing list.
§ Request for additional info about the project.
§ Request confirmation of receipt of comments.
§ Request for confirmation of receipt of requests related to scoping process.

4.1.3.2 Consultation and Coordination

§ Describe the process and outcome of Tribal consultation, issues raised, and how those issues were addressed in selecting proposed action/preferred alternative.

§ The commenter expressed a concern that the public comment process is replacing the consultation process in that the Tribal staff/volunteers are too overwhelmed and underfunded to respond adequately. The commenter also expressed concern regarding a perceived lack of response from BLM to Tribal inquiries and requests for meetings.

4.1.3.3 Public Participation Process

§ Request for additional scoping meeting.
§ Request to extend scoping period from 30 to 45 days.

4.1.3.4 Applicant's Proposed Project

§ Disclose need for this project based on current demands and existing generation in SDG&E service area.

§ Provide type, dimensions, and number of PV arrays.

§ Discuss proposed backup generation.

§ Discuss point of use alternative projects on existing or proposed structures.

§ Disclose the cost of the Ocotillo Sol project, including transmission.

§ The commenter would like to know the the exact location of the project and route of associated transmission lines. A map or diagram of these locations would be helpful.

§ The commenter would like to know how many temporary and permanent jobs will be created as a result of the project, and how many of these jobs will be allocated to Imperial County residents.

4.1.3.4 Other

§ The commenter expressed support for increasing renewable energy development as per the National Energy Policy Act of 2005.

- Discuss how proposed action would support or conflict with other land use plans (or policies) in the project area. Proposed plans not yet developed should be addressed if they have been formally proposed in written form.
- The Pacific West Region has no comment.
- Commenter confirmed receipt of notification that the comment period was extended by 10 days.
- The commenter provided attachments referenced in their scoping letter.

4.2 ALTERNATIVE DEVELOPMENT PROCESS AND PRELIMINARY RESULTS

Comments in this category will be considered in the development of alternatives or can be addressed through design criteria in the alternative descriptions.

- Provide a discussion of the reasons for eliminating alternatives not analyzed in detail.
- Describe approach used to identify environmentally sensitive areas and the process that was used to designate them.
- Provide a comparison of alternatives.
- Describe the development of alternatives process, how each alternative addresses objectives, and how each will be implemented.
- Discuss alternative sites, capacities, generating technologies, and benefits of proposed technology.
- Consider siting renewable projects on disturbed, degraded, or contaminated sites before siting on undisturbed public lands.
- The Draft EIS should analyze an environmentally preferred alternative which considers options that would reduce environmental impacts (e.g., downsizing or relocating project components).
- Analyze different types of technology that minimize water use or recycle water.

4.3 ISSUES OR CONCERNS OUTSIDE THE SCOPE OF THE EIS

Comments in this category are outside the scope of the EIS and analysis. These comments will not be addressed in the EIS.

- Illegal off-road vehicle use within the Yuha ACEC and flat-tailed horned lizard management area is a concern because it is inconsistent with ACEC management and Rangewide Management Strategy for flat-tailed horned lizard.

- The authorization of the Imperial Valley substation and associated power lines has led to the construction of structures which can provide perches for raptors (predating flat-tailed horned lizard).
- The perceived mismanagement of the Yuha ACEC should be disclosed, and analysis should be conducted regarding whether the resources the Yuha ACEC was established to protect require designation of different or expanded ACEC.
- Discuss the actions BLM will take to manage the Yuha ACEC and control illegal off-road vehicle use as part of a more protective alternative.
- Consider moving the Imperial Valley substation.
- Discuss steps the BLM will take to ensure that illegal off-road vehicle activity does not move to the edges of the project site. Include requirements that the Applicant will have to meet to prevent this result.
- Disclose all benefits, incentives, tax breaks, waivers, grants, Renewable Energy Credits, and any other form of financial or tax benefit that SDG&E/Sempra and affiliates have received (overall and for this project).
- Disclose all violations, citations, reprimands, waivers, settlement agreements, reports that BLM or other federal agencies have issued, or are aware of, regarding SDG&E and projects that involve public lands.
- Disclose SDG&E's proposed rate-based cost recovery.

ACRONYMS

ACEC	Area of Critical Environmental Concern
Applicant	San Diego Gas and Electric
BLM	Bureau of Land Management
CDCA	California Desert Conservation Area
EIS	Environmental Impact Statement
FLPMA	Federal Land and Policy Management Act
MW	megawatt
NEPA	National Environmental Policy Act
NOI	Notice of Intent
PV	photovoltaic
ROW	right-of-way
SDG&E	San Diego Gas and Electric
U.S.	United States

APPENDIX P

A handwritten comment dated May 23, 2012 and delivered on BLM's written comment sheet

Name: Donna Tisdale
Organization: Backcountry Against Dumps, Protect Our Communities Foundation
Address: PO Box 1275
City, State, ZIP: Boulevard, California 91905

Initial comments – written comments will be submitted later.

Support Alternative 5, No Project – Amend CDCA Plan to identify site as unsuitable for solar or other industrial development.

- Should consider DG solar alternative off BLM land.
- Significant cumulative adverse impacts from numerous industrial-scale solar, wind, and transmission projects in the southwestern corner of Imperial Valley with a concentration near Imperial Valley Substation
- Strongly disagree with BLM position on lack of project impacts and mitigation.
- What are EMF, RFR, and microwave radiation; air quality radiation?
- From solar generation on people, wildlife, grid stability.
- Environmental justice issue: disproportionable impacts to Imperial Valley, benefits go out of area.
- SDG&E is bad actor – too many violations.

A handwritten comment dated May 23, 2012 and delivered on BLM's written comment sheet

Name: Carolyn Allen

Distributed generation was not considered as an alternative. However, of the alternatives studied Number 5 is the best. No project – amend CDCA plan to identify area as unsuitable for solar development.

This project (Ocotillo Sol) is located entirely within the Yuha Area of Critical Environmental Concern. Even though the project is adjacent to a substation, the remaining critical areas should definitely be avoided. These are also concerns for the burrowing owl population and other wildlife.

There are many, many renewable energy projects either proposed or actually being built in this area. Will there be problems arising from so many projects and most of the intermittent energy projects going through the Imperial Valley substation? What are the impacts to grid reliability? The concern brought up in the FERC–NERC staff report on September 2011 blackout should be considered. Any backup energy required for this project must be included in the evaluation. What are the true cumulative impacts from so many renewable energy projects?

The residents living in the area of the project area will suffer from the negative impacts. Imperial Valley will get all of the adverse impacts, while areas outside our county will get any of the benefits from these projects.

GS-ES July 12, 2012

Mr. Noel Ludwig
Ocotillo Sol Project Manager
BLM California Desert District Office
22835 Calle San Juan De Los Lagos
Moreno Valley, CA 92553

SUBJECT: Notice of Availability of DEIS for the Ocotillo Sol Solar Energy Project

Dear Mr. Ludwig:

In regards to the Draft Environmental Impact Statement (DEIS) the Bureau of Land Management (BLM) has released for the Ocotillo Sol Solar Energy Project, pursuant to San Diego Gas and Electric's (SDG&E) request for right-of-way authorization from the BLM to construct and operate a 15 to 18 MW photovoltaic energy generation facility on a 115-acre site, to be located on public land nine miles southwest of El Centro, CA; the Imperial Irrigation District (IID) has reviewed the DEIS and has the following comments:

1. Given that the DEIS neglects to identify any IID facilities that would be needed to supply the project's station service or "backup" power, we can assume that SDG&E plans to self-supply these "retail" energy services from the Imperial Valley substation. Section 2.2.2.2.1 states that "*the solar PV facility power would also be used for Imperial Valley substation*" which further gives credence to the project proponent's intention to supply power to the Imperial Valley substation.

2. Please advise project proponent that SDG&E cannot serve retail power from another facility (Ocotillo Sol Project to Imperial Valley substation), or to obtain back-up power from a different entity (Imperial Valley substation to Ocotillo Sol Project) in our service area. IID is the exclusive retail energy provider in our service area.

3. IID provides electric station service to Imperial Valley substation from the L-67 Circuit; this service point is located at the very tail end of the L-67 Circuit, and approximate 10 miles away from IID's Dixieland substation.

4. Section 2.2.2.2.3 states that "*no new additions to the existing electrical grid would be necessary for the Ocotillo Sol Project*"; however, currently there are no nearby electric distribution lines available to provide electrical service to the Ocotillo Sol Project. The L-67 Circuit can be extended to serve Ocotillo Sol Project's load but Right of Way acquisition within BLM boundaries will be required to extend distribution lines to the project site as well as new road construction for the operation and maintenance of the new distribution lines. Any new distribution line extension needs to built around the existing 230 kV transmission lines on the east and west side of Imperial Valley substation and, depending on the project's connected load, a Distribution Circuit Analysis may also be required.

5. The project proponent discusses several water sources that include IID's irrigation canal water. The anticipated water use and water provider(s) for the project should be identified in document.

6. Project proponent should be advised that, all new non-agricultural water project supply requests are processed in accordance with the IID's Interim Water Supply Policy for Non-Agricultural Projects (IWSP) (see http://www.iid.com/index.aspx?page=152 for a link to the IWSP). In order to enter into a water supply agreement with the IID and obtain a water supply for the project, the applicant will be required to comply with all applicable IID policies and regulations. Such policies and regulations require, among other things, that all potential environmental and water supply impacts of the Project have been adequately assessed, appropriate mitigation has been developed and appropriate conditions have been adopted by the relevant land use permitting/approving agencies. Furthermore, the applicant will be required to meet standards for water use efficiency and best management practices, including but not limited to those established by the County, as well as other water use efficiency standards, adopted by IID or local government agencies. For additional information regarding the IWSP, the IID Water Supply Planning/Colorado River Manager may be contacted at (760) 339-9038.

7. If IID water is needed for the project's construction phase, the project proponent is required to obtain an IID encroachment permit during that phase of the project.

8. Any construction or operation on IID property or within its existing and proposed right of way or easements will require an encroachment permit or encroachment agreement (depending on the circumstances), including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities. A copy of the encroachment permit application is included in the IID's *Developer Project Guide 2008*, accessed at: http://www.iid.com/Modules/ShowDocument.aspx?documentid=2328. Also, instructions for the completion of encroachment applications can be found at http://www.iid.com/Modules/ShowDocument.aspx?documentid=2335.

9. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities.

10. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, canals, drains, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully mitigated. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent**.

Should you have any questions, please do not hesitate to contact me by phone at 760-482-3609 or by e-mail at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Environmental Specialist

Kevin Kelley. – General Manager
Jesse Silva. – Manager, Water Dept.
Joel Ivy. – Interim Manager, Energy Dept.
Paul G. Peschel. – Interim General Services Manager
Carl Stills. - Manager, Portfolio Mgmt. Office
Jeff M. Garber. – General Counsel
Carlos Villalon. – Asst. Mgr., Water Dept. System Control & Monitoring
Juan Carlos Sandoval. – Asst. Mgr. Energy Dept.
Jim Kelley. – Supervisor, Real Estate
Vikki Dee Bradshaw. – Interim Supervisor, Environmental Services

DEPARTMENT OF TRANSPORTATION
DISTRICT 11, DIVISION OF PLANNING
4050 TAYLOR ST, M.S. 240
SAN DIEGO, CA 92110
PHONE (619) 688-6960
FAX (619) 688-4299
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

July 17, 2012

11-IMP-98
PM 22.2
Ocotillo Solar
DEIR - SCH #2012044008

Noel Ludwig
Bureau of Land Management
22835 Calle San Juan de Los Lagos
Moreno Valley, CA 92553

Dear Mr. Ludwig:

The California Department of Transportation (Caltrans) received a copy of the Draft Environmental Impact Statement (DEIS) for the proposed Ocotillo Solar located near State Route 98 (SR-98). Caltrans has the following comments:

It is understood by our agency that no new utility crossings on state facilities will occur as a result of this project. However, if any work is performed within Caltrans right-of-way (R/W) an encroachment permit will be required.

The DEIR shows that the project will access SR- 98 at two access points. Official review and approval of this access and any associated work in Caltrans (R/W) will need to be done through a Caltrans Encroachment Permit, and include the appropriate environmental clearances.

If you have any questions on the comments Caltrans has provided, please contact Marisa Hampton of the Development Review Branch at (619) 688-6954.

Sincerely,

for JACOB M. ARMSTRONG, Chief
Development Review Branch

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Palm Springs Fish and Wildlife Office
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, California 92262

In Reply Refer To:
FWS-IMP-12B0113-12CPA0266

JUL 18 2012

Memorandum

To: Field Manager, El Centro Field Office, Bureau of Land Management
El Centro, California

From: for Assistant Field Supervisor, Palm Springs Fish and Wildlife Office
Palm Springs, California

Subject: Comments on the Draft Environmental Impact Statement/Draft California Desert Conservation Area Plan Amendment for the Ocotillo Sol Project, Imperial County, California [CACA 51625]

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) comments on the above-referenced draft Environmental Impact Statement/California Desert Conservation Area Plan Amendment (EIS/CDCA PA) for the proposed Ocotillo Sol Project (Project). The comments provided herein are based on the information provided in the draft EIS/CDCA PA; the Service's knowledge of sensitive and declining wildlife populations and vegetation communities; and our participation in regional renewable energy conservation planning efforts. Based on our review of the draft EIS/CDCA PA, the document does not (1) address consistency with current and future regional conservation planning; (2) provide a thorough assessment of the direct, indirect, and cumulative effects of the Project as it relates to the flat-tailed horned lizard (*Phrynosoma mcallii*) Conservation Agreement; or (3) explore the range of feasible and practical alternatives to meet the purpose and need of the Project.

We offer the following comments on the draft EIS/CDCA PA as they relate to potential impacts on public trust resources. The primary concern and mandate of the Service is the protection of fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened/endangered animals and plants occurring in the United States. We are also responsible for administering the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

We preface our comments by recognizing the need for development of renewable energy and the challenge of balancing solar energy development with conserving natural resources in the southwest. We look forward to working with the agencies involved in this effort and offer our assistance to ensure all proposed projects are evaluated consistent with the various State and Federal renewable energy goals and policies guiding the renewable energy program.

The San Diego Gas and Electric Company (SDGE or applicant) has filed an application for a right-of-way grant with the Bureau of Land Management (BLM) to construct, operate, maintain, and decommission a 15–20 megawatt (MW) photovoltaic power generating facility on 100 acres of land administered by the BLM. The applicant's stated need and purpose for the proposed Project is to develop, own, and operate a renewable energy generation facility in the Imperial Valley region of southern California; deliver the renewable energy generated to SDGE customers; and increase the use of renewable energy and reduce greenhouse gas emissions in California.

Project components include the solar field, operations and maintenance building and associated parking area, laydown area, switchyard, internal access roads, power lines, switchgear, a step-up transformer, and 2000-foot underground 12.47 kilovolt (kV) interconnection. Impacts include clearing and grubbing 100 acres of desert habitats—clearing of vegetation would incorporate the use of herbicides and a water truck for fugitive dust control. Vegetation treatment and weed management would be ongoing throughout the life of the Project. Other ongoing operations and maintenance activities include electrical system maintenance, transformer/breaker maintenance, road maintenance, lubrication, system integrity checks, vegetation management, cleaning of module surfaces, and repair or replacement of defective components. The solar arrays would be periodically washed once or twice per year, using approximately 1 acre-foot of water per wash.

The proposed 100-acre solar photovoltaic generation facility and 15-acre temporary laydown area would be sited entirely on BLM-managed lands adjacent to the existing Imperial Valley substation in Imperial County, California. The Project site is located in the BLM's Yuha Basin Area of Critical Environmental Concern (ACEC), which contains the Yuha Desert Flat-tailed Horned Lizard Management Area (FTHL MA).

Because the Project is located entirely within an ACEC and FTHL MA, the Project, as proposed, is inconsistent with ongoing renewable energy conservation planning efforts. Specifically, siting of this Project would not meet the species-specific goals of the conservation strategy currently in preparation under the California Desert Renewable Energy Conservation Plan (DRECP), nor does it adhere to the project siting criteria set forth in the Department of the Interior's Solar Energy Program as defined in the Supplement to the Draft Programmatic Environmental Impact Statement (Solar PEIS). Therefore, the Project does not follow the environmentally responsible mandate outlined in Secretarial Order 3285, Renewable Energy Development by the Department of the Interior.

The Supplement to the Draft Solar PEIS was issued in October 2011 and evaluates solar energy development in six western states (Arizona, California, Colorado, New Mexico, Nevada, and Utah) and identifies agency-specific programs that establish environmentally responsible policies and mitigation strategies for this development. The document identifies BLM-administered lands in the six-state study area that may be environmentally suitable for solar energy development and lands that would be excluded from such development.

As stated in the Solar PEIS, utility-scale solar energy development (i.e., facilities ranging in size from 90 to 6,750 acres) is not compatible with many of the resources, resource uses, and special designations that exist on BLM-administered lands. The list of criteria excluding areas from utility-scale solar development includes, but is not limited to, the following:

- All ACECs, including Desert Wildlife Management Areas in the California Desert District; and

- All areas where solar energy development proposals are not demonstrated to be consistent with the land use management prescriptions for, or where the BLM has made a commitment to take certain actions with respect to, sensitive species habitat, including but not limited to sage-grouse core areas, nesting habitat, and winter habitat; Mohave ground squirrel habitat; and flat-tailed horned lizard habitat (BLM/DOE 2011).

The BLM made a commitment to conserve, monitor, and manage the flat-tailed horned lizard and its habitat in 1997, when it signed the Conservation Agreement to implement the flat-tailed horned lizard Rangewide Management Strategy (RMS). The BLM codified that commitment in 2004 when it amended the CDCA Plan by formally incorporating the RMS into BLM's land use plan and formally adopting the management areas as the primary focus for flat-tailed horned lizard conservation efforts. Therefore, to be consistent with the Solar PEIS exclusion criteria for utility-scale solar development, the Project should be located outside of the Yuha Basin ACEC and Yuha Desert FTHL MA.

The draft EIS/CDCA PA states the proposed Project would result in adverse impacts to flat-tailed horned lizards but loss of habitat within the FTHL MA is within the one percent development cap identified in the RMS and the adverse impacts would be offset by complying with mitigation measures outlined in the RMS. While lands within the FTHL MA's have a development cap of one percent relative disturbance, a management action (planning action 2.2) defined in the RMS to minimize loss or degradation of suitable habitat recommends habitat disturbance be limited to 10 acres or less per right-of-way authorization within management areas, if possible. If individual project disturbances over 10 acres are proposed, project applicants are required to contact the Interagency Coordinating Committee (ICC) and the Management Oversight Group (MOG) to get suggestions for avoiding and minimizing potential impacts to the lizard. The draft EIS/CDCA PA does not discuss whether this consultation occurred or if any additional measures were recommended by the ICC or MOG. Also, while not explicit in the RMS, utility-scale renewable energy projects were not contemplated during development of the RMS; therefore, mitigation measures outlined in the RMS do not address impacts from these large-scale projects. For example, during the permitting process for the Imperial Valley Solar Project, located north of Interstate 8, adjacent to the Yuha Desert FTHL MA, a before-and-after flat-tailed horned lizard population assessment was developed and incorporated into permitting documents, based on recommendations by the ICC, to better understand adverse impacts from these large projects and to help develop adequate mitigation measures for future utility-scale solar energy projects located within flat-tailed horned lizard habitat.

The Project would be located in the eastern portion of the Yuha Desert FTHL MA. Wright and Grant (2003) suggested that areas in the eastern half of the Yuha Desert FTHL MA surrounding the Pinto Wash area support high densities of flat-tailed horned lizards and these areas "should be carefully conserved." While the draft EIS/CDCA PA states the Pinto Wash is outside of the direct impact of the Ocotillo Sol facility, the analysis does not assess the potential effects of the utility-scale solar plant on adjacent habitats. Barrows et al. (2006) found that out of several species monitored, only the flat-tailed horned lizard demonstrated an unambiguous negative response to anthropogenic habitat edges; they found the effect up to 492 feet from the development edge. Additionally, Young and Young (2005) found the probability of flat-tailed horned lizard occurrences increased significantly with increasing distance from development. They hypothesized that adverse edge effects extend up to 1,476 feet from the edge of development areas. Therefore, it is likely the effects from the Ocotillo Sol solar facility will extend past the facility boundary and direct loss of habitat currently used by flat-tailed horned lizards in the proposed Project area is likely to be much greater than the 100 acres proposed in the draft EIS/CDCA PA, with loss of suitable habitat potentially extending into the Pinto Wash area. An analysis and quantification of these adverse edge effects should be included in the final EIS/CDCA PA.

Secretarial Order No. 3285 established the development of renewable energy as a priority for the Department of the Interior. This order led to the development of a strategy to increase the development and transmission of renewable energy from appropriate areas on public lands. A component of that strategy is development of the DRECP, a multi-agency and stakeholder driven planning process that will help guide renewable energy development, based on identification of Development Focus Areas and an ecosystem-level conservation-reserve design, in the California deserts. The DRECP, if approved and authorized, would provide a mechanism to facilitate the timely and environmentally responsible development of renewable energy and associated transmission while protecting and enhancing the nation's water, wildlife, and other natural resources as specified in the secretarial order.

Through the DRECP planning process, preliminary conservation opportunities were identified as areas with high biological value (REAT 2010). These areas support key populations or connections between key populations. All the FTHL MAs, including the proposed site for the Project, occur on lands classified as a conservation opportunity area under the DRECP and currently proposed by BLM and other Renewable Energy Action Team agencies as part of the plan-wide reserve system. As such, private land acquisition or habitat enhancement on public lands would be encouraged within these areas. Consequently, the Project, if authorized in this location, would reduce the amount of high-quality habitat available to sustain a viable flat-tailed horned lizard population in this management area. Additionally, as stated above, FTHL MAs have a development cap of one percent relative disturbance. Previous authorized project disturbances in the Yuha Desert FTHL MA were comprised of small-impact linear projects, such as utility lines, that resulted in 167 acres of disturbance since 1997, an average annual disturbance of 13 acres (Table 4.6-1 draft EIS/CDCA PA). Permitting a 115-acre solar energy project within the Yuha Desert FTHL MA would result in a 69 percent increase in the amount of disturbance to date.

As stated above, the Ocotillo Sol facility would be built entirely within the Yuha Basin ACEC and Yuha Desert FTHL MA, which are areas identified in the Supplement to the Draft Solar PEIS and proposed DRECP as incompatible with utility-scale solar energy development and biologically sensitive areas, respectively. Therefore, this location does not conform to the environmentally responsible mandate outlined in Secretarial Order 3285. A compelling argument as to how this exception may be appropriate was not provided in the draft EIS/CDCA PA. For example, no rationale is provided to explain the need to construct, operate, and maintain a solar facility adjacent to the Imperial Valley Substation. The alternatives analysis should consider siting adjacent to or co-locating with larger, nearby solar facilities; connecting to an alternate substation that occurs outside of sensitive resource areas (such as Dixieland or the proposed Liebert Substation); and/or locating the facility in the Imperial East Solar Energy Zone identified in the Solar PEIS.

Regulations implementing the National Environmental Protection Act (NEPA) state that an alternatives analysis should "include reasonable alternatives not within the jurisdiction of the lead agency" (40 CFR 1502.14). Therefore, a discussion of alternative renewable energy generation methods should be included in the final EIS/CDCA PA regardless of whether the alternative addresses BLM's purpose and need to evaluate a right-of-way application. If an alternative exists that is practical and feasible, from a technical and economic standpoint, it must be explored whether or not it is desirable from the standpoint of the applicant or the agency ("Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations," 46 Federal Register 18026, March 16, 1981). Therefore, to comply with NEPA, the alternative analysis should include other methods for generating 15 to 20 MW (or 12 to 14 MW, see comment #9 of the enclosure) of renewable energy, such as alternative locations on adjoining agricultural lands, distributed generation, or other rooftop solar initiatives similar to Southern California Edison's Solar Program.

Lovich and Ennen (2011) concluded that little is known about the local effects of utility-scale solar energy development on wildlife and extrapolation to larger scales with any degree of confidence is currently limited by an inadequate amount of scientific data. Additionally, based on their review of the existing peer-reviewed scientific literature, they concluded that insufficient evidence is available to determine whether solar energy development, as it is envisioned for the desert southwest, is compatible with wildlife conservation. Because of these uncertainties, we recommend BLM adhere to the guidance set forth in the Solar PEIS and recommendations proposed for inclusion in the DRECP. We further recommend that BLM exclude areas that have been set aside as wildlife conservation areas, such as the Yuha Desert FTHL MA, from utility-scale solar development or demonstrate the 15–20 MW (or 12 to 14 MW) Project is critical to meeting the current renewable energy goals on public lands.

We support and recognize the need for development of renewable energy in the California deserts. We participated in the review and development of the Solar PEIS, and with BLM and other stakeholders, we are a participating agency in the development of the DRECP to ensure development of renewable energy in the California deserts is designed and constructed in the most environmentally responsible way to ensure public lands remain ecologically viable and support the species unique to this ecosystem. These regional renewable energy planning efforts propose to incorporate conservation of lands with existing special

designations, which include the Yuha Basin ACEC and Yuha Desert FTHL MA. Therefore, for this Project to be consistent with ongoing regional conservation planning efforts associated with renewable energy development and existing BLM land use plans, we recommend it be located outside of these existing special designation areas. Furthermore, because of the unknown ecological consequences surrounding large-scale utility development in desert ecosystems (Lovich and Ennen 2011) and the need to protect broad, relatively intact ecosystems (Barnosky et. al. 2012), we recommend other alternatives be evaluated, such as distributed roof-top solar systems and Project siting within Solar Energy Zones identified in the Solar PEIS or Development Focus Areas that will be proposed under the DRECP.

We attach additional specific recommendations and comments to further assist in avoidance and minimization of impacts to biological resources and to ensure the Project is consistent with regional conservation planning efforts. If you have questions regarding our comments, please contact Felicia Sirchia of this office at 760-322-2010, extension 205.

Attachment

cc: Noel Ludwig, BLM Project Manager, Moreno Valley, California

Attachment

U.S. Fish and Wildlife Service
Comments and Recommendations on the
Draft EIS/CDCA PA Ocotillo Sol Solar Facility

Additional Comments

1. We recommend that utility-scale solar energy development on public lands be implemented strategically as part of a comprehensive energy program (i.e., coupled with distributed energy, conservation, and energy efficiencies within the load centers) and in phases to accommodate the rapid changes in technologies and efficiencies, and to ensure the amount of public land required to meet the goals of the various Executive Orders, Renewable Portfolio Standards, and policies is minimized. Towards this end, a discussion in the final EIS/CDCA PA should include an analysis of the renewable energy capability in the region, including both the existing and approved facilities and anticipated generation, the relative significance of the proposed Project's contribution, and the Project's benefit to SDGE ratepayers.

2. The draft EIS/CDCA PA states the Project would, if approved, be consistent with the 1981 Management Plan for the Yuha Basin ACEC and the values for which it was designated because the Management Plan allows for the "traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so." While the term "associated facilities" is not clearly defined in the 1981 Management Plan, "traversing" implies the associated facilities would also be linear in nature (e.g., access roads and other transmission lines) and not encompass a utility-scale solar facility. The final EIS/CDCA PA should provide a more thorough explanation regarding how a utility-scale solar facility is considered an associated facility to a transmission line in the context of the 1981 Management Plan and how a project of that size would be consistent with the management of the ACEC. Moreover, because data regarding effects from utility-scale solar facilities are lacking (Lovich and Ennen 2011), an environmental analysis to determine whether the Project is "environmentally sound" would be unsupported. Therefore, unless the final EIS/CDCA PA presents adequate scientific data to determine whether or not the Project as currently designed is environmentally sound, the language should be revised to reflect findings in the currently available scientific literature.

3. Construction, maintenance, operations, and decommissioning of utility-scale solar facilities can cause physical disturbances that change soil structure; runoff and soil erosion patterns; moisture holding capabilities of the soil; and energy flux patterns due to changes in surface reflectivity (Lovich and Ennen 2011; Patten 1978). Changes in plant and animal density, diversity, growth, reproduction, and behavior may occur as a result of these alternations of desert habitats. Little is known about how far these changes will extend from the boundary of the solar facility or what the effects to the neighboring wildlife and habitats may be. The draft EIS/CDCA PA analysis is limited to the

disturbances within the project boundary. To enable a more detailed assessment of adverse biological effects within the Yuha Basin ACEC and Yuha Desert FTHL MA, the analysis should include an assessment of the potential indirect effects to the adjacent wildlife and habitats based on the available science.

4. The draft EIS/CDCA PA states the proposed Project is located in the Imperial South *California* Renewable Energy Zone. We are familiar with the Imperial South *Competitive* Renewable Energy Zone, as defined in California's Renewable Energy Transmission Initiative (RETI). However, the proposed Project is not shown on RETI maps depicting conceptual transmission segments and proposed and permitted renewable energy facilities. Please provide more information on the Imperial South California Renewable Energy Zone, including citations for any environmental review documents that evaluate it, and how it relates to the RETI.

5. Table 4.1-1 of the draft EIS/CDCA PA lists a number of projects, both existing and future, that use or will use the access road on the east side of the Yuha Desert FTHL MA that runs parallel to the transmission lines from Highway 98 to the Imperial Valley substation. Mortality of flat-tailed horned lizards along roads is high and likely under-reported. The final EIS/CDCA PA should provide a discussion of this impact in terms of increased traffic and mortality to lizards, and include measures to avoid and minimize this impact, especially in the vicinity of Pinto Wash.

6. Flat-tailed horned lizard exclusion fencing will not be installed around the solar facility; therefore, the site will be accessible to the lizards. Consequently, the site may become a population sink due to high mortality along the interior access roads and increased predation due to increased perch sites (Barrows et. al. 2006). This could result in lower survival and reproduction rates in adjacent flat-tailed horned lizard populations within the Yuha Desert FTHL MA (Runge et al. 2006). An analysis of this indirect effect, and how it could be offset, should be included in the final EIS/CDCA PA.

7. The draft EIS/CDCA PA states Alternatives 2 and 3 would result in temporary impacts to wildlife habitat and a 5-year restoration plan is proposed to offset this impact. Following extensive disturbance and compaction, desert soils can take between 92 and 124 years to recover in the absence of active restoration (Webb 2002). In addition, recovery of plant cover and biomass in the desert can require 50 to 300 years in the absence of restoration efforts (Lovich and Bainbridge 1999). Although active restoration can reduce the time required to recover desert ecosystems, success is varied and dependent on numerous variables (Bainbridge 2007). Based on this information, the amount of habitat currently characterized as a temporary disturbance is likely to be permanently lost or unsuitable as wildlife habitat for the life of the proposed Project (30 years). The final EIS/CDCA PA should include examples of desert restoration projects that have demonstrated success after a 5-year period or the restoration and monitoring period should be extended until successful restoration is demonstrated.

8. The final EIS/CDCA PA should assess the potential impacts from glare, reflection, or possible "mirage" effects to wildlife, particularly migratory birds, associated with solar panels. In an electronic correspondence to the BLM sent on March 12, 2012, we recommended a Bird and Bat Conservation Strategy (BBCS) be developed to address this potential effect. The BBCS should include, at a minimum, (1) baseline conditions for bird and bat species currently present at the Project site; (2) construction and operational activities that may increase the potential of adverse effects to these species on and adjacent to the Project site; (3) steps that will be taken to avoid, minimize, and mitigate any potential adverse effects on these species; and (4) details of long-term monitoring and reporting goals for the Project.

9. Other Project documents indicate the generating capacity of the Ocotillo Sol facility to be between 12-14 MW. The final EIS/CDCA PA should clarify the amount of energy the facility can realistically generate with the proposed technology.

10. The Biological Resources Technical Report for the Project indicated desert kit fox (*Vulpes macrotis*) occurs on the Project site, but no avoidance and minimization measures are discussed. In previous BLM permitted solar projects, the avoidance and minimization of impacts to the desert kit fox required pre-construction surveys and passive removal methods (e.g., Genesis Solar Power Project [CACA 48880]). The final EIS/CDCA PA should include a discussion of the number and location of the kit foxes on the Project site and measures to avoid and minimize adverse effects to this species, factoring in the relocation and disease complications experienced on other solar projects.

11. Table ES-1 of the draft EIS/CDCA PA states there will be no direct or indirect impacts to Special Designations; however, Section 3.11.2 states that Special Designations within or adjacent to the Project area include the Yuha Basin ACEC and Yuha Desert FTHL MA. These Special Designation areas will experience a minimum 100-acre permanent loss of habitat and an unspecified amount of indirect habitat loss. The final EIS/CDCA PA should clarify what is meant by "impacts" and Table ES-1 should be revised to account for these losses.

LITERATURE CITED

Bainbridge, D.A. 2007. A Guide for Desert and Dryland Restoration: new hope for arid lands. Island Press, Washington, DC.

Barnosky, A.D., E A. Hadly, J. Bascompte, L. Berlow, J.H. Brown, M. Fortelius, W.M. Getz, J. Harte, A. Hastings, P.A. Marquet, N.D. Martinez, A. Mooers, P. Roopnarine, G. Vermeij, J.W. Williams, R. Gillespie, J. Kitzes, C. Marshall, N. Matzke, D.P. Mindell, E. Revilla, and A.B. Smith. 2012. Approaching a state shift in Earth's biosphere. Nature 486:52–58.

Barrows, C.W., M.F. Allen, and J.T. Rotenberry. 2006. Boundary processes between a desert sand dune community and an encroaching suburban landscape. Biological Conservation 131:486-494.

[BLM/DOE] Bureau of Land Management/U.S. Department of Energy. 2011. Supplement to the Draft Solar Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States. Washington, DC.

Lovich, J.E. and J.R. Ennen. 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. BioScience 61:982–992

Lovich, J.E. and D. Bainbridge. 1999. Anthropogenic degradation of the Southern California Desert ecosystem and prospects for natural recovery and restoration. Environmental Management 25(3):309-326.

Patten, D.T. 1978. Solar Energy Conversion: an Analysis of Impacts on Desert Ecosystems. Final Report, June 1 to December 31, 1977. U.S. Department of Energy contract # EG-77-S-02-4339. Arizona St. University, Tempe, Arizona.

[REAT] Renewable Energy Action Team. 2010. (March 23, 2010). Renewable Energy Action Team (REAT) Starting-point Map Narrative. Desert Renewable Energy Conservation Plan. July 2, 2012. From: http://www.drecp.org/maps/Starting_Point_Maps.pdf/.

Runge, J. P., M. C. Runge and J. D. Nichols. 2006. The role of local populations within a landscape context: defining and classifying sources and sinks. American Naturalist 167:925-938.

Webb, R.H. 2002. Recovery of severely compacted soils in the Mojave Desert, California, USA. Arid Land Research and Management 16:291-305.

Wright, G. and T. Grant. 2003. Flat-tailed Horned Lizard (*Phrynosoma mcallii*) Monitoring Report. Bureau of Land Management, El Centro, California.

Young, K.V. and A.T. Young. 2005. Draft final report: indirect negative effects of human activity on the flat-tailed horned lizard. Report submitted to Arizona Game and Fish Deptartment, Yuma, Arizona. 11 pp.

QUECHAN INDIAN TRIBE
Ft. Yuma Indian Reservation

P.O. Box 1899
Yuma, Arizona 85366-1899
Phone (760) 572-0213
Fax (760) 572-2102

July 19, 2012

Mr. James Kenna, State Director
Bureau of Land Management
2800 Cottage Way, Suite W-1623
Sacramento, CA 95825-1886

Re: Quechan's Comments on Draft Environmental Impact Statement for the Ocotillo Sol Solar Project

Dear Mr. Kenna,

The Quechan Indian Tribe (Quechan) would like to offer its comments on the Draft Environmental Impact Statement/Report (DEIS) for the Ocotillo Sol Solar Project (OSSP). In summary, Quechan is opposed to the OSSP, and Quechan requests that the Bureau of Land Management (BLM) select Alternative 5 and not approve the project and classify the land as being unsuitable for solar energy development, for the following reasons:

- The project area is in an Area of Critical Environmental Concern (ACEC), which is wholly incompatible with solar energy development,
- OSSP will have an adverse impact, directly and cumulatively, upon the known and unknown cultural resources in the area,
- The BLM has had no real consultation with Tribal Governments on OSSP,
- The BLM's "applicable authorities" for promoting OSSP are inappropriate justifications for this project in this location.

<u>The Area Should Remain Protected as an ACEC</u>

The project area for OSSP is within the BLM's Yuha Basin Area of Critical Environmental Concern, and as such, it should remain protected from solar energy development. This ACEC was created, in part, to help preserve the threatened Flat-tailed Horned Lizard. As the BLM should know, this lizard is a cultural resource for the Quechan as it is an important animal within Quechan's spiritual cosmology. Additionally, there are other animals, and plants, that are spiritually important to the Quechan, that would be adversely impacted by OSSP, such as the Burrowing Owl, Creosote Bush, and certain raptors, among others. This ACEC was also created to protect the archaeological resources in this area. According to certain maps created under the CDCA—the Native American Element Map and the Cultural Resources Element Map—this area is extremely sensitive, in regards to cultural resources, and thus it should protected. Solar energy development is wholly incompatible with an ACEC of this nature and approval of OSSP would completely threaten the biological and cultural resources in this area.

OSSP Would Adversely Impact Known and Unknown Cultural Resources in the Area

OSSP would adversely, directly and cumulatively, impact known and unknown cultural resources in the area. Although OSSP seemingly is not rich, relative to other projects, in cultural resources, Quechan is extremely disturbed that the BLM would allow the one recorded site and other isolates in the project area to be "destroyed". According to the Federal Land Policy and Management Act (FLPMA) the BLM has an affirmative duty "to protect the quality of ... environmental ... and archaeological value," of public lands. It is incomprehensible how the BLM would entertain a project, within an ACEC, and endorse the destruction of cultural resources and reference FLPMA as authority to commence this destruction.

Additionally, the DEIS clearly states that OSSP, in conjunction with the eleven other renewable energy projects in the area, will have a negative and adverse cumulative impact upon the cultural resources in the vicinity. Of all the other projects cited, OSSP is the most egregious because it is proposed for development on undisturbed desert land. Undisturbed desert land, and the cultural resources it contains, is a finite, non-renewable resource—once it disturbed, it's essentially destroyed forever.

Lastly, BLM has not adequately addressed the issue subsurface materials within OSSP associated with Ancient Lake Cahuilla. The DEIS states that OSSP is within the 40 foot shoreline of this ancient lake, which raises the possibility of subsurface archaeological materials in the project area. Although the BLM has proposed limited surface testing for the recorded site only, the BLM has not made any other considerations for potentially disturbing other possible subsurface sites for the rest of the project area. And as we all have seen the unfortunate travesty of the Genesis Solar Project—being developed on an ancient lake shoreline—once a project is approved and construction begins, subsurface materials receive almost no protection. Since the location of OSSP implicates subsurface cultural resources, the BLM should err on the side of caution and not approve this project for fear of directly impacting those resources.

The BLM Has Not Consulted with Tribal Governments on OSSP

The BLM has not consulted with Tribal Governments on OSSP. In the Executive Summary of the DEIS, it states that Tribal Governments were "invited" to consult on OSSP since 2010. However, as far as I understand, the meeting to be held on 7/20/12, is the first meeting the BLM has arranged[1] for consulting with Tribal Governments on OSSP. As the BLM knows, from recent litigation in the past years and from intra-departmental directives on the subject of government-to-government consultations with Tribal Governments, merely inviting Tribal Governments to consult is not consultation. Quechan asserts that the BLM is not conducting meaningful government-to-government consultations with Tribal Governments, and although the above mentioned meeting will be helpful, Quechan is concerned that its effectiveness may be limited because the meeting is so "late in the game" regarding this specific application process.

Additionally, the BLM did not consult with Tribal Governments on the NRHP eligibility of the one recorded site in OSSP. BLM asserts that the site is not eligible, but there have been no justifications for this assertion and there have been no consultations to review this issue. Unfortunately, this appears to be the pattern and practice of BLM—to predetermine, by themselves, the eligibility of sites for nomination for the NRHP. As governmental stewards of public lands, the BLM is not proactively protecting the archaeological resources of the Colorado and Sonoran Deserts. Was this site even reviewed under Criterion "A" for NRHP nomination for its cultural value? Quechan would like an answer to this question and to review why the recorded site was deemed ineligible for NRHP nomination.

[1] Additionally, this meeting was created out of the urging, in part, of the Historic Preservation Office for the Quechan Indian Tribe. Without such request, this meeting may not have materialized.

The BLM's "Applicable Authorities" for OSSP are Inappropriate Justifications

The "applicable authorities" the BLM offers to justify the development of OSSP are completely inappropriate for this project in this location. Although the Executive Order, Federal legislation, and Secretarial Order all strongly suggest that the BLM facilitate the development of renewable energy projects on public land, these directives do not prescribe renewable energy development at all costs, such as in areas of extreme concern like the ACEC of the Yuha Basin. These authorizes do not create a blank check for the BLM to approve any type of renewable energy project in any location. For example, Executive Order 13212 asks the BLM to act expediently on such projects, while being consistent with existing laws. How would placing a 115 acre solar project on the land in question be consistent with the previous legal determination that the same land is environmentally critical, archaeologically and biologically? Renewable energy is extremely important to help curb the trend of global warming. However, the BLM needs to work harder at finding appropriate locations for these projects and the BLM needs to consult with Tribal Governments on issues of siting before the application commences—which the BLM has failed to do in this regard—so that there are less conflicts between our two governments during the application process.

Conclusion

The project area of OSSP is in an Area of Critical Environmental Concern, for archaeological and biological purposes, and as such the land should remain protected and not be developed as a solar energy project. Likewise, the land should be deemed unsuitable for future solar energy development. There are other, more appropriate, locations for OSSP. We can work together to find these locations.

Sincerely,

John Bathke, Historic Preservation Officer
Quechan Indian Tribe

Cc: Quechan Tribal Council
Quechan Tribal Administrator
Anthony Pico, Viejas Band of Kumeyaay Indians
Kim Mettler, Viejas Band of Kumeyaay Indians
Jill McCormick, Cocopah Indian Tribe
Jeff Riolo, Manzanita Band of the Kumeyaay Nation
Carrie Simmons, BLM-El Centro
Christine McCollum, BLM-El Centro

Noel Ludwig
Ocotillo Sol Project Manager, Hydrologist
California Desert District Office
Bureau of Land Managment
22835 Calle San Juan De Los Lagos
Moreno Valley, CA 92553
(via email to: blm_ca_ocotillo_sol_comments@blm.gov; nludwig@blm.gov)

Re: Comments on Draft Environmental Impact Statement and Draft CDCA Plan Amendment for the Proposed San Diego Gas & Electric Ocotillo Sol Project.

Dear Mr. Ludwig,

Thank you for the opportunity to provide comments on the Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment ("DEIS/DCDCAPA") for the proposed Ocotillo Sol Project. These comments are submitted on behalf of the Natural Resources Defense Council ("NRDC"), a non-profit public interest conservation organization with offices located in California and throughout the United States. NRDC has been intensively involved in the permitting and decision-making process for development of renewable energy on public lands in California over the past three years.

NRDC has over 1.2 million members and online activists nationwide, more than 250,000 of whom live in California. NRDC uses law, science and the support of its members and activists to protect the planet's wildlife and wild places and to ensure a safe and healthy environment for all living things. NRDC has worked to protect wildlands and natural values on public lands and to promote pursit of all cost effective energy efficiency measures and sustainable energy development of many years.

As we transition toward a clean energy future, it is imperative for our future and the future of our wild places and wildlife that we strike a balance between addressing the near term impacts of large scale solar energy development with the long-term impacts of climate change on our biological diversity, fish and wildlife habitat and natural landscapes. To ensure that the proper balance is achieved, we need smart planning for renewable power that avoids and minimizes adverse impacts on wildlife and wild lands. These projects should be placed in the least harmful locations near existing transmission lines and on already disturbed lands.

We strongly support the emission reduction goals found in the Global Warming Solutions Act of 2006, AB 32, including the development of renewable energy in California. However, we urge that in seeking to meet our renewable energy portfolio standard in California, project proponents and land managers ensure that projects are designed from their inception in the most sustainable manner possible. This is essential to ensure that project approval moves forward expeditiously and in a manner that does not sacrifice our fragile desert landscape and wildlife in the rush to meet our renewable energy goals.

Thank you as well for your receptivity to the scoping comments submitted by NRDC and partner organizations (attached for reference). Section 1.7 of the DEIS/DCDCAPA includes discussion of policy consistency and plan performance and addresses some of our observations regarding special designations of lands where the proposed project may be sited.

Our specific comments are as follows:

1. ACEC and MA Designations:

The incongruities of developing a solar resources within an area under multiple conservation-oriented designations remains our primary concern. The proposed project footprint falls entirely within the Yuha Basin Area of Critical Environmental Concern ("ACEC"). Additionally, the proposed project lies within an area designated a flat-tailed horned lizard ("FTHL") management area ("MA") as part of the Rangewide Management Strategy (2003). Despite the allowance made in both plans for ongoing development, the DEIS/DCDCAPA fails to provide information indicating sufficient health of FTHL populations in the area to withstand the development being considered in the DEIS.

The DEIS/DCDCAPA gives no indication that "a report reflecting current conditions, trends, effectiveness of management actions and compliance" (Section VII: Monitoring Plans. Yuha Basin ACEC Management Plan, 1981) has been submitted annually per the stipulations of the ACEC management plan. If these reports have been submitted annually for the past thirty-one years, their information was not cited in the DEIS/DCDCAPA.Without citing annual reports demonstrating the health of the FTHL population the BLM cannot use the same ACEC plan that requires these reports to justify further land degredation. We reiterate our scoping comments: please disclose the full management history of the ACEC and reconcile this history with your preference for Alternative 3 (Reduced Construction Footprint Alternative) over the plurality of possible alternatives listed in section 2 below.

The 2003 Rangewide Management Strategy ("RMS") for FTHL requires that "Every attempt *shall* be made to locate projects ouside of MAs. New ROWs may be permitted *only* along the boundaries of MAs and *only* if impacts can be mitigated to avoid long-term effects on FTHLs in the MA. (Rangewide Management Strategy, Section 2.2.1, p. 26)(emphasis added). The same section indicates that "if individual disturbances over 10 acres *are necessary*" (*id.*, emphasis added) special mitigation steps are required. Read in its entirety, this section of the RMS suggests that a more comprehensive range of alternatives be considered. Indeed, NEPA too requires that a range of alternatives that go beyond project/no project be considered; please see section 2 below for an in-depth discussion of alternatives. The RMS and ACEC plan both prohibit off-road vehicle ("ORV") use outside of designated routes and sanctioned races. Illegal ORV use throughout these areas has undoubtedly taken a toll on FTHL habitat; please see section 3 below for in-depth discussion of cumulative impacts.

Additionally, we question how the BLM will meet the requirements of 6:1 mitigation for the project area. As evidenced in DEIS/DCDCAPA Appendix I (FTHL Survey), the entire area of the project is suitable FTHL habitat. The BLM must make explicit which undisturbed areas of California outside of already established MAs will be designated as permanent FTHL conservation area. In addition, the BLM should address how it will increase the permanance of FTHL protection in the lands selected for compensatory mitigation above and beyond the inconsistent protection afforded by the the Yuha Basin ACEC.
Generally we encourage the siting of renewable energy resources in close proximity to transmission infrastructure such as the Imperial Valley Substation ("IVS"). In this case however, we take issue with the placement of the IVS within the ACEC and MA. Though both plans allow for transmission

infrastructure, building a substation withing these designated areas introduces additional stressors on FTHL and other sensitive species within the ACEC and MA. For this reason we hope the BLM will consider siting the Ocotillo Sol project in a location which minimizes degredation of ACEC and MA lands.

2. Altenatives:

NEPA requires that BLM consider a range of alternatives, which is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions. See id. §§ 1502.14(a) and 1508.25(c). "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action."[1] An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action.[2] This evaluation extends to considering more environmentally protective alternatives and mitigation measures.[3] NEPA requires that an actual "range" of alternatives is considered, so that they will "preclude agencies from defining the objectives of their actions in terms so unreasonably narrow that they can be accomplished by only one alternative (i.e.
the applicant's proposed project)."[4] This requirement prevents the EIS from becoming "a foreordained formality."[5] Below are a number of additional measures that should be considered additive to the alternatives under consideration:

a. <u>Amend CDCA and MPS to preclude future development in the area and strengthen protections</u>: In addition to minimizing the project and construction footprint and undertaking requisite compensatory mitigation (as in the BLM's prefered alternative, Alternative 3), the BLM should take measures to ensure that the habitats within the Yuha Basin ACEC and MA areas shall not be degraded by future development. This would include redoubling efforts to enforce illegal ORV use and limit the acreage of transmission infrastructure built to and from the IVS.
b. <u>Move the project outside the boundary of the ACEC and MA</u>: The project could feasibly be relocated to disturbed lands outside the ACEC and MA while still utilizing the IVS. The proposed private lands Campo Verde Solar project (First Solar), which lies north of IVS and borders the ACEC, plans to provide two 230-kV gen-ties to allow future renewable projects to use the same transmission infrastructure. The Campo Verde proposal appears to minimize impact to the ACEC by reducing transmission infrastructure and locating the project outside its boundaries[6].
c. <u>Avoid setting a precedent that undermines the ACEC designation</u>: As addressed in our coalition siting criteria for the California Desert Conservation Area (attached below)[7], we believe ACEC's are not an appropriate are for renewable energy development. Granting the

---

[1] Northwest Envtl. Defense Center v. Bonneville Power Admin., 117 F.3d 1520, 1538 (9th Cir. 1997).
[2] City of Tenakee Springs v. Clough, 915 F.2d 1308, 1310 (9th Cir. 1990) (quoting 40 C.F.R. § 1502.14).
[3] See, e.g., Kootenai Tribe of Idaho v. Veneman, 313 F.3d 1094,1122-1123 (9th Cir. 2002) (and cases cited therein).
[4] Colorado Environmental Coalition v. Dombeck, 185 F.3d 1162, 1174 (10th Cir. 1999), citing Simmons v. United States Army Corps of Engineers, 120 F.3d 664, 669 (7th Cir. 1997).
[5] City of New York v. Department of Transp., 715 F.2d 732, 743 (2nd Cir. 1983). See also, Davis v. Mineta, 302 F.3d 1104 (10th Cir. 2002).
[6] We are not expressing an opinion on the merits of the Campo Verde project in this letter.
[7] Renewable Siting Criteria for California Desert Conservation Area.

Ocotillo Sol project an ROW risks normalizing renewable energy development throughout California's ACECs. Should BLM decide to grant the ROW, we request exhaustive efforts be made to prevent future development in the Yuha Basin ACEC and other ACECs.

3. Cumulative Impacts:

The EIS on this proposal must also look at the cumulative impacts to ACECs, the flat-tailed horned lizard MAs, and other habitat for this species from renewable energy projects and associated infrastructure. At this time, several renewable energy projects are proposed within flat-tailed horned lizard habitat including the ROW for the planned Ocotillo Express wind project which encom,passes over 12,000 acres, including many acres of FTHL habitat. This project, as just one example, will cause significant direct loss of habitat, increase predation, and further fragment the remaining habitat for the species. There area number of pending projects in the area, some which border the MA. Almost all of these new projects will require new transmission and construction infrastructure that will likely impact FTHL habitat within the ACEC and MA.

4. Consistency with BLM's Solar Programmatic Environmental Impact Statement.

The BLM's Solar Programmatic EIS, due for release in the coming week, outlines a guided development approach. This approach identifies areas appropriate for solar development while, alternately, suggesting which public lands should be managed for their biological and/or cultural resources. As shown on page 2-36 of the BLM's Supplement to the Draft Solar PEIS (October 2011) the proposed project fall neither within a proposed Modified Solar Energy Zone ("SEZ") or within the light blue Modified Program Alternative Lands ("Variance Areas"). Though we understand that the Ocotillo Sol project application was initiated in advance of the Solar PEIS process, we encourage BLM to begin managing their lands in the spirit of the Solar PEIS's guided development approach.

This concludes our formal comments; please see attachments below. Thank you in advance for considering our views. If you have any questions about them, please do not hesitate to contact my colleague Helen O'Shea (hoshea@nrdc.org) or me.

Regards,

Andrew Willis
Fellow, Western Renewable Energy Program
Natural Resources Defense Council

Natural Resources Defense Council
Sierra Club
Center for Biological Diversity
Defenders of Wildlife

August 15, 2011

Noel Ludwig
Bureau ofLand Management
California Desert District Office
22835 Calle San Juan de Los Lagos
Moreno Valley, CA 92553

Via email: ocotillosol@blm.gov

Re: Scoping for Proposed Ocotillo Sol Solar Project

Dear Noel Ludwig:

This letter constitutes the response of the Natural Resources Defense Council, Sierra Club, Center for Biological Diversity, and Defenders of Wildlife to the scoping notice for the proposed Ocotillo Sol Solar Project that the Bureau of Land Management (BLM) published in the Federal Register on July 15, 2011 at pages 41816-817. All of these organizations have long histories of efforts to protect and improve the management of the public lands under the jurisdiction of the BLM and, more recently, have been working intensively with the Bureau, renewable energy developers and others to facilitate environmentally responsible development of the renewable resources of those lands, including their solar resources.

At this time our principal concerns with respect to this proposed project relate to its location which is entirely within the designated Yuha Area of Critical Environmental Concern (ACEC) and its potential impact on the flat-tailed homed lizard. In addition to being an ACEC, this area has been designated as a management area for the protection of the flat-tailed homed lizard as part of the Rangewide Management Strategy (2003). Both by regulation and by statute, an area designated as an ACEC is one that requires "special management attention ... to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes...." 43 U.S.C. § 1702 (a); 43 CFR § 1601.0-5. *See also id.*, § 1610.7-2. In fact in the past this ACEC has unfortunately not received the special protective management attention it requires.

Nor has it received the management attention required by the 2003 Rangewide Management Strategy for the flat-tailed homed lizard. That document directs that applications for land use authorizations be reviewed on a case-by-case basis for impacts on this species and its habitat. It requires that:

> Every attempt *shall* be made to locate projects outside of MAs [management areas.] New ROWs may be permitted *only* along the boundaries of MAs and *only* if impacts can be mitigated to

avoid long-term effects on FTHLs in the MA.

Rangewide Management Strategy, Section 2.2.1, p. 26 (emphasis added).

At some time in the past, it appears that the BLM authorized a substation to be built within this ACEC. In addition, the BLM has failed to control illegal off road vehicle use within the ACEC to protect the flat-tailed homed lizard and other resources of the area. Indeed, the ACEC has received so much extensive and illegal off road vehicle abuse that the lands so designated could now reasonably be characterized as "disturbed." Similar ORV damage has continued in other flat-tailed homed lizard management areas as well as in habitat outside of the management areas putting the species increasingly at risk due to direct loss ofhabitat and increasing fragmentation of remaining habitats. A study of flat-tailed homed lizards and other species within a conservation area found that edge effects from roads had a significant impact on flat-tailed homed lizard populations up to 150 m from roads (as well as impacts from increased predation). Barrows et al. (2006); *see also* Barrows and Allen (2009) (discussion of habitat loss and high degree of fragmentation in remaining habitats) (Both ofthese papers are attached for your reference). Power lines associated with the existing substation and the proposed project can also provide perches for raptors which then prey on the flat-tailed horned lizard, putting further unnatural predation pressures on this declining species (Barrows, pers. communication 2010).

Permitting illegal ORV abuse ofthis area is flatly inconsistent with the type of management ACECs are required to receive as well as the Rangewide Management Strategy for the flat-tailed homed lizard. Authorizing construction of a solar farm here would be unthinkable to our organizations were it not for the BLM's past failure to manage this area properly. On the contrary, our organizations have consistently advocated that special management areas that the BLM has officially designated through its land use planning processes, including but not limited to ACECs, desert wildlife management areas, and wildlife habitat management areas, be off-limits to renewable energy projects in order to protect those areas while facilitating development of the renewable resources of other, appropriate areas.

In the forthcoming environmental impact statement on this project, the BLM must address this issue fully. The full history of this ACEC must be provided and the Bureau's failure to manage it properly disclosed to the public. The EIS must contain an analysis of whether the resource(s) this ACEC was established to protect require the designation of a different or expanded ACEC and, if so, where and how such a designation would be accomplished. Additionally, the document must include a discussion of the actions that could be taken to properly manage this area and control illegal ORV use as part of a more protective alternative. Such an alternative could-and should-consider siting this project on different, also disturbed nearby land so as to take advantage of the substation's location. The Rangewide Management Strategy provisions quoted above plainly require the BLM to consider the latter alternative and more specifically that the agency, in concert with the applicant, conduct an exhaustive search for alternate locations for the proposed project that are outside the boundaries of this (and any other) designated flat-tailed horned lizard management area. Another option that should also be considered is moving the substation, since we understand it is only half-built.

In the forthcoming EIS, the BLM must also discuss the steps that it will take to ensure that, were this project authorized, the illegal ORV activity currently occurring there will not simply move further out to the edges of the project, including requirements that the developer will have to meet to help prevent this result as well as actions that the agency itself will take.

Moreover, the EIS must contain a discussion of the actions that the BLM will take to protect other ACECs in the California Desert and other flat-tailed homed lizard management areas from inconsistent and harmful uses, including renewable energy projects, in the future. More specifically, the Bureau must detail in the EIS what it will do in the event it decides to approve the proposed project in order to ensure that its decision does not create a precedent for either re-allocating ACECs from resource protection to renewable energy production or tolerating inadequate and abusive management of ACECs.

The EIS on this proposal must also look at the cumulative impacts to ACECs, the flat-tailed homed lizard management areas, and other habitat for this species from renewable energy projects and associated power lines. At this time, several renewable energy projects are proposed within flat-tailed homed lizard habitat including the revised proposal for the Imperial solar project, which involves approximately 7,000 acres most of it in flat-tailed homed lizard habitat, and the Ocotillo Express wind project proposal which would cover over 6,000 acres, including many acres of flat-tailed homed lizard habitat. These projects would cause significant direct loss of habitat, increase predation, further fragment the remaining habitat for the species, and could block gene flow between the West Mesa and Yuha Desert area populations. In addition, there are at least another five pending right of way applications for both solar and wind projects covering more than 20,000 acres in areas that may include significant lizard habitat some of them adjacent to the management areas. *See* maps and data available on BLM website for renewable energy projects at http://www.blm.gov/calst/en/fo/cdd/alternative_energy.html. Each of these proposed projects will require a new gen-tie power line that will likely impact lizard habitat within the Yuha ACEC and other management areas and many may also require new roads and other infrastructure that may directly affect lizard habitat.

Thank you in advance for considering our views. If you have any questions about them, please do not hesitate to contact any one or all of the signatories below.

Sincerely,

Johanna H. Wald
Director, Western Renewable Energy Program
Natural Resources Defense Council

Lisa Belenky
Senior Attorney
Center for Biological Diversity

Barbara Boyle
Senior Representative
Beyond Coal Campaign
Sierra Club

Jeff Aardahl
California Representative
Defenders of Wildlife

cc: Jim Abbott, Associate BLM State Director, California via email
Ken Corey, US Fish and Wildlife Service, via email

References cited:

Barrows et al. (2006) Boundary processes between a desert sand dune community and an encroaching suburban landscape that may be subsidized by roads and other human activities, Biological Conservation 131 (2006) 486-494.

Barrows and Allen (2009) Conserving Species in Fragmented Habitats: Population Dynamics ofthe Flat-Tailed Homed Lizard, *Phrynosoma mcallii,* The Southwestern Naturalist 54(3):307-316 September 2009

Audubon California
California Native Plant Society * California Wilderness Coalition
Center for Biological Diversity * Defenders of Wildlife
Desert Protective Council * Mojave Desert Land Trust
National Parks Conservation Association
Natural Resources Defense Council * Sierra Club * The Nature Conservancy
The Wilderness Society * The Wildlands Conservancy

Renewable Siting Criteria for California Desert Conservation Area

Environmental stakeholders have been asked by land management agencies, elected officials, other decision-makers, and renewable energy proponents to provide criteria for use in identifying potential renewable energy sites in the California Desert Conservation Area (CDCA). Large parts of the California desert ecosystem have survived despite pressures from mining, grazing, ORV, real estate development and military uses over the last century. Now, utility scale renewable energy development presents the challenge of new land consumptive activities on a potentially unprecedented scale. Without careful planning, the surviving desert ecosystems may be further fragmented, degraded and lost.

The criteria below primarily address the siting of solar energy projects and would need to be further refined to address factors that are specific to the siting of wind and geothermal facilities. While the criteria listed below are not ranked, they are intended to inform planning processes and were designed to provide ecosystem level protection to the CDCA (including public, private and military lands) by giving preference to disturbed lands, steering development away from lands with high environmental values, and avoiding the deserts' undeveloped cores. They were developed with input from field scientists, land managers, and conservation professionals and fall into two categories: 1) areas to prioritize for siting and 2) high conflict areas. The criteria are intended to guide solar development to areas with comparatively low potential for conflict and controversy in an effort to help California meet its ambitious renewable energy goals in a timely manner.

Areas to Prioritize for Siting

- Lands that have been mechanically disturbed, i.e., locations that are degraded and disturbed by mechanical disturbance:
    - Lands that have been "type-converted" from native vegetation through plowing, bulldozing or other mechanical impact often in support of agriculture or other land cover change activities (mining, clearance for development, heavy off-road vehicle use).[1]
- Public lands of comparatively low resource value located adjacent to degraded and impacted private lands on the fringes of the CDCA:[2]
    - Allow for the expansion of renewable energy development onto private lands.
    - Private lands development offers tax benefits to local government.
- Brownfields:
    - Revitalize idle or underutilized industrialized sites.
    - Existing transmission capacity and infrastructure are typically in place.

- Locations adjacent to urbanized areas:[3]
    - Provide jobs for local residents often in underserved communities;
    - Minimize growth-inducing impacts;
    - Provide homes and services for the workforce that will be required at new energy facilities;
    - Minimize workforce commute and associated greenhouse gas emissions.
- Locations that minimize the need to build new roads.
- Locations that could be served by existing substations.
- Areas proximate to sources of municipal wastewater for use in cleaning.
- Locations proximate to load centers.
- Locations adjacent to federally designated corridors with existing major transmission lines.[4]

High Conflict Areas

In an effort to flag areas that will generate significant controversy the environmental community has developed the following list of criteria for areas to avoid in siting renewable projects. These criteria are fairly broad. They are intended to minimize resource conflicts and thereby help California meet its ambitious renewable goals. The criteria are not intended to serve as a substitute for project specific review. They do not include the categories of lands within the California desert that are off limits to all development by statute or policy.[5]

- Locations that support sensitive biological resources, including: federally designated and proposed critical habitat; significant[6] populations of federal or state threatened and endangered species,[7] significant populations of sensitive, rare and special status species,[8] and rare or unique plant communities.[9]
- Areas of Critical Environmental Concern, Wildlife Habitat Management Areas, proposed HCP and NCCP Conservation Reserves.[10]
- Lands purchased for conservation including those conveyed to the BLM.[11]
- Landscape-level biological linkage areas required for the continued functioning of biological and ecological processes.[12]
- Proposed Wilderness Areas, proposed National Monuments, and Citizens' Wilderness Inventory Areas.[13]
- Wetlands and riparian areas, including the upland habitat and groundwater resources required to protect the integrity of seeps, springs, streams or wetlands.[14]
- National Historic Register eligible sites and other known cultural resources.
- Locations directly adjacent to National or State Park units.[15]

EXPLANATIONS

---

[1] Some of these lands may be currently abandoned from those prior activities, allowing some natural vegetation to be sparsely re-established. However, because the desert is slow to heal, these lands do not support the high level of ecological functioning that undisturbed natural lands do.

[2] Based on currently available data.

[3] Urbanized areas include desert communities that welcome local industrial development but do not include communities that are dependent on tourism for their economic survival.

[4] The term "federally designated corridors" does not include contingent corridors.

[5] Lands where development is prohibited by statute or policy include but are not limited to:

National Park Service units; designated Wilderness Areas; Wilderness Study Areas; BLM National Conservation Areas; National Recreation Areas; National Monuments; private preserves and reserves; Inventoried Roadless Areas on USFS lands; National Historic and National Scenic Trails; National Wild, Scenic and Recreational Rivers; HCP and NCCP lands precluded from development; conservation mitigation banks under conservation easements approved by the state Department of Fish and Game, U.S. Fish and Wildlife Service or Army Corps of Engineers a; California State Wetlands; California State Parks; Department of Fish and Game Wildlife Areas and Ecological Reserves; National Historic Register sites.

[6] Determining "significance" requires consideration of factors that include population size and characteristics, linkage, and feasibility of mitigation.

[7] Some listed species have no designated critical habitat or occupy habitat outside of designated critical habitat. Locations with significant occurrences of federal or state threatened and endangered species should be avoided even if these locations are outside of designated critical habitat or conservation areas in order to minimize take and provide connectivity between critical habitat units.

[8] Significant populations/occurrences of sensitive, rare and special status species including CNPS list 1B and list 2 plants, and federal or state agency species of concern.

[9] Rare plant communities/assemblages include those defined by the California Native Plant Society's Rare Plant Communities Initiative and by federal, state and county agencies.

[10] ACECs include Desert Tortoise Desert Wildlife Management Areas (DWMAs). The CDCA Plan has designated specific Wildlife Habitat Management Areas (HMAs) to conserve habitat for species such as the Mohave ground squirrel and bighorn sheep. Some of these designated areas are subject to development caps which apply to renewable energy projects (as well as other activities).

[11] These lands include compensation lands purchased for mitigation by other parties and transferred to the BLM and compensation lands purchased directly by the BLM.

[12] Landscape-level linkages provide connectivity between species populations, wildlife movement corridors, ecological process corridors (e.g., sand movement corridors), and climate change adaptation corridors. They also provide connections between protected ecological reserves such as National Park units and Wilderness Areas. The long-term viability of existing populations within such reserves may be dependent upon habitat, populations or processes that extend outside of their boundaries. While it is possible to describe current wildlife movement corridors, the problem of forecasting the future locations of such corridors is confounded by the lack of certainty inherent in global climate change. Hence the need to maintain broad, landscape-level connections. To maintain ecological functions and natural history values inherent in parks, wilderness and other biological reserves, trans-boundary ecological processes must be identified and protected. Specific and cumulative impacts that may threaten vital corridors and trans-boundary processes should be avoided.

[13] Proposed Wilderness Areas: lands proposed by a member of Congress to be set aside to preserve wilderness values. The proposal must be: 1) introduced as legislation, or 2) announced by a member of Congress with publicly available maps. Proposed National Monuments: areas proposed by the President or a member of Congress to protect objects of historic or scientific interest. The proposal must be: 1) introduced as legislation or 2) announced by a member of Congress with publicly available maps. Citizens' Wilderness Inventory Areas: lands that have been inventoried by citizens groups, conservationists, and agencies and found to have defined "wilderness characteristics." The proposal has been publicly announced.

[14] The extent of upland habitat that needs to be protected is sensitive to site-specific resources. For example: the NECO Amendment to the CDCA Plan protects streams within a 5-mile radius of Townsend big-eared bat maternity roosts; aquatic and riparian species may be highly sensitive to changes in groundwater levels.

[15] Adjacent: lying contiguous, adjoining or within 2 miles of park or state boundaries. (Note: lands more than 2 miles from a park boundary should be evaluated for importance from a landscape-level linkage perspective, as further defined in footnote 12).

July 19, 2012

Mr. Noel Ludwig, U.S. Department of the Interior
Bureau of Land Management
California Desert District Office
22835 Calle San Juan de Los Lagos
Moreno Valley, CA 92553
BLM_CA_Ocotillo_Sol_Comments@blm.gov

RE: Draft Environmental Impact Statement/Draft CDCA Plan Amendment, Ocotillo Sol Project (BLM/CA/ES-2012-009+1793; DES 20-12; DOI-BLM-CA-D000-2012-0005-EIS

Dear Mr. Ludwig,

San Diego Gas & Electric Company (SDG&E) appreciates the opportunity to submit comments to the United States Department of Interior, Bureau of Land Management (BLM) on the Draft Environmental Impact Statement (EIS) for the proposed Ocotillo Sol Project (Ocotillo Sol or Project). SDG&E appreciates the BLM's efforts to work closely with SDG&E staff, since April 2009, to develop an environmentally responsible renewable energy project. The release of the EIS is a major milestone for the Project that follows years of collaboration between BLM and SDG&E.

As a result of this close coordination between BLM and SDG&E, the Project has been sited and designed to avoid and minimize environmental impacts. As you will recall, during the pre-application process, SDG&E conducted extensive cultural and biological surveys on an expansive (350 acre) study area in order to identify environmental constraints and adequately site the project within a smaller portion of the study area. Those results were shared with BLM staff prior to submittal of the Right of Way application and influenced the siting and design of the Project. The Draft EIS includes a comprehensive analysis of the Project, which is the result of the BLM's and SDG&E's efforts to adequately site the project and to actively engage stakeholders and the public through the stakeholder meetings, public scoping process, government-to-government consultation process and various public meetings.

SDG&E commends the BLM on their comprehensive review and analysis. The attached comments identify areas in which SDG&E believes that environmental impacts are overstated and that related mitigation measures are unnecessary or infeasible. Attachment A to this letter includes minor revisions and clarifications that should be incorporated into the Final EIS, and Attachment B includes proposed revisions to the draft mitigation measures contained in the Draft EIS. SDG&E requests that all of these revisions be incorporated into the Final EIS.

SDG&E has been working with BLM to design and construct this 20-MW renewable energy project for more than three years. SDG&E agrees with and supports the BLM's conclusion that the Reduced Construction Footprint Alternative is the preferred alternative, and urges the BLM to prepare

and publish the Final EIS and approve the Ocotillo Sol Right-of-Way and CDCA Plan Amendment without further delay. Should you have any questions about the enclosed, please do not hesitate to contact me at (858) 637-3728.

Sincerely,

Edalia Olivo-Gomez
Senior Environmental Specialist

Cc: Frank Thomas, SDG&E Ocotillo Sol Project Manager

Comment #	Section Name	Page #	Paragraph or Table #	Existing Language	General Comment
ES – Executive Summary					
1.	ES	ES-19	Table ES-1	It is also possible that grading within the construction area could increase the amount of sheet flow and water runoff during heavy rainfall events that could cause damage to cultural resources outside the construction area.	This statement is unsubstantiated. The proposed Project site in both Alternatives 2 and 3 are undisturbed sparsely vegetated desert. Grading activities would not create a change in impervious surface or change in directional flow of runoff. This statement should be removed.
Chapter 1 – Introduction/Purpose and Need					
2.	Applicant's Objectives	1-4	Second paragraph	The Applicant's fundamental objective for the Ocotillo Sol Project is to develop, own, and operate a renewable energy generation facility in the Imperial Valley region of southern California, and to deliver the renewable energy generated by the project to the Applicant's customers consistent with California laws, policies, and mandates.	SDG&E objectives are not adequately explained relative to potential transmission system attributes. The existing language should be amended as follows: The Applicant's fundamental objective for the Ocotillo Sol Project is to develop, own, and operate a renewable energy generation facility in the Imperial Valley region of southern California, and to deliver the renewable energy and transmission benefits generated by the project to the Applicant's customers consistent with California laws, policies, and mandates. The proposed Project may further stabilize the electrical network and increase reliability by providing a future potential opportunity for reactive power, off-setting system energy losses, and serving as an energy source to the IV Substation during black out conditions. SDG&E is in the preliminary stages of assessing whether additional reactive power is feasible and desirable. The only foreseeable future potential facilities would be a 100 x 200 foot building located within the already disturbed IV Substation footprint. No changes to the proposed Project site configuration are anticipated.
Chapter 2 – Description of Alternatives					
3.	2.2.2.2 Project Components	2-4	Footnote 2	2 Unless specified differently, all capacity values are stated in MW alternating current.	Footnote 2 should be amended to include the following: If smart inverters are employed to enhance grid stability, for every MVar of reactive power provided by the facility, coincident photovoltaic energy would be reduced by 1 MW for the period of delivery.
4.	2.2.2.2.3 Electric Transmission and Interconnect	2-7	First paragraph	The interconnection facilities would consist of the following existing equipment within the Imperial Valley Substation: three 12.47 kV breakers, six 12.47 kV disconnects, a 12.47 kV switch rack, 2,000 feet of underground 12.47 kV cable trench.	Interconnection facilities are proposed within the Imperial Valley Substation. The sentence is incorrect and should be revised to eliminate the word "existing".
5.	2.2.2.2.6 Site Security and Fencing	2-8	Third paragraph	The applicant would also provide access to the secured area to the U.S. Border Patrol, allowing them to perform their duties.	As discussed with Border Patrol during the April 20, 2011stakholder pre-application meeting, SDG&E will coordinate security issues with the U.S. Border Patrol. The proposed facility is unmanned and access to the area will be secured and restricted. The last sentence in the third paragraph should be eliminated from the text.
6.		2-10	Second paragraph	The site would be maintained free of vegetation…	Change "free of " to "to limit"
7.		2-10	Third paragraph	…maintained as a vegetation free environment_	Change " as a vegetation free environment" to "per the Weed Management Plan"…

Comment #	Section Name	Page #	Paragraph or Table #	Existing Language	General Comment
8.		2-10		When not in use, such materials would be periodically transported, stored properly off-site, and legally disposed of to prevent contamination and accidents.	This statement is incorrect. The word "off-site" should be replaced with "on-site".
9.		2-11	2nd paragraph	Oil spills would be reported to the California Department of Fish and Game, Office of Spill Prevention and Response, at (800) 852-7550.	The language in the Hazardous Materials and Waste section should be deleted and replaced with the following: "Oil spills will be handled in accordance with federal and State of California regulations."
Chapter 3 – Affected Environment					
10.	Air Quality	3-10			No mention is made of CARB's diesel airborne toxic control measures (ATCMs) that govern diesel particulate matter emissions from the diesel on-road vehicles, and off-road construction equipment to be used in the project. It would be important to mention that all diesel vehicles/equipment would comply with CARB's ATCM and other mobile regulations. SDG&E can provide further information on this point.
11.	Greenhouse Gases and Climate Change	3-24			The GHG section mentions EPA SF6 Emissions Reduction Partnership but does not discuss reporting requirement of SF6 under EPA's Mandatory Reporting Rule for GHGH (Section DD) or CARB's regulation for SF6 reduction for GIS equipment. Both EPA/CARB SF6 reduction/reporting rules are being implemented by SDG&E on a company-wide basis (it would be useful to mention this in the document). SDG&E can provide further information on this point.
12.	Water Resources	3-41	Third paragraph	A determination and assessment of the expected water source will be included in the Final EIS.	SDG&E anticipates construction water would be acquired from the City of Holtville, Heber Public Utility District, Seeley County Water District or IID from surface water or municipal water systems. Water resources from the City of Holtville, Heber Public Utility District or Seeley County Water District would be trucked from a nearby hydrant location (and would only require the installation of a construction meter). Water resources from IID would require extraction from the canal system to access raw water for construction, and coordination with IID for submittal of a water service application/Certificate of Ownership and Encroachment Permit Application to allow access to the IID Westside Main Canal. A temporary above-ground pump and drop tank (extraction system) would allow manual filling of tanker trucks prior to delivery to the Project site. A typical extraction system would consist of an above ground flexible withdrawal pipe approximately 8 inches in diameter or less. The drop tank and pump would occupy an area approximately 20-feet by 20-feet. The duration of dust control activities would cover the construction period during which ground disturbing activities are undertaken and on-site construction travel lanes are regularly used. Demineralized water for washing panels would be purchased from Siemens General Industry (Los Angeles) or Puretec Industrial Water (San Diego) and would be trucked to the facility.

Comment #	Section Name	Page #	Paragraph or Table #	Existing Language	General Comment
13.	Water Resources	3-56		Pinto Wash, which is subject to CDFG jurisdiction, is to the southwest approximately 540 feet outside of the proposed 115-acre Ocotillo Sol Project are limits but within the spring survey area.	In Section 3.6.5 Jurisdictional Resources – Pinto Wash is inaccurately described as subject to CDFG jurisdiction. Pinto Wash should be described as "potentially" jurisdictional; as presented in the "Preliminary Jurisdictional Delineation Report (LSA, December 2009, revised July 10, 2010) in the Ocotillo Sol Project Plan of Development. The language should be as follows: Pinto Wash, which is potentially subject to U.S. Army Corps of Engineers, Regional Water Quality Control Board, and CDFG jurisdiction, is outside the 115-acre Ocotillo Sol Project site.
14.	Cultural Resources Section 3.7	3-61	First Paragraph	The survey area consisted of 351.25 acres and included the 115-acre Ocotillo Sol Project APE. The purpose of the survey was to establish the horizontal extent of archeological resources, establish the types of archeological resources in the APE, and develop preliminary recommendations for each site regarding eligibility for listing the NRHP.	This statement inaccurately suggests that the entire 350 acre study area is part of the APE for the project. The Ocotillo Sol Project is proposed to be located on 115 acres. Prior to submitting an application for the proposed Project, LSA conducted a Class III intensive archeological survey to identify cultural resource constraints and assist SDG&E in the identification of a project site that would avoid and minimize impacts to cultural resources within the study area. The inclusion of inventory results in Section 3.7.2.3 for the larger 351.25 acres study area is misleading because it does not accurately reflect impacts associated with the proposed Project site (e.g., it overstates impacts). The section should be revised and clarified to be consistent with Section 3.7.2.4, which accurately identifies that only one site was found within the 115-acre APE. The inventory results should be revised to correlate with the Project boundaries. The inclusion of reconnaissance level work undertaken to adequately site the project in the least environmentally constrained area should be adequately explained or eliminated from the text to avoid confusion. Only relevant information pertaining to potential impacts to environmental resources on the proposed Project site should be included in the analysis. This type of inaccurate and confusing information is found throughout the document including Sections 3.6 Biological Resources. For example, Section 3.6.4.2.2, pertaining to Burrowing Owl, includes information related from a report that encompassed a 350-acre study area to adequately site the Project. The statement "many potentially suitable burrows mapped and a least three adult burrowing owls were found occupying four burrows with the 350-acre LSA spring survey area" should be eliminated and only relevant discussion about two burrowing owls within the 115-acre Ocotillo Sol Project area should be included in the text. Another example is Section 3.6.4.2.8 pertaining to Golden Eagle Nest Surveys. The discussion of Nineteen territories between Sycamore Canyon Substation and Imperial Valley Substation is irrelevant. The nearest known active nest is located approximately 40 miles to the west. The discussion should focus on survey results relevant to the proposed Project site which was determined to be (by the BLM) within 4 miles of the Ocotillo Sol Project.

Comment #	Section Name	Page #	Paragraph or Table #	Existing Language	General Comment
15.	Biological Resources Section 3.6	3-43 to 3-44	Migratory Bird Treaty Act Discussion	Most native bird species are protected under the MBTA and under the California Fish and Game Code. It is unlawful to take, possess, or needlessly destroy any bird, nest, or egg of any bird species protected under the MBTA except as otherwise provided in California Fish and Game Codes and regulations. Disturbances at the active nesting territories should be avoided during the nesting season, typically February through August. BLM's responsibility under the MBTA was clarified in a Memorandum of Understanding with the USFWS pursuant to EO 13186 (BLM 2010)."	Incorrectly merges the MBTA and CF&G Code standards and inverts the analysis. Text should be revised as follows: "Most native bird species are protected under the MBTA and under the California Fish and Game Code. The MBTA prohibits the take of birds identified on the federal migratory bird list, and the take of any migratory bird's parts, nest, or eggs without a permit. Federal regulations define "take" as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect" or to attempt any of these acts. 50 C.F.R. § 10.12. Additionally, California law provides it is unlawful to "take, possess, or needlessly destroy the nest or eggs of any bird." Cal. Fish & Game Code § 3503. "Take" is defined under Section 86 of the Fish and Game Code to mean to "hunt, pursue, catch, capture, or kill" or attempt any of those acts. The California Fish and Game Code explicitly adopts the MBTA and its regulations. Cal. Fish & Game Code § 3513. Disturbances at the active nesting territories should be avoided during the nesting season, typically February through August. BLM's responsibility under the MBTA was clarified in a Memorandum of Understanding with the USFWS pursuant to EO 13186 (BLM 2010)."
16.	Biological Resources	3-62	Migratory Bird Impacts		This section should be clarified to state that habitat modification does not constitute a violation of the MBTA. *See, e.g.*, *City of Sausalito v. O'Neill*, 386 F.3d 1186, 1225 (9th Cir. 2004) (holding that disturbing migratory birds and their nests through tree removal did not violate the MBTA because "unlike under the ESA, an unlawful 'taking' under the MBTA [does] not occur through 'habitat destruction' even [if it leads] indirectly to bird deaths"); *Seattle Audubon Soc'y v. Evans*, 952 F.2d 297, 302–303 (9th Cir. 1991) (stating that logging of owl habitat "causes 'harm' to the owls under the ESA but does not 'take' them within the meaning of the MBTA").
Chapter 4 – Environmental Consequences					
17.	Air Quality	4-32	Second paragraph	As seen in Table 4.2-6, none of the criteria pollutant emissions due to construction of the Ocotillo Sol Project are anticipated to exceed the pertinent de minimis thresholds.	Table 4.2.6 summarizes the ton/yr emissions levels of NOx and other criteria pollutants and shows that none of the pollutants exceed the federal de minimis general conformity thresholds for Imperial County (applicable to projects on federal lands). However, the document does not explicitly state that the emissions are below federal General Conformity thresholds and Conformity Determination is not needed. A statement should be added to the Section 4.2.3.2.1 that states General Conformity determination is not triggered for this project.

Comment #	Section Name	Page #	Paragraph or Table #	Existing Language	General Comment
18.	Air Quality	4-32			No mention is made of CARB's diesel airborne toxic control measures (ATCMs) that govern diesel particulate matter emissions from the diesel on-road vehicles, and off-road construction equipment to be used in the project (including the requirement to limit idling of heavy-duty diesel trucks and off-road equipment to 5 minutes). It is important to mention that all diesel vehicles/equipment would comply with CARB's ATCM and other mobile regulations.
19.	Greenhouse Gases and Climate Change	4-40			Tables 4.3-1 and 4.3-2 provide the annual GHG emissions (metric tons per year) from construction activities and plant operations. The total emissions are calculated to be 6,556 mt/yr (CO2e). The document makes no mention of the SCAQMD's significance threshold of 10,000 mt/yr CO2e (amortized over the life of the project), which is widely used as a bench mark by various agencies in California (for projects that trigger CEQA review) including the CPUC. SDG&E notes that the SCAQMD's significance thresholds do not apply as a matter of law. While not legally applicable under NEPA, SDG&E notes that the GHG emissions level is well below SCAQMD's thresholds for significance of 10,000 mt/yr CO2e (amortized over the life of the project), further demonstrating the minimal impacts associated with this project.
20.	Biological Resources	4-60	Second paragraph	The construction of fencing around the generation facility may provide perches for avian predators, which could further impact flat-tailed horned lizard foraging outside the project footprint.	This statement should be revised. Fencing around the generation facility will include razor wire, which deters perching.
21.	Biological Resources	4-61	Second paragraph	After construction of the solar field is complete, burrowing owl are expected to persist along and outside the perimeter of the solar facility for foraging. The owls are expected to use the solar field perimeter fence as a foraging perch. Raptors species, including burrowing owl predators, may also perch on the perimeter fence.	This statement is unfounded. Fencing around the generation facility will include razor wire, which deters perching.
22.	Biological Resources	4-64	Second and sixth paragraphs	Alternative 2 could result in adverse impacts to special status small mammals and reptiles. Conservation and mitigation measures outlined in Section 4.6.4 would be implemented to avoid, minimize, and/or compensate for impacts under this alternative. Impacts to wildlife and habitat for special status wildlife would occur under Alternative 3. These impacts would be similar to, but slightly less than, those discussed under Alternative 2 above.	Adverse impacts to special status species related to operation and maintenance activities are overstated. SDG&E agrees that avoidance and minimization measures outlined in Section 4.6.4 would serve to reduce potential impacts to special status species, however compensation would not be necessary to offset overstated impacts.
23.	Biological Resources	4-67	Table 4.6-1	Percent Disturbance 0.06	Table 4.6-1, Percent Disturbance "0.06" should be "0.6"
24.	Biological Resources	4-66 & 4-67	Table 4.6-1	Existing disturbance, including Sunrise Powerlink and Imperial Valley Substation (1997-2009); 136.9 acres.	In accordance with the FTHL Strategy, cumulative new disturbance since 1997 may not exceed 1% of the total acreage on federal land. Construction of Imperial Valley Substation was completed in 1984, therefore the disturbance associated with the IV Substation should not be included in the impacts to the Yuha Desert Wildlife Management Area calculations. The 136.9 acre calculation for Sunrise and IV Substation should be revised to exclude the approximately 56 acre IV Substation and the percent disturbance calculation (0.6%) should be adjusted accordingly.

Comment #	Section Name	Page #	Paragraph or Table #	Existing Language	General Comment
25.	Biological Resources	4-70		Past, present, and reasonably foreseeable projects in the area may impact nesting raptors and migratory birds through direct impacts to foraging and nesting habitat or through direct contact. Nesting raptors and migratory birds are widespread throughout the Yuha Desert Wildlife Management Area and it is not possible to provide meaningful quantitative analysis of direct cumulative impacts to these species.	The proposed 115- acre project represents the removal of 115-acres of foraging and nesting habitat from over an estimated 57,000 acre foraging territory within the Yuha Desert Wildlife Management Area which represents an insignificant impact.
26.	Biological Resources	4-74		Be present during construction (e.g., grubbing, grading, tower installation, wire stringing) activities that take place in flat-tailed horned lizard habitat to avoid or minimize take of flat-tailed horned lizard. Activities include, but are not limited to, ensuring compliance with all impact avoidance and minimization measures, monitoring for flat-tailed horned lizard and removing lizards from harm's way, and checking avoidance areas (e.g., washes) to ensure that signs and stakes are intact and that human activities are restricted in these avoidance zones.	Tower installation and wire stringing are not components of this project and thus those references should be deleted. Temporary fencing during construction will achieve avoidance of any resources outside the project footprint. There are no washes within the Project footprint.
27.	Cultural Cumulative Impacts	4-84	4.7.4.1	The cumulative analysis geographic scope for cultural resources is cultural sites, traditional use areas and cultural landscapes within a 1-mile radius of the 40-foot contour of ancient Lake Cahuilla and approximate 2-mile radius northwest and southeast of the Ocotillo Sol Project area along the shoreline of ancient Lake Cahuilla.	Section 4.7.4.1 should clarify that the proposed Ocotillo Project site is located at 7-foot mean sea level (msl) and has no impact to the 40-foot contour of ancient Lake Cahuilla. Additionally the text should clarify that, past, present, and reasonably foreseeable future projects listed in Table 4-2 also do not impact the ancient shoreline.
28.	Cultural	4-90	Fourth & sixth paragraphs		"Section 4.8.6" should be Section 4.8.5

Comment #	Section Name, Page #	General Comment	Mitigation Measure Proposed Revised Language
1.	Air Quality- 4.24, page 4-37	The analysis in Section 4.2.3.2.2-Operation concludes that none of the criteria pollutant emissions due to operation of the Project are anticipated to exceed de minims thresholds and operational emissions are well below 10 percent of the air basin emissions. The requirement to prepare a dust control plan for the operation and maintenance of the Project is unnecessary, onerous and disproportional to the impact. SDG&E's standard operational protocols are adequate to further reduce any potential impacts resulting from operation and maintenance activities. SDG&E implements Natural Communities Conservation Plan (NCCP) standard operational protocols during the operation and maintenance of all its facilities within the SDG&E territory including Imperial Valley. NCCP, Section 7.1 requires vehicles be kept on access roads and a 15-mile per hour speed limit must be observed on dirt access road to allow reptile species to disperse. Vehicles must be turned around in established and designated areas only. These standard protocols should be -included as part of the project description and added to SDG&E's Applicant's Proposed Measures (APMs) in the EIS and on Table 4 in the Plan of Development.	A Dust control plan~~s~~ for the construction period ~~as well as the operation and maintenance period~~ -would be implemented to reduce emissions (the dust control plan will be developed prior to the ~~Record of Decision~~ start of construction). Dust control measures would be taken from the Water Quality Construction BMP Manual (San Diego Gas & Electric 2002) and ~~Renewable Energy Action Team BMPs and Guidance Manual (2010)~~.
2.	Biological Resources - 4.6.4.1 Page 4-70, 71 Vegetation Resources	**Measure 1**: SDG&E disagrees with the 6:1 mitigation ratio. According to the formula in the Flat-tailed Horned Lizard Rangewide Management Strategy (page 61) the mitigation requirements should be at a 5:1 ratio based on the following calculation M= 3+ 0+ 0+ 1+ 1 = 5. "A", Adjacent Habitat Impacts should be 0 since adjacent lands will not be affected and "G", Growth Inducing Effects within FTHL habitat should be also be 0. The Project is a photovoltaic project to deliver renewable energy to SDG&E customers which does not result in the inducement of growth. **Measure 2**: A Decommissioning and Restoration Plan is included in the EIS and as specified a detailed restoration plan will be prepared. Details regarding monitoring requirements and methods should be eliminated from this mitigation measure to avoid any potential conflicts.	**Measure 1:** In accordance with the *Flat-tailed Horned Lizard Rangewide Management Strategy*, mitigation would be required for permanent and temporary impacts to flat-tailed horned lizard habitat. Flat-tailed horned lizard is known to occur in the creosote bush–white burr sage scrub vegetation within the Ocotillo Sol Project area. In accordance with the *Flat-tailed Horned Lizard Rangewide Management Strategy*, compensation for permanent impacts to this habitat within the Management Area will be at a ~~5~~6:1 ratio. Under Alternative 2, compensation would equal 575~~690~~ acres for impacts to the 100 acres of permanent and 15 acres of temporary impacts to creosote bush–white burr sage scrub vegetation. Under Alternative 3, compensation would equal 510 ~~602~~ acres for impacts to the 100 acres of permanent and 2 acres of temporary impacts to creosote bush–white burr sage scrub vegetation. This compensation would be in the form of acquisition of specific land parcels and/or depositing funds into the Renewable Energy Action Team Account established with the National Fish and Wildlife Foundation for mitigation land search, acquisition, and management. **Measure 2:** Re-vegetation of temporary impacts is required to restore the habitat functions and values to their pre-construction state. Re-vegetation and restoration efforts are to follow the Ocotillo Sol Decommissioning and Reclamation Plan ~~A detailed Habitat Restoration Plan will be prepared and implemented to ensure the restoration of the temporarily impacted areas is successful. The Habitat Restoration Plan must be approved in writing prior to the initiation of any vegetation-disturbing activities. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (e.g., weeding, replacement planting, supplemental watering) and~~

Comment #	Section Name, Page #	General Comment	Mitigation Measure Proposed Revised Language
			~~monitoring the restored area for a period of 5 years (or less if the restoration meets all success criteria). Components of the Habitat Restoration Plan will include the incorporation of any BLM revegetation/restoration guidance measures. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.~~
3.		**Measure 5:** Mitigation measures outlined in the Flat-tailed Horned Lizard Rangewide Management Strategy (Strategy) (Appendix 3, Standard Mitigation Measures for Flat-tailed horned lizard) are specifically related to construction and not the on-going monitoring during the life of the Project. The Project site will be devoid of potential FTHL vegetation (which is being mitigated per the compensatory mitigation requirement). Requirements for annual reporting to agencies to relevant resource agencies will be addressed in required plans. This measure is unclear and should be eliminated.	~~**Measure 5:** A brief Annual Report will be submitted to the relevant resource agencies documenting the implementation of all conservation measures such as habitat restoration, compensation, and avoidance and minimization measures.~~
4.	Biological Resources - 4.6.4.1.1 page 4-72 Flat-Tailed Horned Lizard Construction	**Measure 8:** This measure is applicable to the construction of the Project. SDG&E would follow NCCP protocols for the operation of the facility. Pre-construction surveys would not be necessary to conduct operation and maintenance activities within the Project footprint. Monitoring requirements for closure and restoration activities will be specified in the Decommissioning and Restoration Plan. Therefore, discussion of pre-construction surveys for these activities should be eliminated from this measure. Language referencing tower installation and wire stringing should be eliminated since these activities are irrelevant and not proposed in the project scope. Suggested revision to clarify applicability of measure 9. **Measures 9 and 10:** Measures 9 and 10 are directly related and should be combined into one measure for efficiency and ease of implementation. We also recommend clarifying that the survey requirement is to be conducted in the immediate vicinity of ground disturbing activities to avoid potential confusion.	**Measure 8:** Approved Biological Monitor(s) will assist the Designated Biologist in conducting pre-construction surveys and monitoring mobilization, ground disturbance, grading, and construction~~, operation, closure, and restoration activities~~. The Biological Monitor(s) will have experience conducting flat-tailed horned lizard field monitoring, have sufficient education and field experience to understand flat-tailed horned lizard biology, be able to identify flat-tailed horned lizard scat, and be able to identify and follow flat-tailed horned lizard tracks. The Designated Biologist will submit a resume, at least three references, and contact information of the proposed Biological Monitors to the BLM for approval. To avoid and minimize impacts to biological resources, the Biological Monitors will assist the Designated Biologist with the following: • Be present during construction (e.g., grubbing, and grading~~, tower installation, wire stringing~~) activities that take place in flat tailed horned lizard habitat to avoid or minimize take of flat-tailed horned lizard. Activities include, but are not limited to, ensuring compliance with all impact avoidance and minimization measures, monitoring for flat-tailed horned lizards and removing lizards from harm's way, and checking avoidance areas (e.g., washes) to ensure that signs, and stakes are intact and that human activities are restricted in these avoidance zones. • At the end of each workday, inspect all potential wildlife pitfalls (trenches, bores and other excavations) for wildlife and then backfill. If backfilling is not feasible, all trenches, bores, and other excavations will be contoured at a 3:1 slope at the ends to provide wildlife escape ramps, or completely and securely covered to prevent wildlife access. • During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 85°F for the presence of flat-tailed horned lizard. **Measure 9:** Flat-tailed horned lizards will be removed from harm's way during all construction activities, per Measure 10 below. Flat-tailed horned lizard removal will be conducted by two or more Biological Monitors when construction activities are being conducted in suitable flat-tailed horned lizard habitat. To the extent feasible, methods to find flat-tailed horned lizards will be designed to achieve a maximal capture rate and will include, but not be limited to using strip transects, tracking, and raking around shrubs. In the immediate vicinity of ground disturbing activities ~~During construction~~, the minimum survey effort will be 30 minutes per 0.40 hectare (30 minutes per 1 acre). Persons that handle flat-tailed horned lizards will first obtain all necessary permits and authorization from the CDFG. Flat-tailed horned lizard removal surveys

Comment #	Section Name, Page #	General Comment	Mitigation Measure Proposed Revised Language
			will also include a Horned Lizard Observation Data Sheet and a Project Reporting Form, per Appendix 8 of the *Flat-tailed Horned Lizard Rangewide Management Strategy*. During construction, quarterly reports describing flat-tailed horned lizard removal activity, per the reporting requirements described in Measure 1 above, will be submitted to the BLM and CDFG. ~~**Measure 10:**~~ The removal of flat-tailed horned lizards out of harm's way will include relocation to nearby suitable habitat in low-impact (e.g., away from roads and solar panels) areas of the Yuha Management Area. Relocated flat-tailed horned lizards will be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 75°F or exceed 100°F, the Designated Biologist or Biological Monitor, if authorized, will hold the flat-tailed horned lizard for later release. Initially, captured flat-tailed horned lizards will be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards will be held at temperatures between 75°F and 90°F and will not be exposed to direct sunlight. Release will occur as soon as possible after capture and during daylight hours. The Designated Biologist or Biological Monitor will be allowed some judgment and discretion when relocating lizards to maximize survival of flat-tailed horned lizards found in the project area.
5.	Biological Resources - 4.6.4.1.1 page 4-72 Flat-Tailed Horned Lizard Operation and Maintenance	**Measures 12 & 13:** Measures 12 & 13 should be eliminated or changed to require a report at the end of construction. The flat-tailed horned lizard (FTHL) is a BLM species of special concern. The Flat-tailed Horned Lizard Rangewide Management Strategy was (Strategy) was prepared to prevent the net loss of FTHL habitat. As discussed on page 3-46 of the DEIS, the Strategy includes mitigation measures and a compensation formula to be incorporated into all authorized surface disturbing projects where applicable. The compensatory mitigation requirements (Appendix 4, Compensation Formula) in the Strategy detail requirements to adequately mitigate the impacts to FTHL habitat for the life of the Project. Project impacts will be mitigated in accordance with the Strategy. SDG&E concurs with the application of the compensatory mitigation formula which results in a 5:1 mitigation ratio. Mitigation Measures 12 and 13 are inconsistent with the mitigation measures outlined in the Strategy (Appendix 3, Standard Mitigation Measures for Flat-tailed horned lizard), which do not include annual reporting requirements for the life of the project. Measures in the Strategy are specifically related to construction and not the on-going monitoring during the life of the Project. The Project site will be devoid of potential FTHL vegetation (which is being mitigated per the compensatory mitigation requirement).	~~**Measure 12:** No later than January 31 of every year that the Ocotillo Sol Project remains in operation, the Designated Biologist will provide the BLM's Authorized Officer, CDFG, and the Flat-tailed Horned Lizard Interagency Coordinating Committee an annual flat-tailed horned lizard Status Report, which will include the following, at a minimum:~~ • ~~A general description of the status of the project site.~~ • ~~A copy of the table in the project biological monitoring report with notes showing the current implementation status of each conservation measure~~ • ~~An assessment of the effectiveness of each completed or partially completed measure in avoiding and minimizing project impacts~~ • ~~A completed Project Reporting Form from the *Flat-tailed Horned Lizard Rangewide Management Strategy*~~ • ~~A summary of information regarding any flat-tailed horned lizard mortality in conjunction with the project's Wildlife Mortality Reporting Program~~ • ~~Recommendations on how conservation measures might be changed to more effectively avoid, minimize, and offset future project impacts on the flat-tailed horned lizard~~ ~~**Measure 13:** Adaptive Management for flat-tailed horned lizard; the Designated Biologist or Biological Monitor(s) will evaluate and implement the best measures to reduce flat-tailed horned lizard mortality along access roads, particularly during the flat-tailed horned lizard active season (March 1 through September 30). These measures will include the following:~~ • ~~A speed limit of 15 miles per hour when driving the access road to the facility, and any roads within the facility. All vehicles required for operation and maintenance must remain on the designated access/maintenance roads.~~ • ~~Operation and maintenance activities including weed abatement, or any other operation and maintenance activity that may result in ground disturbance will be conducted outside of the flat-tailed horned lizard active season whenever feasible.~~ • ~~If any operation and maintenance activities must be conducted during the flat-tailed horned lizard active season that may result in ground disturbance, such as weed abatement or vehicles requiring access outside of a designated access road, a Biological Monitor will be present during activities to ensure that no flat-tailed horned lizards are impacted.~~

Comment #	Section Name, Page #	General Comment	Mitigation Measure Proposed Revised Language
			~~Implementation of these measures would be based on flat-tailed horned lizard activity levels, the best professional judgment of the Designated Biologist, and site-specific road utilization. Flat-tailed horned lizard found on access roads, if monitoring is required, will be relocated per Measure 11.~~
6.	Burrowing Owl – 4.6.4.2.2, 4-76 & 4-77 Construction	**Measure 14:** Eliminate and resolve conflicting mitigation measures in the Final EIS. Mitigation Measures 15 through 20 address these concerns. **Measure 18:** The requirement to construct burrows off-site (SDG&E's proposed right-of-way) within 50 to 75 meters from the impacted area is not feasible. Specifying a distance for the location of new burrows may result in the construction of new burrows within the Project footprint. Construction of new burrows outside the Project footprint would require landowner access, permission and other required agency approvals and permits. The compensatory mitigation requirement for FTHL and burrowing owl adequately mitigates impacts to burrowing owl habitat. BLM should maintain authority to approve any Burrowing Owl Plan, after consultation with CDFG. **Measure 19:** Measure 19 is duplicative and therefore not necessary. A Burrowing Owl Plan is already required in Measure 18. **Measure 20:** SDG&E agrees with the conclusion that compensatory mitigation for FTHL will serve to mitigate for impacts to burrowing owl. Revisions to Measure 20 serve to clarify this requirement. If BLM selects the Reduced Construction Footprint Alternative, the second sentence of Measure 20 should be deleted as the 15 acres referenced would not be part of the approved project.	~~**Measure 14:** Initial grading of the creosote bush–white burr sage scrub vegetation for the solar field take place between September 1 and January 31 to avoid impacts to breeding burrowing owls (CDFG 2012). This measure is in conflict with mitigation for the flat-tailed horned lizard. If this conflict cannot be resolved, BLM may select Measure 15~~ **Measure 18:** If active burrows are observed within the project footprint during the pre-construction take avoidance survey(s), the following mitigation measures shall be implemented. Passive relocation methods are to be used to move the owls out of the impact zone. Passive relocation shall only be done in the non-breeding season in accordance with the *2012 CDFG Staff Report on Burrowing Owl Mitigation*. A Burrowing Owl Exclusion Plan would ~~should~~ be developed in accordance with Appendix E of the *2012 CDFG Staff Report on Burrowing Owl Mitigation* in consultation with CDFG and approved by ~~CDFG~~BLM. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow, but will exclude any animals from re-entering the burrow. One-way doors will be left in place for 48 hours if scoping indicates occupancy. Burrow will be scoped prior to excavation. Excavation will be done using hand tools and refilled to prevent reoccupation. After burrow is collapsed, contractor will immediately disk down area to prevent reoccupation. Due to the limited scope of the right-of-way, no new burrows shall be required or constructed. ~~The destruction of the active burrows on-site requires construction of new burrows at a mitigation ratio of 2:1 approximately 50 to 75 meters from the impacted area and must be constructed as part of the above-described relocation efforts. The construction of new burrows will take place within open areas that allow for foraging.~~ All passive relocation efforts will be documented with photographs, GPS coordinates of created burrows, and a description of relocation efforts, all of which are to be submitted to CDFG in report format. ~~**Measure 19:** As the construction schedule and details are finalized, an approved biologist shall prepare a Burrowing Owl Exclusion Plan that will detail the methodology proposed to minimize and mitigate impacts to this species. Passive relocation, destruction of burrows, and construction of artificial burrows can only be completed upon approval by CDFG.~~ **Measure 20:** In accordance with the *2012 CDFG Staff Report on Burrowing Owl Mitigation*, the entire project site is considered occupied, as burrowing owls have been recorded using the site on multiple years and during various seasons. The 15 acres area of temporarily impacted land shall be restored to pre-project condition, including de-compacting the soil and re-vegetating with native species. The 100 acres of permanent impacts to burrowing owl habitat shall be mitigated at a 1:1 ratio by permanently protecting in-kind habitat off-site through a conservation easement in accordance with pages 11-13 (*Mitigating Impacts*) of the *2012 CDFG Staff Report on Burrowing Owl Mitigation*. As the habitat for ~~this~~ burrowing owl in the Project area is creosote bush–white burr sage scrub, the same habitat as ~~requiring mitigation for impacts to~~ flat-tailed horned lizards, compensatory mitigation for burrowing owl foraging habitat will be satisfied through compensatory mitigation requirements for flat-tailed horned lizard. ~~The mitigation required for impacts to burrowing owl foraging habitat can be achieved in conjunction with the flat-tailed horned lizard mitigation if approved by CDFG~~.
7.	Raptors – 4.6.4.2.3, pages 4-77 & 4-78 Construction	**Measure 21 & 22:** Measure 21 should be eliminated since it is addressed in Measure 22. Not all the transmission towers in the vicinity of the Project area are owned by SDG&E. SDG&E will coordinate with neighboring utilities to acquire permission to remove in-active nests. The suggested revision provides feasibility to implement the proposed measure. The analysis for construction impacts to raptors does not support the requirement for compensatory mitigation for	~~**Measure 21:** Initial grading and construction within the Ocotillo Sol Project area shall take place outside raptor breeding season of February 1 to July 15.~~ **Measure 22:** If construction occurs between February 1 and July 15, a qualified biologist shall conduct a pre-construction clearance survey for nesting raptors in suitable nesting habitat (e.g., transmission towers) that occurs within 500 feet of the Ocotillo Sol Project area. If any in-active nests are identified ~~within~~ on ~~the~~ adjacent SDG&E transmission towers within 500 feet of the Project, the nests shall be removed by a qualified biologist (to extent practical), or by construction personnel with a qualified biologist immediately present to over-see the removal. If any active raptor nest is located, ~~the nest area will be~~

Comment #	Section Name, Page #	General Comment	Mitigation Measure Proposed Revised Language
		raptor foraging habitat.	~~flagged, and a 500-foot buffer zone delineated, flagged, or otherwise marked. No work activity may occur within this buffer area, until~~ a qualified biologist will monitor the nest to ensure project activities do not disturb nesting activities. ~~determines that the fledglings are independent of the nest. Mitigation for impacts to potential raptor foraging habitat would be conducted in concert with the purchase/acquisition of mitigation for flat-tailed horned lizard habitat as detailed above. If nesting raptors will be impacted by construction activities then a~~ Additional buffer areas may be recommended by the qualified biologist and project activities moved away or shielded to prevent impacts to nesting raptors. Buffer reductions may also be allowed.~~It is not anticipated that additional mitigation for impacts to raptors would be necessary.~~
8.	Cultural Resources – 4.7.5, pages 4-86 & 4-87	The proposed mitigation is an inefficient way to manage the concern. Limiting all construction activities to the Project boundaries will result in the avoidance of impacts to environmentally sensitive areas located outside the Project footprint.	**Cultural Resource Mitigation Measure 1:** Temporary and permanent fencing around the construction area will achieve protection for any cultural resource sites located outside the Project boundaries. ~~Sites within 100 feet of the direct impacts may be indirectly affected due to their proximity to construction areas (Section 4.7.4). These sites shall be designated as Environmentally Sensitive Areas. Temporary fencing around their perimeters will be required in order to identify them as Environmentally Sensitive Areas to ensure that these cultural resources are avoided by project personnel. An archaeologist shall monitor Environmentally Sensitive Areas during ground-disturbing activities. In addition, grading within the construction area shall be performed in a manner that incorporates sheet flow and water runoff diversion techniques to prevent surface water from damaging off-site cultural sites.~~
9.	Visual Resources – 4.13.5, page 4-119	BLM has concluded that the Ocotillo Sol Project would meet visual objectives and have no adverse effects on visual resources. It is therefore unreasonable to require additional visual mitigation. As discussed in the DEIS, the Project is located immediately adjacent to the approximately 60 acre Imperial Valley Substation. In addition, the degree of contrast from each Key Observation Point (KOPs 1, 2 and 3) is none-to-weak. Views of the Ocotillo Sol Project from KOPs 1 and 2 would be undistinguishable and views from KOP 3 are nearly undistinguishable. Scenic quality and visual sensitivity Visual Inventory Values for the Ocotillo Sol Project are rated low and less than sensitive respectively.	The overall goal of the VRM system is to minimize visual impacts. The BLM requires mitigation of visual contrast that can reduce visual impacts, ~~even for projects such as the Ocotillo Sol Project that would meet visual objectives and would have no adverse effects on visual resources.~~ This requirement gives consideration to the ability to view the project from locations other than KOPs. ~~Mitigation measures outlined under the air section (dust control; Section 4.2.6) and biology section (restoration; Section 4.6.4) would also mitigate visual contrast. Dust control measures implemented as part of BMPs would also reduce potential visual resource impacts.~~ ~~Additional mitigation should include surface treatment and color selection, as follows:~~ ~~Coloration of the inverter boxes, buildings and other structural support facilities should be gray or other earth tones as approved by BLM.~~ ~~The chain link fence, PV panel brackets, and other exposed support structures and other metal surfaces should also be color treated (polyvinyl coated or acid-etched) to reduce galvanized surface reflectivity.~~

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Region Yuma
Area Office
7301 Calle Agua Salada
Yuma, AZ 85364

IN REPLY REFER TO:
YA0-7210
ENV-7.00

Received
Bureau of Land Management.
Mail Room
2012 Jul 20 PM 4:09
Calif. Desert District Moreno Valley, CA

July 18 2012

Mr. Noel Ludwig
Ocotillo Sol Project Manager
22835 Calle San Juan De Los Lagos
Moreno Valley, CA 92553

Subject: Review Comments for the Ocotillo Sol Solar Project

Dear Mr. Ludwig:

The Bureau of Reclamation's Yuma Area Office has reviewed the Ocotillo Sol Solar Project Draft Environmental Impact Statement (EIS). The EIS covered five alternatives for managing the project area. Reclamation reviewed the analyses of the potential effects of the various alternatives on Reclamation's mission, structures, and facilities. The project area is not located near the All-American or Coachella Canals, which are important Reclamation projects. The preferred alternative identified in the EIS (alternative 3) will not negatively impact Reclamation mission, facilities, or structures.

Reclamation also considered the effects or the Draft EIS on sensitive species in the area, especially the flat-tailed horned lizard *(Phrynosoma mcallii)* (FTHL). The EIS will continue to implement or mirror the Strategies of the FTHL Rangewide Management Strategy (RMS). As a signatory to the RMS, Reclamation is committed to conservation of FTHL. Reclamation expects negative impacts to the flat-tailed horned lizard due to implementation of the EIS. Reclamation recommends that the RMS is fully implemented during construction and operation of the proposed project.

Reclamation appreciates the opportunity to comment on this planning process. If there are any questions about the content of this letter, please direct them to Reclamation Environmental Protection Specialist, Nick Heatwole, by electronic mail at 7301 nheatwole@usbr.gov or by telephone at 928-343-8111. Mr. Heatwole may also be reached by mail at 7301 Calle Agua Salada, Yuma, Arizona 85364.

Sincerely,

Christopher M. Wallis, Chief
Resource Management Office

LOZEAU DRURY LLP
T 510.836.4200
F 510.836.4205
410 12th Street, Suite 250
Oakland, Ca 94607
www.lozeaudrury.com
richard@lozeaudrury.com

July 19, 2012

Via email and overnight delivery

Noel Ludwig
California Desert District Office
22835 Calle San Juan de Los Lagos
Moreno Valley, CA 92553
Email: BLM_CA_Ocotillo_Sol_Comments@blm.gov

Re: Draft Environmental Impact Statement/ Draft California Desert Conservation Area Plan Amendment (Draft EIS/Draft CDCA Plan Amendment) for the Ocotillo Sol Project prepared by the Bureau of Land Management (BLM) El Centro Field Office

Dear Mr. Ludwig:

I am writing on behalf of Laborers International Union of North America, Local Union No. 1184, and its members living in Imperial County ("LIUNA Local Union No. 1184" or "Commenters"), concerning the Draft Environmental Impact Statement/ Draft California Desert Conservation Area Plan Amendment (Draft EIS/Draft CDCA Plan Amendment) for the Ocotillo Sol Project prepared by BLM El Centro Field Office, Ocotillo Sol Solar Energy Project ("Project"), Publication Index #BLM/CA/ES-2012-009+1793, Department of Interior ("DOI") Control #DES 20-12, BLM California Desert District Office Publication #DOI-BLM-CA-D000-2012-0005-EIS, and Application #CACA-51625. The Project is a 100-acre, up to 20 Megawatt ("MW") Photovoltaic Project, including but not limited to the application from San Diego Gas & Electric ("SDG&E") for a right-of-way ("ROW") to construct the Project, to be located in southwest Imperial County, California, near Ocotillo.

We have prepared these comments with the assistance of Dr. Shawn Smallwood, Ph.D., an expert wildlife biologist who has expertise in the areas of Flat-tailed Horned Lizard, Burrowing Owl, and other species relevant to this DEIS. His comments and curriculum vitae are attached hereto as Exhibit 1 and are incorporated by reference in their entirety. In addition, we have obtained the consultation of Matt Hagemann, P.G., C.Hg., an expert hydrogeologist. His comments are attached as Exhibit 2 hereto and are incorporated herein by

reference in their entirety. Each of Dr. Smallwood's and Mr. Hagemann's comments requires separate response in the Final EIS.

LIUNA Local Union No. 1184 recognizes that the development of renewable energy is critical for the reduction of greenhouse gas emissions. Renewable energy is essential to forestall the worst consequences of climate change and to help the state of California meet its ambitions emissions reductions goals. LIUNA Local Union No. 1184 supports the development of renewable energy production, including the development of solar power generation through both appropriately sited solar "farms" and distributed solar power generation. All solar power projects must be properly sited and carefully planned to minimize impacts on the environment. Renewable energy projects should avoid impacts to sensitive species and habitats and should be sited in proximity to electricity consumers to reduce the costs and impacts associated with new transmission corridors. Only by maintaining the highest standards in these and other ways can renewable energy production be truly sustainable. Unfortunately, the proposed project falls short in these and other ways. As a consequence, the DEIS will need to be revised and recirculated, as set forth below.

I. BACKGROUND

SDG&E has requested a ROW authorization from BLM to construct and operate a photovoltaic solar energy facility on largely undisturbed public land in southwest Imperial County, California, near the community of Ocotillo.

The Ocotillo Sol Solar Energy Project would be constructed on an approximately 100-acre site located approximately nine miles southwest of El Centro, four miles south of Interstate 8, and 82 miles east of San Diego. An additional 15 acres would be temporarily disturbed during construction.

The project would be an up to 20 MW photovoltaic project (with peak capacity of 20 MW). The project would utilize solar panels and would be built in a single phase. The project would connect to the existing SDG&E Imperial Valley Substation ("IVS") to its immediate north via a buried 12.47-kilovolt ("kV") cable. The Project would not require any expansion of the IVS, nor any upgrades to the existing transmission lines exiting the substation.

The California Desert Conservation Area ("CDCA") Plan of 1980, as amended, requires that all sites associated with power generation or transmission not identified in the 1980 Plan will be considered through the plan amendment process. If the project is approved, a plan amendment will be necessary; the BLM will integrate the land use planning process with the National Environmental Policy Act ("NEPA") process for this Project.

II. STANDING

Members of LIUNA Local Union No. 1184 live, work, and recreate in the immediate vicinity of the proposed Project site. These members will suffer the impacts of a poorly executed or inadequately mitigated Project, just as would the members of any nearby homeowners association, community group, or environmental group. Hundreds of LIUNA Local Union No. 1184 members live and work in areas that will be affected by traffic, air pollution, and water pollution generated by the Project.

In addition, construction workers will suffer many of the most significant impacts from the Project as currently proposed, such as from air pollution emissions from poorly maintained or controlled construction equipment and other impacts. Therefore, LIUNA Local Union No. 1184 and its members have a direct interest in ensuring that the Project is adequately analyzed and that its environmental and public health impacts are mitigated to the fullest extent feasible.

III. LEGAL STANDARDS

A. The Federal Land Policy and Management Act ("FLPMA")

FLPMA sets forth the general management framework for the public lands based on the principles of multiple use and sustained yield. See 43 U.S.C. § 1732(a). FLPMA requires that BLM "develop, maintain, and, when appropriate, revise land use plans" for the public lands, 43 U.S.C. § 1712(a), and that the agency "[i]n managing the public lands . . . take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b).

FLPMA establishes a heightened standard for the management of the CDCA — the act specifically provides "for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality." 43 U.S.C. § 1781(b).

FLPMA mandated the preparation of the California Desert Conservation Area Plan, see 43 U.S.C. § 1781(d), the goal of which is:

> to provide for the use of the public lands, and resources of the California Desert Conservation Area, including economic, education, scientific, and recreational uses, in a manner which enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and aesthetic values of the Desert and its productivity.

(BLM, The California Desert Conservation Area Plan 1980 as amended at 5-6 (1999)).

The BLM derives its authority to grant ROWs for the distribution of electric energy from FLPMA, Title V (43 U.S.C. §§ 1761-1771) and its implementing regulations (43 C.F.R. Part 2800). FLPMA authorizes BLM to "grant, issue, or renew rights-of-way over, upon, under, or through" the public lands for, among other uses, "systems for generation, transmission, and distribution of electric energy." 43 U.S.C. § 1761(a). Each ROW shall contain terms and conditions that, among other purposes, will "require compliance with State standards for public health and safety, environmental protection…if those standards are more stringent than applicable federal standards." Each ROW permit must contain terms and conditions which will "minimize the damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." 43 U.S.C. § 1765(a)(ii). Furthermore, each ROW shall contain terms and conditions that "require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation, and maintenance of or for rights-of-way for similar purposes if those standards are more stringent than applicable Federal standards." 43 U.S.C. § 1765(a)(iv).

Under 43 C.F.R. § 2805.12(a), the project applicant is obligated to comply with the Secretary's terms and conditions in the ROW permit requiring compliance with all existing Federal laws and regulations and state laws and regulations applicable to the authorized use, with the Secretary's terms and conditions relating to preventing damage to "[s]cenic, aesthetic, cultural, and environmental values, including fish and wildlife habitat" (43 C.F.R. § 2805.12(i)(3)(i)), and "[p]ublic health and safety" (43 C.F.R. § 2805.12(iii)) and with those state standards that are more stringent than federal standards and that relate to public health and safety, environmental protection, and siting, constructing operating and maintaining any facilities on the ROW. 43 C.F.R. § 2805.12(i)(6).

B. NEPA

Congress enacted NEPA in recognition of the "profound impact of man's activity on the interrelations of all components of the natural environment," including "industrial expansion, resource exploitation, and new and expanding technological advances." 42 U.S.C. § 4331(a). NEPA is the "basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a).

NEPA requires that federal agencies prepare a "detailed statement"—known as an EIS—for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332. The environmental impact statement, or "EIS," is intended to create an open, informed, and public decision-making process that insures "that environmental information is available to public

officials and citizens before decisions are made and before actions are taken" and "to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." 40 C.F.R. § 1500.1. A federal agency's obligation to prepare an EIS extends to any federal action that "will or may" have a significant effect on the environment. 40 C.F.R. § 1508.3. The federal agency must "[r]igorously explore and objectively evaluate" a range of alternatives to proposed federal actions and their impacts in the EIS. 40 C.F.R. § 1502.14(a).

The evaluation of mitigation measures is an essential component of an EIS. A federal agency is required to evaluate possible mitigation measures in defining the scope of the EIS, in examining impacts of the proposed action and alternatives, and in explaining its ultimate decision. *See* 40 C.F.R. §§ 1502.14(f), 1502.16(h), 1505.2(c), 1508.25(b).

Agencies must insure the professional integrity, including scientific integrity, of the discussion and analysis in an EIS. 40 C.F.R. § 1502.24. The information in an EIS must be of high quality, as accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. 40 C.F.R. §§ 1500.1(b), 1502.24.

C. The Administrative Procedure Act ("APA")

The APA provides that a "person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof." 5 U.S.C. § 702. The APA provides that a court shall set aside agency "findings, conclusions, and actions" that are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A).

IV. THE PROJECT VIOLATES FLPMA.

A. LEGAL BACKGROUND

The CDCA is a 25-million acre expanse of land in southern California designated by Congress in 1976 through the FLPMA. About 10 million acres are administered by BLM. When Congress created the CDCA it recognized its special values, proximity to the population centers of southern California, and the need for a comprehensive plan for managing the area. Congress mandated that any such management plan be based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. Congress directed BLM to prepare and implement a comprehensive, long-range plan for the management, use, development and protection of the public lands within the CDCA. The CDCA Plan establishes goals for protection and for use of the desert. It designates

distinct multiple use classes for the lands involved, and it establishes a framework for managing the various resources within these classes.

Pursuant to FLPMA of 1976, 43 U.S.C. 1701 et seq., BLM is directed to manage the public lands and their resources based on multiple use and sustained yield principles. As required by FLPMA, public lands must be managed in a manner that: protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; preserves and protect, where appropriate, certain public land in their natural condition; provides food and habitat for fish, wildlife, and domestic animals; and provides for outdoor recreation and human occupancy and use by encouraging collaboration and public participation throughout the planning process. In addition, public land must be managed in a manner that recognizes the nation's need for domestic sources of minerals, food, timber, and fiber from public land. Land use plans are the primary mechanism for guiding BLM activities to achieve the BLM's mission and goals. In processing a land use plan amendment, BLM must also comply with the BLM Planning Regulations (43 C.F.R. Part 1600) and the BLM Land Use Planning Handbook (H-1601-1). FLPMA also authorizes BLM to issue ROW grants for systems intended for generation, transmission, and distribution of electric energy**.**

1. Area of Critical Environmental Concern ("ACEC")

The entire Project site is located within the Yuha Basin ACEC, which was designated to protect cultural and natural resources within the area.

FLPMA provides guidance for ACEC management (43 U.S.C. § 1702). ACECs must meet the relevance and importance criteria in 43 C.F.R. 1610.7-2(a)[1] and must require special management (43 C.F.R. 1601.0-5(a)) to protect the area and prevent irreparable damage to resource or natural systems or to protect life and promote safety in areas where natural hazards exist. The values for which ***ACECs are designated are considered the highest and best use for those lands, and protection of those values would take precedence over multiple uses.***

An ACEC is designated area on public lands where special management attention is required: 1) to protect and prevent irreparable damage to fish and wildlife; 2) to protect important historic, cultural, or scenic values, or other natural systems or processes; or 3) to protect life and safety from natural hazards. The designation of ACECs was authorized in Section 202(c)(3) of FLPMA, and was designed to be used as a process for determining the special management

[1] The DEIS on page 1-6 states that "ACECs must meet the relevance and importance criteria in 43 CFR 1610.7-2(b)…" The relevance and importance criteria are provided in 43 C.F.R. § 1610.7-2(a) not in 43 C.F.R. § 1610.7-2(b).

required by certain environmental resources or hazards. According to Section 103(a) of FLPMA, an ACEC is defined as the following:

> An area within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

Prior to its designation, management prescriptions are developed for each proposed ACEC. These prescriptions are site-specific and include actions that the BLM has authority to carry out, as well as recommendations for actions that the BLM does not have direct authority to implement, such as cooperative agreements with other agencies and mineral withdrawals.

ACECs are the primary active wildlife management tools used in the CDCA Plan. The project site is within the Yuha Basin ACEC, which was designated to protect cultural and natural resources within the area.

YUHA BASIN ACEC MANAGEMENT PLAN AND YUHA DESERT MANAGEMENT PLAN:

The CDCA Plan established two ACECs to conserve the Flat-tailed Horned Lizard—Yuha Basin (40,622 acres) and East Mesa (40,712 acres). The CDCA Plan also directed that habitat management plans be written for lands adjacent to these ACECs. In 1981, a combined plan was prepared for the Yuha Basin ACEC (entitled Yuha Basin ACEC Management Plan). Specific actions in the plan were designed to protect sensitive cultural and wildlife resources while allowing for mineral material sales, geothermal development, and motorized vehicle competitive events.

In 1985, the Yuha Desert Management Plan was prepared in response to indications of declining Flat-tailed Horned Lizard populations and increasing damage to cultural resources due to route proliferation and cross-country vehicle travel in the Yuha Basin (BLM 1985). The plan tightened controls on, but did not eliminate, off-highway vehicle ("OHV") competitive events, and routes of travel were reduced in number, among other measures. In 1985, the Yuha Basin ACEC was expanded to 63,000 acres (BLM 1985).

The Yuha Basin ACEC currently consists of 63,000 acres in the Imperial Valley of California. The Yuha Desert is rich in both human and natural history. The Yuha Basin contains several unique areas, such as the Juan Bautista de Anza National Historic Trail, geoglyphs created by Native Americans, an area of rare crucifixion thorns, oyster shell beds, and the Yuha Well. The Yuha Basin

ACEC was established to protect these unique cultural and natural resources, particularly habitat for the Flat-tailed Horned Lizard. The majority of the Yuha Basin ACEC overlaps the Yuha Desert Management Area. This management area was specifically designated by BLM for the Flat-tailed Horned Lizard, as outlined in the 2003 Flat-tailed Horned Lizard Rangewide Management Strategy, to provide guidance for the conservation and management of sufficient habitat to maintain the existing populations of Flat-tailed Horned Lizard in five Management Areas and one research area.

The Yuha Basin ACEC is in southwestern Imperial County (see DEIS, Figure 1-1 in Appendix A). The ACEC is traversed by Interstate 8 and Highway 98 and is immediately adjacent to the Mexican International Border on the south. The eastern border abuts privately owned agricultural lands and the western border parallels the Jacumba Mountains Wilderness. The Yuha Basin ACEC includes the Yuha Desert Management Area designated for the Flat-tailed Horned Lizard. The Yuha Basin ACEC was designated to provide additional protection to unique cultural and natural resources found in the region. The unique cultural and natural resources within this ACEC include the Flat-tailed Horned Lizard, prehistoric resources, and historic resources.

The Yuha Basin ACEC Management Plan provides ***for specific planned actions*** "to protect key resource values in the Yuha Basin ACEC while allowing other uses which are compatible." Solar projects are ***not*** listed as permitted planned actions. The Yuha Basin ACEC Management Plan does permit transmission-related activities to occur in the Yuha Basin ACEC and provides an energy and transmission-related goal and action. The goal is to "Minimize potential impacts resulting from the traversing of the ACEC by two utility corridors." The action is to "***Permit the traversing of the ACEC by proposed lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so.***" (emphasis added). The Yuha Basin ACEC Management Plan also states that ***surface-disturbing projects should be located outside the ACEC if possible*** but does not preclude projects from the ACEC. If the project must be located within the ACEC every effort should be made to ***locate the project within a previously disturbed area or in an area where habitat quality is considered poor.*** In addition, construction activity should be timed to minimize mortality of species known to occur in the area. (BLM 1981).

a. Solar Projects are Not Permitted Planned Activities Within the Yuha Basin ACEC.

The Project violates FLPMA and ACEC requirements because it allows an activity - a solar project - that is not articulated in the Yuha Basin ACEC Management Plan as a permitted planned activity. The Management Plan articulates a multitude of permitted planned activities including transmission lines

and associated facilities and geothermal energy development. The Yuha Basin ACEC Management Plan states the following regarding transmission lines and associated facilities:

> Goal: Minimize potential impacts resulting from the traversing of the ACEC by two utility corridors.
>
> Action: Permit the traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrate that it is environmentally sound to do so.
>
> Discussion: A proposed 500 kV line and associated facilities, including access roads, (See Map 4) as well as other possible transmission lines may be placed within a planning corridor identified by the Desert Plan. The public utilities involved (APS and SDG&E) are providing BLM with an Environmental Impact Statement. BLM will utilize the information provided as well as its own existing data to advise any modifications which may be useful in reducing the environmental impacts of the proposed 500 kV line and access roads in the ACEC. Other proposed facilities will also be subject to the same type or review and modification. (BLM 1981 at 22-23).

The Yuha Basin ACEC Management Plan states the following regarding geothermal development:

> Goal: Minimize potential impacts resulting from geothermal energy development within the ACEC.
>
> Action: Permit geothermal leasing as outlined in the Yuha Basin Proposed Geothermal Leasing Environmental Assessment Record (USDI, BLM, 1980c).
>
> Discussion: Decisions regarding protection and mitigation of the potential impacts of geothermal leasing upon sensitive cultural and wildlife resources (as well as those to other pertinent resources) have already been assessed in the subject EAR.
>
> Implementation: Leases will be processed as applications are received. (BLM 1981 at 19).

Applying the traditional rule of construction, *expressio unius est exclusio alterius*, to the Yuha Basin ACEC Management Plan, solar projects are not a permitted activity within the ACEC. The doctrine of e*xpressio unius est exclusio alterius* means "the mention of one thing implies the exclusion of the other" (*U.S.*

v. Mango, 997 F. Supp. 264 (N.D.N.Y. 1998); *See also California ex rel. Lockyer v. U.S. Forest Service*, 465 F. Supp.2d 917,930 (N.D.Cal. 2006) (quoting *ARC Ecology v. U.S. Dept. of Air Force*, 411 F.3d 1092, 1100 (9th Cir. 2005) ("the doctrine of *expressio unius est exclusion alterius*, 'which teaches that omissions are the equivalent of exclusions when a statute affirmatively designates certain persons, things, or manners of operation.'")). The California Supreme Court has applied this same doctrine to California Environmental Quality Act ("CEQA") cases. In *Mountain Lion Found. v. Fish & Game Comm'n*, 16 Cal.4th 105, 125 (1997) ("*Mountain Lion*"), the Court held that CEQA exemptions are narrowly construed and "[e]xemption categories are not to be expanded beyond the reasonable scope of their statutory language." The Court has consistently held that CEQA exemptions are not to be implied. (*Wildlife Alive v. Chickering*, 18 Cal.3d 190, 195-198, 202 (1976) ("Under the familiar rule of construction, *expressio unius est exclusio alterius*, where exceptions to a general rule are specified by statute, other exceptions are not to be implied or presumed"); *Mountain Lion*, 16 Cal.4th at 116 ("where exceptions to a general rule are specified by statute, other exceptions are not to be presumed unless a contrary legislative intent can be discerned")).

The Yuha Basin ACEC Management Plan provides for several specified activities (exemptions to non-use) but does not include solar projects as permitted activities; and therefore, the Project is not permitted and should not be permitted in the Yuha Basin ACEC.

b. There is No Showing the Locations Outside the ACEC are Not Possible.

The Project violates FLPMA and the ACEC requirements because the Management Plan requires ***surface-disturbing projects should be located outside the ACEC if possible.*** It is possible to locate the Project outside of the ACEC. In fact, there are several solar projects that are already situated outside the ACEC. The DEIS does not contain any finding that a location outside the ACEC is not possible. Instead, the DEIR merely contains an unsubstantiated statement that other locations would be more expensive. The DEIS states:

> landowners' option and land price expectations (based on those contacted) greatly exceeded feasible renewable energy development economics as calculated by the Applicant and permitted by Sempra Utilities, of which the Applicant is a subsidiary.
>
> The Applicant is regulated by the California Public Utilities Commission, which reviews all utility-owned generation projects for cost reasonableness. Because of the effort to identify suitable private lands, the Applicant determined that siting the Ocotillo Sol Project on non-federal

> lands would be technologically and economically infeasible. (DEIS, p. 2-22).

No additional detail is provided about the land price expectations.

In *Wilderness Soc., Center for Native Ecosystems v. Wisely*, 524 F. Supp. 2d (D. Colo. 2007), the Court reviewed an Environmental Assessment prepared by BLM. In rejecting an alternative as part of its NEPA analysis, BLM stated in summary the alternative was eliminated because it was technically and economically infeasible "based on guidance received from the BLM Colorado State Office." The Court held that this explanation for eliminating the alternative was in violation of NEPA because it was "inadequate to constitute a 'discussion' of the 'reasons' for eliminating that alternative; it is a statement as to who provided the reasons for the elimination, but not a statement of the reasons themselves."

Similarly, here as in *Wisely*, BLM has rejected an alternative without a proper discussion of why the alternative - locating the Project on non-federal land - is economically infeasible. BLM relies on the assertion by the Applicant that the alternative is economically infeasible without any further discussion. BLM has failed to explain the basis of its finding of lack of feasibility. For example, there is no information provided in the DEIS regarding the asking price for the alternative locations. Without this information, it is impossible to know whether the price of the non-federal land would make or not make the Project infeasible. As currently written, the DEIS seems to suggest that there is land that is available but Sempra Utilities simply does not want to pay the fair market price for the land – a price paid by other solar companies. The fact that Sempra Utilities would prefer cheaper land is certainly not sufficient to make a showing that a location outside the ACEC is "not possible."

An adequate analysis must at a minimum state what the market price is for privately owned land in the area, what profits are expected from the Project, and whether the Project would be economically feasible at an alternative location. A conclusory statement that other land is more expensive falls short of the "substantial evidence" needed to support the agency's conclusion. The fact that literally dozens of other companies have been able to secure private land for their solar projects in the same area is prima facie evidence that other locations are possible.

c. The Project is not a Proposed Power Line or Associated Facility.

The ACEC Management Plan generally prohibits ground disturbing activities in the ACEC, with limited exceptions. BLM appears to rely on the exception that "***Permit[s] the traversing of the ACEC by proposed [utility]***

lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so."

The Project is not a "utility line or associated facility." "Associated facilities" to power lines would include poles and towers to support power lines. "Associated facilities" do not include power plants, such as the proposed Project. Under BLM's definition, even a coal burning or natural gas power plant could be an "associated" facility because it is connected to a power line. Indeed, even residential developments are connected to power lines – making them "associated facilities" under BLM's strained definition. Clearly, this interpretation would be the exception that swallows the rule, and is contrary to any plain language interpretation of "utility lines and associated facilities." Since the Project is not a utility line or associated facility, it may not be constructed at all in the ACEC.

d. The Site is Not a Previously Disturbed Area or Area of Poor Habitat.

The Management Plan provides that if a project must be located within the ACEC every effort should be made to ***locate the project within a previously disturbed area or in an area where habitat quality is considered poor.*** The Project site is not previously disturbed, and it is not considered an area of poor habitat quality. To the contrary, the site is identified as excellent habitat quality for the Flat-tailed Horned Lizard. Therefore, the Project may not be constructed at the proposed location.

2. CDCA

The Multiple Use Class that applies to the Ocotillo Sol Project area is Class L (Limited Use). The CDCA Plan prescribes management for Class L as follows: "These lands are managed to protect sensitive, natural, scenic, ecological, and cultural resource values. They provide for generally lower-intensity, carefully controlled multiple uses that do not significantly diminish resource values." (BLM 1999). The CDCA Plan provides for solar generation facilities on Class L lands after NEPA requirements have been met.

The CDCA Plan establishes four multiple use classes, multiple use class guidelines, and plan elements for specific resources or activities, such as motorized vehicle access, recreation, and vegetation. The Ocotillo Sol Project site is currently classified as Multiple Use Class L (Limited Use). Approximately 4 million acres of public lands are classified as Class L. These lands are managed to protect sensitive, natural, scenic, ecological, and cultural resource values. They provide for generally lower-intensity, carefully controlled multiple uses that do not significantly diminish resource values. (BLM 1999).

BLM authorization of a ROW grant for the Ocotillo Sol Project would require a resource management plan amendment to the CDCA Plan in accordance with BLM planning regulations, Part 43, C.F.R., Subpart 1610.3-2. The CDCA Plan was amended in 2004, for the adoption of the Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision, An Arizona-California Conservation Strategy. The purpose of this strategy is to provide a framework for conserving sufficient habitat to maintain four viable populations of the Flat-tailed Horned Lizard throughout the species' range. Planning actions and prescriptions that guide the management of lands within the designated management areas are designed primarily to reduce new surface disturbance and to promote reclamation of disturbed sites. The strategy provides standards for mitigation measures (Appendix 3 of the strategy) and a compensation formula (Appendix 4 of the strategy) to be incorporated into all authorized surface-disturbing projects where applicable.

In addition to defining the required analyses and Decision Criteria for Plan Amendments, the CDCA Plan Energy Production and Utility Corridors Element (Energy Element) provides additional guidance for the location of energy facilities and utility corridors. The Energy Element identifies nine decision criteria to be evaluated when considering locating a new energy facility within the CDCA Plan area. These criteria are as follows:

1. Minimize the number of separate ROWs by using existing ROWs as a basis for planning corridors.
2. Encourage joint use of corridors for transmission lines, canals, pipelines, and cables.
3. Provide alternative corridors to be considered during the processing of applications.
4. ***Avoid sensitive resources wherever possible.***
5. ***Conform to local plans whenever possible.***
6. ***Consider wilderness values and be consistent with final wilderness recommendations.***
7. Complete the delivery system network.
8. Consider ongoing projects for which decisions have been made.
9. Consider corridor networks that take into account power needs and alternative fuel resources.

The proposed Project would violate the CDCA because it fails to avoid sensitive resources, fails to conform to local plans (in particular the ACEC and Management Plan), it is inconsistent with wilderness values and is inconsistent with wilderness recommendations (in particular the ACEC and Management Plan).

V. THE DEIS VIOLATES NEPA BECAUSE IT FAILS TO ANALYZE AND MITIGATE ALL POTENTIALLY SIGNIFICANT IMPACTS.

A. The DEIR Fails to Adequately Analyze Impacts to Biological Resources.

Dr. Shawn Smallwood, Ph.D., an expert wildlife biologist who has performed wildlife surveys in California for twenty-three years, concludes that the DEIS inadequately analyzes impacts to biological resources.

According to Appendix C of the DEIS, surveys on the project site detected flat-tailed horned lizard, burrowing owl, Swainson's hawk, loggerhead shrike, black swift, olive-sided flycatcher, and yellow warbler. The DEIS attempted to dismiss the significance of most of these detections, however. For example, the Swainson's hawk detection was downplayed because the individuals seen were migrating over the site (p. 22). In another example, black swift, olive-sided flycatcher and yellow warbler were not expected to be nesting in the area because the detections were made during winter. However, migration habitat and wintering habitat are no less vital to the persistence of special-status species than is nesting habitat. In some cases, migration or wintering habitat can be more limiting than the nesting habitat, so the losses of these types of habitat can cause even greater impacts to the species.

No trapping was performed for small mammals, which meant that there was almost zero likelihood of detecting the multiple special-status species of small mammals residing on the site. Without live-trapping, it was highly unlikely to detect, let alone measure the abundance of, Palm Springs pocket mouse or Pallid San Diego pocket mouse. The DEIS concluded that the habitat is suitable on site, so the species are likely present, but this conclusion falls short of a determination of how significant the site might be to these species. Not only should live-trapping have been performed on site, but it should have been performed at multiple locations offsite, and densities should have been compared to results of other studies performed elsewhere. Without understanding the significance of the project's impacts to these species, appropriate mitigation measures cannot be formulated.

According to Appendix C of the DEIS, western mastiff bat was regarded as likely present, but its presence was downplayed by concluding that the bat likely forages high over the project site. Whether the western mastiff bat forages high or low over the project site, the DEIS should have concluded that the project impact was just as significant to the species, because whether flying high or low, the project site still provides the foraging opportunity. Flying insects do not spawn from the air; they fly into the air from the ground and vegetation. Should solar panels be installed on the site, the foraging base for western mastiff bat will be reduced by the Project's spatial extent.

According to Appendix J of the DEIS, two biologists surveyed the project area for burrowing owls on 26-27 October 2009, using transects to cover 100% of the ground. Four active burrows were found, and a flying burrowing owl was seen. However, the type of burrow likely to be detected in late October is often referred to as refuge burrows. These are burrows being used temporarily by burrowing owls. Refuge burrows are difficult to detect in late October. Instead of attempting to view 100% of the ground via transects, the more effective survey method in late October is to check each burrow entrance for sign of occupancy. Otherwise, burrowing owls are very difficult to detect at this time of year because they hide, and because their sign at burrows is often not visible until the searcher is directly over the burrow. The population of burrowing owls during the non-breeding season was likely under-estimated.

According to Appendix J of the DEIS, breeding season surveys were performed 10, 11, 13, 14 May 2010, totaling 24 person-hours. No "breeding" owls were detected, but signs of winter use were evident. However, these surveys did not meet the standards in the CDFG (2012) survey guidelines, because they were not separated by at least several weeks each. Nesting status can be dynamic among burrowing owls, so a survey in May does not necessarily represent the nesting status in June, July, or any other months between April and October. The breeding population of burrowing owls on the project site was likely under-estimated.

According to Appendix C of the DEIS, Colorado Desert Fringe-toed lizard was not seen on site, but habitat appeared suitable. Lacking detections due to insufficient survey, the DEIS appropriately concluded presence due to habitat suitability. However, the significance of the project's impacts cannot be understood without knowing the relative abundance of this species at the site.

Flat-tailed horned lizard.—The DEIS concluded that the project would take less than one percent of the total habitat acreage in the Yuha Management Area, which would be considered tolerable under the Flat-tailed Horned Lizard Management Plan (Foreman 2003). In the Management Plan, cumulative new disturbance may not exceed 1% of the total acreage of the associated in the Yuha Management Area. The Ocotillo Sol project would not result in a cumulative destruction of >1% of the management area, but the total would not be far from the threshold. Furthermore, the Ocotillo Sol project is likely to act as an ecological sink for flat-tailed horned lizard, because any lizards traveling under the 2-inch gap under the perimeter fence and onto the project site will likely be crushed by vehicle traffic servicing the solar panels.

B. The DEIS Fails to Adequately Analyze Cumulative Impacts.

Dr. Smallwood concludes that the DIR fails to adequately analyze cumulative impacts. In pertinent part, the DEIS (p. 4-3 to 4-6) identified 45,782

acres of cumulative impacts in the region, including 4,055 acres likely to be converted to solar farms within 2 miles of Ocotillo Sol. The DEIS inadequately addressed the cumulative impacts of 45,782 acres of land conversions on migratory birds. Migratory birds and raptors were dismissed in the DEIS because they were deemed "widespread." Just because species are widespread does not mean that cumulative impacts caused by >45,000 acres of habitat loss can be disregarded as insignificant. The cumulative impacts of land conversions in the region should be analyzed for each special-status species, and for wildlife movement.

C. The DEIS Fails to Adequately Provide for Mitigation Measures

Dr. Smallwood concludes that the DEIS fails to adequately provide for mitigation measures. According to the DEIS (p. 4-78), "*The construction impact avoidance, minimization, and compensation measures detailed for flat-tailed horned lizard above provide adequate protection and compensation for these species* [other special-status small mammals and reptiles] *and their habitats, given the similarity in their habitat requirements and behaviors.*" Whereas compensation measures in the DEIS may perform in the manner stated, the impact avoidance and minimization measures formulated for flat-tailed horned lizard should not be expected to perform adequately for Pallid San Diego pocket mouse, Palm Springs pocket mouse, or Colorado Desert Fringe-toed lizard. None of these three species can be easily captured by hand and relocated. Relocating the mammal species would require intensive live-trapping. There is no escaping the conclusion that the project will result in the destruction of hundreds and possibly thousands of each of these species.

The mitigation proposed for flat-tailed horned lizard is inadequate. The 6:1 habitat compensation ratio was formulated by Foreman (2003) for projects causing habitat loss, but not for projects creating population sinks. Flat-tailed horned lizards will likely continue entering the project site under the perimeter fence, and unknown numbers will be crushed by vehicle traffic every year for as long as the project generates power. There needs to be a mitigation measure for on-going impacts to flat-tailed horned lizards, Colorado Desert fringe-toed lizards, and special-status small mammal species.

D. The DEIR Fails to Adequately Analyze Toxic Chemical Impacts Related to Cadmium Telluride.

Matthew Hagemann, P.G., C.Hg., former West Coast Regional Director of the U.S. Environmental Project Agency's ("EPA's") Superfund Program, concludes that the DEIS inadequately analyzes toxic chemical risks related to the Project. The Project may install thousands of panels containing cadmium telluride ("CdTe") encapsulated between two sheets of glass. Mr. Hagemann

notes that the potential for cadmium to leach from broken panels has been observed in research papers.[2]

The DEIS states that PV thin-film technology containing CdTe is being considered for the Project (DEIS, p. 2-11). The DEIS also states:

> The potential for CdTe release could only occur if severe pitting of the panel surface occurred. If thin film technology is used, routine monitoring and inspection activities by the Applicant would occur to identify any potentially damaged panels. If a damaged panel is discovered, the panel would be replaced prior to any degeneration that may result in the release of CdTe (*Ibid.*).

Mr. Hagemann notes that the DEIS does not discuss the potential of cadmium to leach from broken or weathered panels, a phenomenon observed in recent research.[3] Although the DEIS states that routine monitoring and inspection will be conducted to identify damaged panels, it does not specify the frequency or methodology of how these panels will be identified, documented, gathered, and disposed. Data from First Solar[4] shows that PV modules have an approximate breakage rate of 1%.[5] If these panels are left unidentified and are not properly disposed, they can expose the cadmium that is within the panels.

The Project is within the Salton Sea Trough and drains to the northeast and east (DEIS, p. 4-49), toward the Salton Sea. The Salton Sea is on California's 303(d) List of Impaired Water Bodies[6] and is impaired for selenium, salt, and nutrients.[7] Cadmium is also present in the Salton Sea[8,9] and the waters

---

[2] Fate and Transport Evaluations of Potential Leaching Risks from Cadmium Telluride Photovoltaics (2012). Environmental Toxicology and Chemistry, Vol. 31, No. 7.

[3] Fate and Transport Evaluations of Potential Leaching Risks from Cadmium Telluride Photovoltaics (2012). Environmental Toxicology and Chemistry, Vol. 31, No. 7.

[4] First Solar is a leading manufacturer of CdTe PV modules.

[5] *Ibid.*

[6] *Draft Staff Report in Support of Proposed Updates to the Clean Water Act Section 303(d) List and Preparation of the 2008 Integrated Report-List of Impaired Waters and Surface Water Quality Assessment [303(d)/305(b)]*, State of California Regional Water Quality Control Board, Colorado River Basin Region, available at http://www.waterboards.ca.gov/rwqcb7/water_issues/programs/tmdl/docs/r7_2008_303_d_list_staffreport.pdf.

[7] *Silt Total Maximum Daily Load for the Alamo River - Draft Problem Statement*, California Environmental Protection Agency Regional Water Quality Control Board Colorado River Basin Region, May 1999, available at http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/tmdl/docs/alamo/aslt5_6.pdf.

[8] *QSA Litigation Bulletin: Environmental Impact*, Imperial County, California, April 2009, available at http://www.co.imperial.ca.us/PdfDocuments/QSALitigationBulletin.pdf.

[9] *Drop Bid to Revive the Dying Salton Sea*, Los Angeles Times, July 14, 2002, available at http://articles.latimes.com/2002/jul/14/opinion/oe-haddad14.

that feed it.[10] Mr. Hagemann concludes that exposed cadmium (from broken or weathered panels) may runoff during rainfall and eventually flow to the Salton Sea.

A recent study conducted on the potential leaching risks of cadmium from broken PV panels found cadmium concentration in water at the point of breakage to be between 4 micrograms per liter ("µg/L") to 6 µg/L.[11] This is more than twice the concentration of cadmium the U.S. Geological Survey ("USGS") has found in the Salton Sea[12] and exceeds the groundwater and surface water (freshwater) Environmental Screening Levels ("ESLs") of 0.25 µg/L by more than three times. The Regional Water Quality Control established the groundwater and surface water ESLs for the "protection of aquatic habitats" and "protection against leaching and subsequent impacts to groundwater".[13]

Mr. Hagemann concludes that "If CdTe panels are used for the Project, there is the potential that cadmium (from broken or weathered panels) can reach the Salton Sea at significant concentrations. The potential for cadmium to be transported to water (including groundwater) and soil should be evaluated in a DEIS in a section that considers potential impacts of solar technologies that may be selected."

The DEIS also does not address the cumulative impacts of potential discharge of cadmium from neighboring thin film solar projects. Two other proposed projects in Imperial County will use CdTe technology.[14] The Imperial Solar Energy Center – South project will generate 200 MW of power and be constructed on 964 acres of land.[15] The Imperial Solar Energy Center – West will generate up to 250 MW of power and be constructed on 1130 acres of land. Both of these projects drain to the Salton Sea.[16] If the proposed Project uses

---

[10] *Salton Sea Restoration, Final Preferred Project Report*, Salton Sea Authority, July 2004, available at http://www.saltonsea.ca.gov/media/ppr_final.pdf.

[11] *Ibid.*

[12] A. Keith Miles, et. al., *Salton Sea Ecosystem Monitoring Project*, U.S. Geological Survey, 2009, available at http://www.usbr.gov/lc/region/saltnsea/SaltonSeaEcosystemMonitoring.pdf.

[13] *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, California Regional Water Quality Control Board, San Francisco Bay Region, Nov. 2007 (revised May 2008), available at http://www.swrcb.ca.gov/sanfranciscobay/water_issues/available_documents/ESL_May_2008.pdf.

[14] http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/Renewable_Energy_Projects_Approved_to_Date.print.html

[15] http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/priority_projects.Par.55024.File.dat/C-Solar_South_fact_sheet.pdf

[16] *Imperial Solar Energy Center - West Project*, Bureau of Land Management, Aug. 25, 2011, available at http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/priority_projects.Par.25264.File.dat/Imperial_Solar_West_Fact_Sheet.pdf

CdTe technology, its impacts on the Salton Sea must be considered in a cumulative context and included in a revised DEIS.

At the end of their life, all of these panels are likely to end up in a landfill. Panels containing CdTe are likely to cause significant problems with landfill leachate and disposal – similar to the problems caused by household batteries containing mercury and cadmium, which are now a significant problem at landfills throughout the state. Failing to analyze this foreseeable impact now constitutes both an inadequate project description and a piecemealing of the project, which will necessarily involve both installation and disposal.

The EIR should consider the alternative of requiring the use of less toxic silicon-based PV panels, which are readily available. An EIR must describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.

E. The DEIR Fails to Adequately Analyze Air Quality Impacts

Mr. Hagemann concludes that the DEIR fails to adequately analyze air quality impacts of the Project.

1. Particulate Matter ("PM10")

The DEIS estimates construction emissions of PM10 to be 0.3 tons/year and states that emissions are not significant because they do not exceed thresholds established by the Imperial County Air Pollution Control District (DEIS, p. 4-32). No calculations to substantiate the estimate of 0.3 tons/year for PM10 are provided in the DEIS or any of its supporting documents. The applicable significance thresholds are expressed in both tons per year and pounds per day. This is particularly significant for PM-10 since high daily emissions can have significant health impacts, even if the levels fall below annual thresholds. The EIS contains no calculations of daily PM-10 emissions.

Exposure to particulate matter can lead to respiratory symptoms such as irritation of airways, coughing, and difficulty breathing, an irregular heartbeat, aggravated asthma, and decreased lung function.[17] PM10 and PM2.5 can aggravate respiratory disease and can cause cancer and premature death.[18] Multiple studies show the link between particulate matter and an increase in

---

[17] *Particulate Matter (PM) - Health*, U.S. Environmental Protection Agency, June 15, 2012 (last updated), available at http://www.epa.gov/pm/health.html.

[18] Pope CA et. al., *Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution,* 2002, The Journal of the American Medical Association.

cardiovascular and respiratory symptoms.[19] Project construction will use heavy earthmoving equipment (DEIS, p. 2-13) and recent research shows that earthmoving activities are the most important contributor to particulate matter emissions.[20]

Mr. Hagemann reviewed solar projects in Southern California for PM10 emissions from construction activities. Sol Orchard Valley Center, a smaller-sized PV solar project (generating less power and constructed on a smaller parcel) in San Diego, estimated construction emissions of PM10 to be 165.17 pound per day ("lbs/day").[21] This estimate, for a smaller project, exceeds the Project's PM10 emissions estimate by 550 times and exceeds Imperial County's threshold of 150 lbs/day.[22] Because Sol Orchard Valley Center is half the size of the proposed Project (in megawatts and acreage) and would have significant PM10 emissions by Imperial County standards, Mr. Hagemann concludes that it is likely that the proposed Project would have significant PM10 emissions as well.

Mr. Hagemann conducted a review of PM10 emissions from construction activities at other PV solar projects and found that estimates vary widely.

---

[19] *Air Quality - Particles and Your Health*, Minnesota Department of Health, available at http://www.health.state.mn.us/divs/eh/air/pm.htm.

[20] Gregory E. Muleski, et. al., *Particulate Emissions From Construction Activities*, 55 J. Air & Water Management Association 772, June 2005, available at http://pubs.awma.org/gsearch/journal/2005/6/muleski.pdf.

[21] Air Quality Assessment, Sol Orchard – Valley Center Solar Project MUP 3300-11-027, Oct. 2011, at 19.

[22] *Air Quality Handbook - Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended*, Imperial County Air Pollution Control District, Nov. 2007, available at http://www.co.imperial.ca.us/airpollution/Forms%20&%20Documents/CEQA/CEQA%20Handbk%20Nov%202007.pdf.

Name	County	Acreage	Megawatts	Construction Emissions PM10 (lbs/day)
Ocotillo Sol	Imperial	100	20	1.6[23]
Sol Orchard Valley Center	San Diego	54.6	7.5	165.17
Sol Orchard Ramona	San Diego	42.7	7.5	141.62
Tehachapi Two Solar[24]	Kern	160	20	18.1
Tehachapi One Solar[25]	Kern	156	20	18.6

The table shows that the Project's construction emissions of PM10 are much lower, by as much as 11 times, than similar-sized projects. Therefore, it is likely that the Project's PM10 emissions may be underestimated.

A revised DEIS must be prepared to include model inputs, methodology, and any assumptions used to calculate and substantiate the Project's emissions. If results exceed thresholds, mitigation that is routinely considered in other CEQA and NEPA reviews should be identified in the revised DEIS to include:

- Watering during excavation to prevent excessive dust;
- Discontinuation of construction activities during windy conditions when activities cause visible dust plumes;
- A wheel-washing system;
- Covering all trucks hauling soil and other loose materials;
- Minimizing drop heights when loaders dump material into trucks; and
- Other fugitive dust control measures as necessary to comply with Imperial County Air Pollution Control District Rules and Regulations.

Because estimates of construction particulate matter emissions from other solar projects greatly exceed Project estimates, Project emissions may be potentially significant and impact construction worker health. A revised DEIS must be prepared that clearly calculates and substantiates Project emissions and provides mitigation, if necessary.

---

[23] The Project's construction PM10 emissions are 0.3 tons/year or 1.6 lbs/day.

[24] *Appendix C - Air Quality and GHG Report*, Draft Environmental Impact Report, RE Distributed Solar Project, July 2011, available at http://www.co.kern.ca.us/planning/pdfs/eirs/recurrent_desert/Appendix_C-Air_Quality_and_GHG_Report.pdf.

[25] *Ibid*

2. Fugitive Dust

The DEIS acknowledges that Imperial County is designated a serious non-attainment area for PM10 (DEIS, p. 1-12). Fugitive dust is primarily responsible for PM10 in the Imperial Valley.[26] As mitigation to control fugitive dust, the DEIS states a dust control plan will be developed upon certification (DEIS, p. 4-37). However, this dust control plan is not adequate mitigation because it does not address dust control measures established by the county and does not identify all mitigation measures.

Imperial County adopted Regulation VIII fugitive dust control measures in 2009 in response to the County's classification as a serious non-attainment area for PM10.[27] Although the DEIS acknowledges these measures (DEIS, p. 3-20), it does not identify that the dust control plan prepared for the Project must adhere to these standards. The dust control plan developed for Project must meet standards established by Regulation VIII and its associated Rules. The Rules are established to reduce PM10 emissions from construction activities, handling of bulk materials, unpaved roads, and agricultural operations (*Ibid.*).

In addition, dust control plans for areas over 10 acres (such as the proposed Project) must:

> document the type and location of the project, the expected start and completion dates of the dust generating activities, the total area of land surface to be disturbed, the actual and potential sources of fugitive dust emissions on the site (including the location of bulk materials handling and storage areas, paved and unpaved roads, entrances and exits where track out/carry out may occur, etc.), and all the fugitive dust control measures to be implemented before, during, and after any dust-generating activity (*Ibid.*)

A dust control plan needs to be prepared that complies with Imperial County regulations and needs to be included in a revised DEIS.

---

[26] *2009 Imperial County State Implementation Plan for Particulate Matter Less Than 10 Microns in Aerodynamic Diameter - Final*, ENVIRON International Corporation, Aug. 11, 2009, available at http://www.co.imperial.ca.us/airpollution/attainment%20plans/final%20ic%202009%20pm10%20sip%20document.pdf.

[27] *2009 Imperial County State Implementation Plan for Particulate Matter Less Than 10 Microns in Aerodynamic Diameter - Draft Final*, ENVIRON International Corporation, July 30, 2009, available at http://www.co.imperial.ca.us/AirPollution/HISTORICAL%20PAGES%20AND%20INFORMATION/HISTORICAL%20DOCUMENTS/PUBLIC%20HEARINGS/2009%2008%20August%2011/Draft%20Final%20IC%202009%20PM10%20SIP%20Document_30July09%20Full.pdf.

Mitigation measures in the 2007 *Air Quality Handbook* by the Imperial County Air Pollution Control District (ICAPCD) must be implemented.[28] In addition to preparing a dust control plan in accordance with Imperial County regulations, the following construction mitigation measures must be implemented as well:

- All disturbed areas, including bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover;
- All on site and off site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering;
- All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering;
- The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material;
- All Track-Out or Carry-Out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area;
- Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line;
- The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering;
- Water exposed soil with adequate frequency for continued moist soil;
- Replace ground cover in disturbed areas as quickly as possible;

---

[28] *Air Quality Handbook - Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended*, Imperial County Air Pollution Control District, Nov. 2007, available at http://www.co.imperial.ca.us/airpollution/Forms%20&%20Documents/CEQA/CEQA%20Handbk%20Nov%202007.pdf.

- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site;
- Develop a trip reduction plan to achieve a 1.5 average vehicle ridership ("AVR") for construction employees;
- Implement a shuttle service to and from retail services and food establishments during lunch hours;
- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment;
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum;
- Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use;
- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set);
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways; and
- Implement activity management (e.g. rescheduling activities to reduce short-term impacts).[29]

The DEIS fails to include a dust control plan and identify requirements established by the County to reduce fugitive dust. A revised DEIS needs to be prepared to include a dust control plan to conform to Imperial County regulations to include all feasible mitigation measures and comply with measures identified in Imperial County's *Air Quality Handbook*.

3. Diesel Particulate Matter ("DPM")

The DEIS fails to discuss the impact of DPM emissions, generated from diesel-powered engines, on construction worker health and regional air quality from any activities associated with Project construction and operation. Project construction and operation will require the use of diesel-powered trucks and equipment, including concrete trucks, dump trucks, forklifts, graders, and scrapers (DEIS, Table 4.2-5). Diesel-powered equipment used for Project construction will be used for more than 8000 hours (DEIS, Table 2-3). Therefore, there is the potential that the Project may have potentially significant DPM emissions and impact construction worker health.

Exposure to DPM may cause irritation to the eyes, nose, throat, and lungs, as well as neurological effects. DPM is classified as a "likely carcinogen".[30] The

---

[29] *Id*.
[30] *Diesel Particulate Matter*, U.S. Environmental Protection Agency, Region 1: EPA New England, available at http://www.epa.gov/region1/eco/airtox/diesel.html.

California Office of Environmental Health Hazard Assessment ("OEHHA") states that truck drivers and equipment operators who are exposed to diesel exhaust are more likely to develop cancer than those not exposed. Short-term exposures to diesel exhaust include eye, nose, throat, and lung irritation, coughs, headaches, nausea, and lung tissue damage.[31]

To protect worker health and to estimate impacts on regional air quality, DPM emissions must be quantified. If emissions are found to be harmful to human health, as determined by a risk assessment, and found to further degrade regional air quality, mitigation needs to be identified to include measures commonly implemented under CEQA and NEPA:

- Regular preventive maintenance to prevent emission increases due to engine problems;
- Use of low sulfur and low aromatic fuel meeting California standards for motor vehicle diesel fuel;
- Reduce equipment and vehicle idle times. Diesel equipment standing idle for more than five minutes shall be turned off. This includes trucks waiting to deliver or receive aggregate or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite;
- Use of low-emitting Diesel engines meeting federal emissions standards;
- Diesel engines from 50 to 750 horsepower are to meet Tier 3 California Emission Standards for Off-road Compression-Ignition Engines;
- Off-road equipment with diesel engines larger than 750 horsepower shall meet Tier 2 California Emission Standards;
- All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized;
- All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification; and
- Meet Tier 3 California emission standards for off-road compression-ignition engines (for engines between 50 horsepower and 750 horsepower).

Despite the likelihood that there may be potentially significant impacts from DPM emissions associated with Project construction on construction worker health and regional air quality, the DEIS does not analyze this issue. A revised DEIS must be prepared that identifies, evaluates, and quantifies these emissions.

---

[31] *Health Effects of Diesel Exhaust*, Office of Environmental Health Hazard Assessment, available at http://oehha.ca.gov/public_info/facts/dieselfacts.html.

4. Cumulative Impacts

The proposed Project is one of many solar projects proposed for the Imperial County area and the Salton Sea Air Basin. The DEIS identifies nine other foreseeable solar projects that will be constructed within a six-mile radius from the Project site (DEIS, p.4-36):

- Acorn Greenworks Solar Farm, 150 MW, 693 acres
- Calexico Solar Farm I, 200 MW, 1332 acres
- Calexico Solar Farm II, 200 MW, 1465 acres
- Campo Verde, 140 MW, 1990 acres
- Centinela , 175 MW, 2067 acres
- Imperial Solar Energy South, 200 MW, 946 acres
- Imperial Solar Energy West, 250 MW, 1130 acres
- Mount Signal, 200 MW, 1431 acres

There are 17 other proposed projects for the area (listed below) that are not mentioned in the DEIS. A map of all these projects is included as Attachment A.

- Alhambra Solar, 50 MW, 482 acres
- Arkansas Solar, 50 MW, 481 acres
- Bethel Solar X, Inc, 50 MW, 511 acres
- Calipat Solar Farm I, 50 MW, 280 acres
- Calipat Solar Farm II, 50 MW, 280 acres
- Chocolate Mountain, 50 MW, 320 acres
- Energy Source Solar 1, LLC, 80 MW, 480 acres
- Frink Road Solar Power, 30 MW, 280 acres
- Heber Solar Energy Facility, 14 MW, 80 acres
- Mayflower Solar Project, 50 MW, 558 acres
- Midway Solar Farm I, 50 MW, 326 acres
- Midway Solar Farm II,155 MW, 803 acres
- Salton Sea Solar Farm I, 50 MW, 320 acres
- Salton Sea Solar Farm II, 100 MW, 623 acres
- Sonora Solar, 50 MW, 488 acres
- Superstition Solar 1, 175 MW, 5516 acres[32, 33]

These projects, along with the nine projects identified in the DEIS, will generate a total of 2569 MW of power on 22,882 acres of land. All these projects will be

---

[32] *East Brawley Geothermal Draft Environmental Impact Report*, County of Imperial, March 2011, available at ftp://ftp.co.imperial.ca.us/icpds/eir/east-brawley-geothermal/05intro-environmental-analysis.pdf.

[33] *Final EIS/EIR - Ocotillo Wind Energy Facility*, Feb. 2012, available at ftp://ftp.co.imperial.ca.us/icpds/eir/ocotillo-express/board/staffreport-exhibit-h.pdf.

located in the Salton Sea Air Basin, which is designated non-attainment for PM10.[34] Simultaneous construction of some of these projects is likely to result in PM10 emissions that will have a cumulatively significant impact and further degrade the air quality in the Salton Sea Air Basin. A revised DEIS must be prepared that adequately address this issue.

5. Greenhouse Gas Emissions ("GHG")

The DEIS estimates that GHG emissions from Project construction would be 1,078 metric tons of carbon dioxide equivalent ("$MTCO_2E$") per year and operational emissions would be 5,478 $MTCO_2E$ per year. The DEIS also states that these emissions are below a GHG threshold of 25,000 $MTCO_2E$ and therefore, the Project's GHG emissions are not significant (DEIS, p. 4-40).

The 25,000$MTCO_2E$ cited by the DEIS is not a threshold but a reporting limit set by EPA.[35] This reporting limit has been set by EPA and requires that industrial facilities emitting over 25,000 $MTCO_2E$ report their emissions and obtain a permit.[36] Therefore, this is not an appropriate threshold to compare the Project's GHG emissions. Although the ICAPCD does not have GHG thresholds, the nearby County of San Diego recommends a threshold of 900$MTCO_2E$/year based on a paper by the California Air Pollution Control Officer Association ("CAPCOA").[37]

The Project's construction and operational GHG emissions are significant when compared to the 900 $MTCO_2E$/year CAPCOA threshold. A revised DEIS needs to be prepared that compares Project emissions to appropriate thresholds and identify them as significant. It must provide mitigation measures to reduce these emissions to the maximum extent feasible, to include:

- Require preparation of a traffic control plan;
- Demonstrate proper inspection and maintenance of construction equipment;
- Implement a carpool program for construction workers;

---

[34] *Ibid.*

[35] *Fact Sheet: Mandatory Reporting of Greenhouse Gases (40 CFR part 98)*, U.S. Environmental Protection Agency, June 2011, available at http://www.epa.gov/climatechange/emissions/downloads09/FactSheet.pdf.

[36] *Fact Sheet -- Proposed Rule: Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*, U.S. Environmental Protection Agency, available at http://www.epa.gov/nsr/fs20090930action.html.

[37] *Draft Count of San Diego Interim Guidelines for Determining Significance and Report Format and Content Requirements Climate Change*, Dept. of Planning and Land Use, Department of Public Works, Oct. 23, 2008 - Nov. 21, 2008 (circulated for public review), available at http://www.co.san-diego.ca.us/dplu/docs/bpr/cc-guidelines.pdf.

- Employ a construction site manager to verify that engines are properly maintained and keep a maintenance log;
- Configure construction parking to minimize traffic interference;
- Consolidate truck deliveries when possible;
- Provide dedicated turn lanes for movement of construction trucks and equipment on and off site;
- Suspend use of all construction equipment operations during second stage smog alerts;
- Establish a staging zone for trucks that are waiting to load or unload material at the work zone in a location where diesel emissions from the trucks will have minimum impact on abutters and the general public;
- Locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners and operable windows;
- Require all diesel trucks used by construction contractor(s) at the site, or for on-road hauling of construction material, to be post-1996 models;
- Diesel portable generators less than 50 horsepower ("hp") shall not be allowed at the construction site;
- Use of hybrid and fuel efficient construction equipment and support vehicles (e.g., pick-up trucks);
- Use of grid electricity for smaller equipment such as saws, pumps, and welders;[38]
- Reduction in vehicle miles travelled in construction crew commuteshrough trip carpooling, trip reduction, providing bus service for crews from work sites to carpool parking areas, and in providing incentives to carpool; and
- Use of a Heavy-Duty Off-Road Vehicle Plan to ensure compliances with construction mitigation measures (e.g., hourly meters on equipment, documenting the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment and daily logging of the operating hours of the equipment).[39]

IX. CONCLUSION

LIUNA Local Union No. 1184 believes the DEIS is wholly inadequate and requires significant revision, recirculation and review. Moreover, LIUNA believes that the Project as proposed would result in too many unmitigated adverse impacts on the environment to be justified. Thank you for your attention to these

---

[38] *Quantifying Greenhouse Gas Mitigation Measures - A Resource for Local Government to Assess Emission Reductions From Greenhouse Gas Mitigation Measures*, California Air Pollution Control Officers Association, Aug. 2010, at 47, available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

[39] *Ibid.* at 431.

comments. Please include this letter and all attachments hereto in the record of proceedings for this project.

Sincerely,

Brooke O'Hanley
Richard T. Drury
Lozeau Drury LLP
Attorneys for LIUNA Local Union No. 1184

EXHIBIT 1

K. Shawn Smallwood, Ph.D.
3108 Finch Street
Davis, CA 95616

Noel Ludwig
Bureau of Land Management
California Desert District Office
22835 Calle San Juan de Los Lagos
Moreno Valley, CA 92553

18 July 2012

RE: **Draft EIS / Draft CDCA Plan Amendment Ocotillo Sol Project**

Dear Mr. Ludwig,

I would like to comment on the draft Environmental Impact Statement (DEIS) and related documents that were prepared for the Ocotillo Sol Project. My qualifications for preparing expert comments are the following. I earned a Ph.D. degree in Ecology from the University of California at Davis in 1990, where I subsequently worked for four years as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, habitat restoration, interactions between wildlife and human infrastructure and activities, conservation of rare and endangered species, and on the ecology of invading species. I have authored numerous papers on special-status species issues, including "Using the best scientific data for endangered species conservation," published in Environmental Management (Smallwood et al. 1999), and "Suggested standards for science applied to conservation issues" published in the Transactions of the Western Section of The Wildlife Society (Smallwood et al. 2001). I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and the Raptor Research Foundation, and I've been a part-time lecturer at California State University, Sacramento. I was also Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management.

I have performed wildlife surveys in California for twenty-three years (Smallwood et al. 1996, Smallwood and Nakamoto 2009). Over these years, I studied the impacts of human activities and human infrastructure on birds and other animals, including on Swainson's hawks (Smallwood 1995), burrowing owls (Smallwood et al. 2007), and other species (Smallwood and Nakamoto 2009). I studied fossorial animals (i.e., animals that burrow into soil, where they live much of their lives), including pocket gophers, ground squirrels, kangaroo rats, voles, harvester ants, and many other functionally similar groups. I performed focused studies of how wildlife interact with agricultural fields and associated cultural practices, especially with alfalfa production. I have also performed wildlife surveys at many proposed project sites, including at a proposed large solar farm in the Mojave Desert.

SUFFICIENCY OF IMPACT REVIEW

According to App. C of the DEIS, surveys on the project site detected flat-tailed horned lizard, burrowing owl, Swainson's hawk, loggerhead shrike, black swift, olive-sided flycatcher, and yellow warbler. The DEIS attempted to dismiss the significance of most of these detections, however. For example, the Swainson's hawk detection was downplayed because the individuals seen were migrating over the site (page 22). In another example, black swift, olive-sided flycatcher and yellow warbler were not expected to be nesting in the area because the detections were made during winter. However, migration habitat and wintering habitat are no less vital to the persistence of special-status species than is nesting habitat. In some cases, migration or wintering habitat can be more limiting than the nesting habitat, so the losses of these types of habitat can cause even greater impacts to the species.

No trapping was performed for small mammals, which meant that there was almost zero likelihood of detecting the multiple special-status species of small mammals residing on the site. Without live-trapping, it was highly unlikely to detect, let alone measure the abundance of, Palm Springs pocket mouse or Pallid San Diego pocket mouse. The DEIS concluded that the habitat is suitable on site, so the species are likely present, but this conclusion falls short of a determination of how significant the site might be to these species. Not only should live-trapping have been performed on site, but it should have been performed at multiple locations offsite, and densities should have been compared to results of other studies performed elsewhere. Without understanding the significance of the project's impacts to these species, appropriate mitigation measures cannot be formulated.

According to App. C of the DEIS, western mastiff bat was regarded as likely present, but its presence was downplayed by concluding that the bat likely forages high over the project site. Whether the western mastiff bat forages high or low over the project site, the DEIS should have concluded that the project impact was just as significant to the species, because whether flying high or low, the project site still provides the foraging opportunity. Flying insects do not spawn from the air; they fly into the air from the ground and vegetation. Should solar panels be installed on the site, the foraging base for western mastiff bat will be reduced by the project's spatial extent.

According to App. J of the DEIS, two biologists surveyed the project area for burrowing owls on 26-27 October 2009, using transects to cover 100% of the ground. Four active burrows were found, and a flying burrowing owl was seen. However, the type of burrow likely to be detected in late October is often referred to as refuge burrows. These are burrows being used temporarily by burrowing owls. Refuge burrows are difficult to detect in late October. Instead of attempting to view 100% of the ground via transects, the more effective survey method in late October is to check each burrow entrance for sign of occupancy. Otherwise, burrowing owls are very difficult to detect at this time of year because they hide, and because their sign at burrows is often not visible until the searcher is directly over the burrow. The population of burrowing owls during the non-breeding season was likely under-estimated.

According to App. J of the DEIS, breeding season surveys were performed 10, 11, 13, 14 May 2010, totaling 24 person-hours. No "breeding" owls were detected, but signs of winter use were evident. However, these surveys did not meet the standards in the CDFG (2012) survey guidelines, because they were not separated by at least several weeks each. Nesting status can be dynamic among burrowing owls, so a survey in May does not necessarily represent the nesting status in June, July, or any other months between April and October. The breeding population of burrowing owls on the project site was likely under-estimated.

According to App. C of the DEIS, Colorado Desert Fringe-toed lizard was not seen on site, but habitat appeared suitable. Lacking detections due to insufficient survey, the DEIS appropriately concluded presence due to habitat suitability. However, the significance of the project's impacts cannot be understood without knowing the relative abundance of this species at the site.

Flat-tailed horned lizard.—The DEIS concluded that the project would take less than one percent of the total habitat acreage in the Yuha Management Area (MA), which would be considered tolerable under the Flat-tailed Horned Lizard Management Plan (Foreman 2003). In the Management Plan, cumulative new disturbance may not exceed 1% of the total acreage of the associated MA. The Ocotillo Sol project would not result in a cumulative destruction of >1% of the management area, but the total would not be far from the threshold. Furthermore, the Ocotillo Sol project is likely to act as an ecological sink for flat-tailed horned lizard, because any lizards traveling under the 2-inch gap under the perimeter fence and onto the project site will likely be crushed by vehicle traffic servicing the solar panels.

CUMULATIVE IMPACTS

The DEIS (pages 4-3 to 4-6) identified 45,782 acres of cumulative impacts in the region, including 4,055 acres likely to be converted to solar farms within 2 miles of Ocotillo Sol. The DEIS inadequately addressed the cumulative impacts of 45,782 acres of land conversions on migratory birds. Migratory birds and raptors were dismissed in the DEIS because they were deemed "widespread." Just because species are widespread does not mean that cumulative impacts caused by >45,000 acres of habitat loss can be disregarded as insignificant. The cumulative impacts of land conversions in the region should be analyzed for each special-status species, and for wildlife movement.

MITIGATION

According to the DEIS (page 4-78), "*The construction impact avoidance, minimization, and compensation measures detailed for flat-tailed horned lizard above provide adequate protection and compensation for these species* [other special-status small mammals and reptiles] *and their habitats, given the similarity in their habitat requirements and behaviors.*" Whereas compensation measures in the DEIS may perform in the manner stated, the impact avoidance and minimization measures formulated for flat-tailed horned lizard should not be expected to perform adequately for Pallid San Diego pocket mouse, Palm Springs pocket mouse, or Colorado Desert Fringe-toed lizard. None of these three species can be easily captured by hand and relocated. Relocating the mammal species would require intensive live-trapping. There is no escaping the

conclusion that the project will result in the destruction of hundreds and possibly thousands of each of these species.

The mitigation proposed for flat-tailed horned lizard is inadequate. The 6:1 habitat compensation ratio was formulated by Foreman (2003) for projects causing habitat loss, but not for projects creating population sinks. Flat-tailed horned lizards will likely continue entering the project site under the perimeter fence, and unknown numbers will be crushed by vehicle traffic every year for as long as the project generates power. There needs to be a mitigation measure for on-going impacts to flat-tailed horned lizards, Colorado Desert fringe-toed lizards, and special- status small mammal species.

REFERENCES CITED

BLM (Bureau of Land Management). 2012. El Centro Office Draft Environmental Impact Statement / Draft CDCA Plan Amendment Ocotillo Sol Project. US Department of the Interior, BLM/CA/ES-2012-009+1793, DES 20-12, DOI-BLM-CA-D000-2012-0005-EIS. El Centro, California.

CDFG (California Department of Fish and Game). 2012. Staff Report on Burrowing Owl Mitigation. Sacramento, California.

Foreman, L. D., Ed. (Flat-tailed Horned Lizard Working Group of Interagency Coordinating Committee) 2003. Flat-tailed Horned Lizard Rangewide Management Strategy: 2003 Revision. Unpublished report.

EXHIBIT 2

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

2503 Eastbluff Dr., Suite 206
Newport Beach, California 90405
Fax: (949) 717-0069

Matt Hagemann
Tel: (949) 887-9013
Email: mhagemann@swape.com

July 13, 2012

Richard Drury
Lozeau | Drury LLP
410 12th Street, Suite 250
Oakland, CA 94607Caro

Subject: Comments on the Ocotillo Sol Project

Dear Mr. Drury:

We have reviewed the 2012 Draft Environmental Impact Statement ("DEIS") for the Ocotillo Sol Project ("Project"). The proposed Project would generate 20 megawatts of power, on 100 acres of land, approximately nine miles southwest of El Centro in Imperial County, California. Project components include PV modules and a connection to the existing Imperial Valley substation.

We have reviewed the DEIS for issues associated with air quality, greenhouse gases, hydrology and water quality, and cumulative impacts. We conclude that Project construction may result in potentially significant impacts that are not disclosed in the DEIS. A revised DEIS must be prepared to adequately address these issues and provide mitigation for any significant impacts.

Air Quality

Particulate Matter (PM10)

The DEIS estimates construction emissions of PM10 to be 0.3 tons/year and states that emissions are not significant because they do not exceed thresholds established by the Imperial County Air Pollution Control District (DEIS, p. 4-32). No calculations to substantiate the estimate of 0.3 tons/year for PM10 are provided in the DEIS or any of its supporting documents.

We reviewed solar projects in Southern California for PM10 emissions from construction activities. Sol Orchard Valley Center, a smaller-sized PV solar project (generating less power and constructed on a smaller parcel) in San Diego, estimated construction emissions of PM10 to be 165.17 lbs/day.[1] This

[1] Air Quality Assessment, Sol Orchard – Valley Center Solar Project MUP 3300-11-027. October, 2011. p. 19

estimate, for a smaller project, exceeds the Project's PM10 emissions estimate by 550 times and exceeds Imperial County's threshold of 150 lbs/day.[2] Because Sol Orchard Valley Center is half the size of the proposed Project (in megawatts and acreage) and would have significant PM10 emissions by Imperial County standards, it is likely that the proposed Project would have significant PM10 emissions as well.

We conducted a review of PM10 emissions from construction activities at other PV solar projects and found that estimates vary widely.

Name	County	Acreage	Megawatts	Construction Emissions PM10 (lbs/day)
Ocotillo Sol	Imperial	100	20	1.6[3]
Sol Orchard Valley Center	San Diego	54.6	7.5	165.17
Sol Orchard Ramona	San Diego	42.7	7.5	141.62
Tehachapi Two Solar[4]	Kern	160	20	18.1
Tehachapi One Solar[5]	Kern	156	20	18.6

The table shows that the Project's construction emissions of PM10 are much lower, by as much as 11 times, than similar-sized projects. Therefore, it is likely that the Project's PM10 emissions may be underestimated.

A revised DEIS must be prepared to include model inputs, methodology, and any assumptions used to calculate and substantiate the Project's emissions. If results exceed thresholds, mitigation that is routinely considered in other CEQA and NEPA reviews should be identified in the revised DEIS to include:

- Watering during excavation to prevent excessive dust;
- Discontinuation of construction activities during windy conditions when activities cause visible dust plumes;
- A wheel-washing system;
- Covering all trucks hauling soil and other loose materials;
- Minimizing drop heights when loaders dump material into trucks; and
- Other fugitive dust control measures as necessary to comply with Imperial County Air Pollution Control District Rules and Regulations.

Exposure to particulate matter can lead to respiratory symptoms such as irritation of airways, coughing, and difficulty breathing, an irregular heartbeat, aggravated asthma, and decreased lung function.[6]

---

[2] http://www.co.imperial.ca.us/airpollution/Forms%20&%20Documents/CEQA/CEQA%20Handbk%20Nov%202007.pdf

[3] The Project's construction PM10 emissions are 0.3 tons/year or 1.6 lbs/day.

[4] http://www.co.kern.ca.us/planning/pdfs/eirs/recurrent_desert/Appendix_C-Air_Quality_and_GHG_Report.pdf

[5] *Ibid*

[6] http://www.epa.gov/pm/health.html

PM10 and PM2.5 can aggravate respiratory disease and can cause cancer and premature death.[7] Multiple studies show the link between particulate matter and an increase in cardiovascular and respiratory symptoms.[8] Project construction will use heavy earthmoving equipment (DEIS, p. 2-13) and recent research shows that earthmoving activities are the most important contributor to particulate matter emissions.[9]

Because estimates of construction particulate matter emissions from other solar projects greatly exceed Project estimates, Project emissions may be potentially significant and impact construction worker health. A revised DEIS must be prepared that clearly calculates and substantiates Project emissions and provides mitigation, if necessary.

Fugitive Dust

The DEIS acknowledges that Imperial County is designated a serious non-attainment area for PM10 (DEIS, p. 1-12). Fugitive dust is primarily responsible for PM10 in the Imperial Valley.[10] As mitigation to control fugitive dust, the DEIS states a dust control plan will be developed upon certification (DEIS, p. 4-37). However, this dust control plan is not adequate mitigation because it does not address dust control measures established by the county and does not identify all mitigation measures.

Imperial County adopted Regulation VIII fugitive dust control measures in 2009 in response to the County's classification as a serious non-attainment area for PM10.[11] Although the DEIS acknowledges these measures (DEIS, p. 3-20), it does not identify that the dust control plan prepared for the Project must adhere to these standards. The dust control plan developed for Project must meet standards established by Regulation VIII and its associated Rules. The Rules are established to reduce PM10 emissions from construction activities, handling of bulk materials, unpaved roads, and agricultural operations (*Ibid.*).

In addition, dust control plans for areas over 10 acres (such as the proposed Project) must:

> document the type and location of the project, the expected start and completion dates of the dust generating activities, the total area of land surface to be disturbed, the actual and potential sources of fugitive dust emissions on the site (including the location of bulk materials handling and storage areas, paved and unpaved roads, entrances and exits where track out/carry out may occur, etc.), and all the fugitive dust control measures to be implemented before, during, and after any dust-generating activity (*Ibid.*)

---

[7] Pope CA et. al. (2002). *Lung Cancer, Cardiopulmonary Mortality, and Long-Term Exposure to Fine Particulate Air Pollution,* The Journal of the American Medical Association.
[8] http://www.health.state.mn.us/divs/eh/air/pm.htm
[9] http://pubs.awma.org/gsearch/journal/2005/6/muleski.pdf
[10] http://www.co.imperial.ca.us/airpollution/attainment%20plans/final%20ic%202009%20pm10%20sip%20document.pdf
[11] http://www.co.imperial.ca.us/AirPollution/HISTORICAL%20PAGES%20AND%20INFORMATION/HISTORICAL%20DOCUMENTS/PUBLIC%20HEARINGS/2009%2008%20August%2011/Draft%20Final%20IC%202009%20PM10%20SIP%20Document_30July09%20Full.pdf

A dust control plan needs to be prepared that complies with Imperial County regulations and needs to be included in a revised DEIS.

Regardless of whether a project has significant emissions, mitigation measures in the 2007 *Air Quality Handbook* by the Imperial County Air Pollution Control District (ICAPCD) must be implemented.[12] In addition to preparing a dust control plan in accordance with Imperial County regulations, the following construction mitigation measures must be implemented as well:

- All disturbed areas, including bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover;
- All on site and off site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering;
- All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering;
- The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material;
- All Track-Out or Carry-Out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area;
- Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line;
- The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering;
- Water exposed soil with adequate frequency for continued moist soil;
- Replace ground cover in disturbed areas as quickly as possible;
- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site;
- Develop a trip reduction plan to achieve a 1.5 AVR for construction employees;

[12] http://www.imperialcounty.net/AirPollution/Forms%20&%20Documents/CEQA/CEQA%20Handbk%20Nov%202007.pdf

- Implement a shuttle service to and from retail services and food establishments during lunch hours;
- Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment;
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum;
- Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use;
- Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set);
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways; and
- Implement activity management (e.g. rescheduling activities to reduce short-term impacts).[13]

The DEIS fails to include a dust control plan and identify requirements established by the County to reduce fugitive dust. A revised DEIS needs to be prepared to include a dust control plan to conform to Imperial County regulations to include all feasible mitigation measures and comply with measures identified in Imperial County's *Air Quality Handbook*.

Diesel Particulate Matter

The DEIS fails to discuss the impact of diesel particulate matter (DPM) emissions , generated from diesel-powered engines, on construction worker health and regional air quality from any activities associated with Project construction and operation. Project construction and operation will require the use of diesel-powered trucks and equipment, including concrete trucks, dump trucks, forklifts, graders, and scrapers (DEIS, Table 4.2-5). Diesel-powered equipment used for Project construction will be used for more than 8000 hours (DEIS, Table 2-3). Therefore, there is the potential that the Project may have potentially significant DPM emissions and impact construction worker health.

Exposure to DPM may cause irritation to the eyes, nose, throat, and lungs, as well as neurological effects. DPM is classified as a "likely carcinogen".[14] The California Office of Environmental Health Hazard Assessment (OEHHA) states that truck drivers and equipment operators who are exposed to diesel exhaust are more likely to develop cancer than those not exposed. Short-term exposures to diesel exhaust include eye, nose, throat, and lung irritation, coughs, headaches, nausea, and lung tissue damage.[15]

---

[13] http://www.imperialcounty.net/AirPollution/Forms%20&%20Documents/CEQA/CEQA%20Handbk%20Nov%202007.pdf
[14] http://www.epa.gov/region1/eco/airtox/diesel.html
[15] http://oehha.ca.gov/public_info/facts/dieselfacts.html

To protect worker health and to estimate impacts on regional air quality, DPM emissions must be quantified. If emissions are found to be harmful to human health, as determined by a risk assessment, and found to further degrade regional air quality, mitigation needs to be identified to include measures commonly implemented under CEQA and NEPA:

- Regular preventive maintenance to prevent emission increases due to engine problems;
- Use of low sulfur and low aromatic fuel meeting California standards for motor vehicle diesel fuel;
- Reduce equipment and vehicle idle times. Diesel equipment standing idle for more than five minutes shall be turned off. This includes trucks waiting to deliver or receive aggregate or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite;
- Use of low-emitting Diesel engines meeting federal emissions standards;
- Diesel engines from 50 to 750 horsepower are to meet Tier 3 California Emission Standards for Off-road Compression-Ignition Engines;
- Off-road equipment with diesel engines larger than 750 horsepower shall meet Tier 2 California Emission Standards;
- All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized;
- All equipment engines shall be maintained in good operating condition and in tune per manufacturers' specification; and
- Meet Tier 3 California emission standards for off-road compression-ignition engines (for engines between 50 horsepower and 750 horsepower).

Despite the likelihood that there may be potentially significant impacts from DPM emissions associated with Project construction on construction worker health and regional air quality, the DEIS does not analyze this issue. A revised DEIS must be prepared that identifies, evaluates, and quantifies these emissions.

<u>Cumulative Impacts</u>

The proposed Project is one of many solar projects proposed for the Imperial County area and the Salton Sea Air Basin. The DEIS identifies nine other foreseeable solar projects that will be constructed within a six-mile radius from the Project site (DEIS, p.4-36):

- Acorn Greenworks Solar Farm, 150MW, 693 acres
- Calexico Solar Farm I, 200MW, 1332 acres
- Calexico Solar Farm II, 200MW, 1465 acres
- Campo Verde, 140MW, 1990 acres
- Centinela , 175MW, 2067 acres
- Imperial Solar Energy South, 200MW, 946 acres
- Imperial Solar Energy West, 250MW, 1130 acres
- Mount Signal, 200MW, 1431 acres

There are 17 other proposed projects for the area (listed below) that are not mentioned in the DEIS. A map of all these projects is included as Attachment A.

- Alhambra Solar, 50MW, 482 acres
- Arkansas Solar, 50MW, 481 acres
- Bethel Solar X, Inc, 50MW, 511 acres
- Calipat Solar Farm I, 50MW, 280 acres
- Calipat Solar Farm II, 50MW, 280 acres
- Chocolate Mountain, 50MW, 320 acres
- Energy Source Solar 1, LLC, 80MW, 480 acres
- Frink Road Solar Power, 30MW, 280 acres
- Heber Solar Energy Facility, 14MW, 80 acres
- Mayflower Solar Project, 50MW, 558 acres
- Midway Solar Farm I, 50MW, 326 acres
- Midway Solar Farm II,155MW, 803 acres
- Salton Sea Solar Farm I, 50MW, 320 acres
- Salton Sea Solar Farm II, 100MW, 623 acres
- Sonora Solar, 50MW, 488 acres
- Superstition Solar 1, 175MW, 5516 acres[16, 17]

These projects, along with the nine projects identified in the DEIS, will generate a total of 2569 megawatts of power on 22,882 acres of land. All these projects will be located in the Salton Sea Air Basin, which is designated non-attainment for PM10.[18] Simultaneous construction of some of these projects is likely to result in PM10 emissions that will have a cumulatively significant impact and further degrade the air quality in the Salton Sea Air Basin. A revised DEIS must be prepared that adequately address this issue.

Greenhouse Gas Emissions

The DEIS estimates that greenhouse gas (GHG) emissions from Project construction would be 1,078 $MTCO_2e$ per year and operational emissions would be 5,478 $MTCO_2e$ per year. It goes on to say that these emissions are below a GHG threshold of 25,000 $MTCO_2e$, the Project's GHG emissions are not significant (DEIS, p. 4-40). The 25,000$MTCO_2e$ cited by the DEIS is not a threshold but a reporting limit set by the EPA.[19] This reporting limit has been set by the Environmental Protection Agency and requires that industrial facilities emitting over 25,000 $MTCO_2e$ report their emissions and obtain a permit.[20] Therefore, this is not an appropriate threshold to compare the Project's GHG emissions. Although the ICAPCD does not have GHG thresholds, the nearby County of San Diego recommends a threshold of

[16] ftp://ftp.co.imperial.ca.us/icpds/eir/east-brawley-geothermal/05intro-environmental-analysis.pdf
[17] ftp://ftp.co.imperial.ca.us/icpds/eir/ocotillo-express/board/staffreport-exhibit-h.pdf
[18] *Ibid.*
[19] http://www.epa.gov/climatechange/emissions/downloads09/FactSheet.pdf
[20] http://www.epa.gov/nsr/fs20090930action.html

900MTCO$_2$e/year based on a paper by the California Air Pollution Control Officer Association (CAPCOA).[21]

The Project's construction and operational GHG emissions are significant when compared to the 900MTCO$_2$e/year CAPCOA threshold. A revised DEIS needs to be prepared that compares Project emissions to appropriate thresholds and identify them as significant. It must provide mitigation measures to reduce these emissions to the maximum extent feasible, to include:

- Require preparation of a traffic control plan;
- Demonstrate proper inspection and maintenance of construction equipment;
- Implement a carpool program for construction workers;
- Employ a construction site manager to verify that engines are properly maintained and keep a maintenance log;
- Configure construction parking to minimize traffic interference;
- Consolidate truck deliveries when possible;
- Provide dedicated turn lanes for movement of construction trucks and equipment on and off site;
- Suspend use of all construction equipment operations during second stage smog alerts;
- Establish a staging zone for trucks that are waiting to load or unload material at the work zone in a location where diesel emissions from the trucks will have minimum impact on abutters and the general public;
- Locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners and operable windows;
- Require all diesel trucks used by construction contractor(s) at the site, or for on-road hauling of construction material, to be post-1996 models;
- Diesel portable generators less than 50 hp shall not be allowed at the construction site;
- Use of hybrid and fuel efficient construction equipment and support vehicles (e.g., pick-up trucks);
- Use of grid electricity for smaller equipment such as saws, pumps, and welders;[22]
- Reduction in vehicle miles travelled in construction crew commutes through trip carpooling, trip reduction, providing bus service for crews from work sites to carpool parking areas, and in providing incentives to carpool; and
- Use of a Heavy-Duty Off-Road Vehicle Plan to ensure compliances with construction mitigation measures (e.g., hourly meters on equipment, documenting the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment and daily logging of the operating hours of the equipment).[23]

---

[21] http://www.co.san-diego.ca.us/dplu/docs/bpr/cc-guidelines.pdf
[22] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, p. 47
[23] *Ibid.*, p. 431

Hydrology and Water Quality

The IS states that PV thin-film technology containing cadmium telluride (CdTe) is being considered for the Project (DEIS, p. 2-11). It goes on to say that

> The potential for CdTe release could only occur if severe pitting of the panel surface occurred. If thin film technology is used, routine monitoring and inspection activities by the Applicant would occur to identify any potentially damaged panels. If a damaged panel is discovered, the panel would be replaced prior to any degeneration that may result in the release of CdTe (*Ibid.*).

The DEIS does not discuss the potential of cadmium to leach from broken or weathered panels, a phenomenon observed in recent research.[24] Although it states that routine monitoring and inspection will be conducted to identify damaged panels, it does not specify the frequency or methodology of how these panels will be identified, documented, gathered, and disposed. Data from First Solar[25] shows that PV modules have an approximate breakage rate of 1%.[26] If these panels are left unidentified and are not properly disposed, they can expose the cadmium that is sandwiched inside.

The Project is within the Salton Sea Trough and drains to the northeast and east (DEIS, p. 4-49), toward the Salton Sea. The Salton Sea is on California's 303(d) List of Impaired Water Bodies[27] and is impaired for selenium, salt, and nutrients.[28] Cadmium is also present in the Salton Sea[29,30] and the waters that feed it.[31] Exposed cadmium (from broken or weathered panels) may runoff during rainfall and eventually flow to the Salton Sea.

A recent study conducted on the potential leaching risks of cadmium from broken PV panels found cadmium concentration in water at the point of breakage to be between 4 µg/L to 6 µg/L.[32] This is more than twice the concentration of cadmium the USGS has found in the Salton Sea[33] and exceeds the groundwater and surface water (freshwater) Environmental Screening Levels (ESLs) of 0.25 µg/L by more than three times. The Regional Water Quality Control established the groundwater and surface water ESLs for the "protection of aquatic habitats" and "protection against leaching and subsequent impacts to groundwater".[34]

---

[24] Fate and Transport Evaluations of Potential Leaching Risks from Cadmium Telluride Photovoltaics (2012). Environmental Toxicology and Chemistry, Vol. 31, No. 7
[25] First Solar is a leading manufacturer of CdTe PV modules.
[26] *Ibid.*
[27] http://www.waterboards.ca.gov/rwqcb7/water_issues/programs/tmdl/docs/r7_2008_303_d_list_staffreport.pdf
[28] http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/tmdl/docs/alamo/aslt5_6.pdf
[29] http://www.co.imperial.ca.us/PdfDocuments/QSALitigationBulletin.pdf
[30] http://articles.latimes.com/2002/jul/14/opinion/oe-haddad14
[31] http://www.saltonsea.ca.gov/media/ppr_final.pdf
[32] *Ibid.*
[33] http://www.usbr.gov/lc/region/saltnsea/SaltonSeaEcosystemMonitoring.pdf
[34] Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. http://www.swrcb.ca.gov/sanfranciscobay/water_issues/available_documents/ESL_May_2008.pdf

If CdTe panels are used for the Project, there is the potential that cadmium (from broken or weathered panels) can reach the Salton Sea at significant concentrations. The potential for cadmium to be transported to water (including groundwater) and soil should be evaluated in a DEIS in a section that considers potential impacts of solar technologies that may be selected.

The DEIS also does not address the cumulative impacts of potential discharge of cadmium from neighboring thin film solar projects. Two other proposed projects in Imperial County will use CdTe technology. [35] The Imperial Solar Energy Center – South project will generate 200MW of power and be constructed on 964 acres of land. [36] The Imperial Solar Energy Center – West will generate up to 250MW of power and be constructed on 1130 acres of land. Both of these projects drain to the Salton Sea.[37] If the proposed Project uses CdTe technology, its impacts on the Salton Sea must be considered in a cumulative context and included in a revised DEIS.

Sincerely,

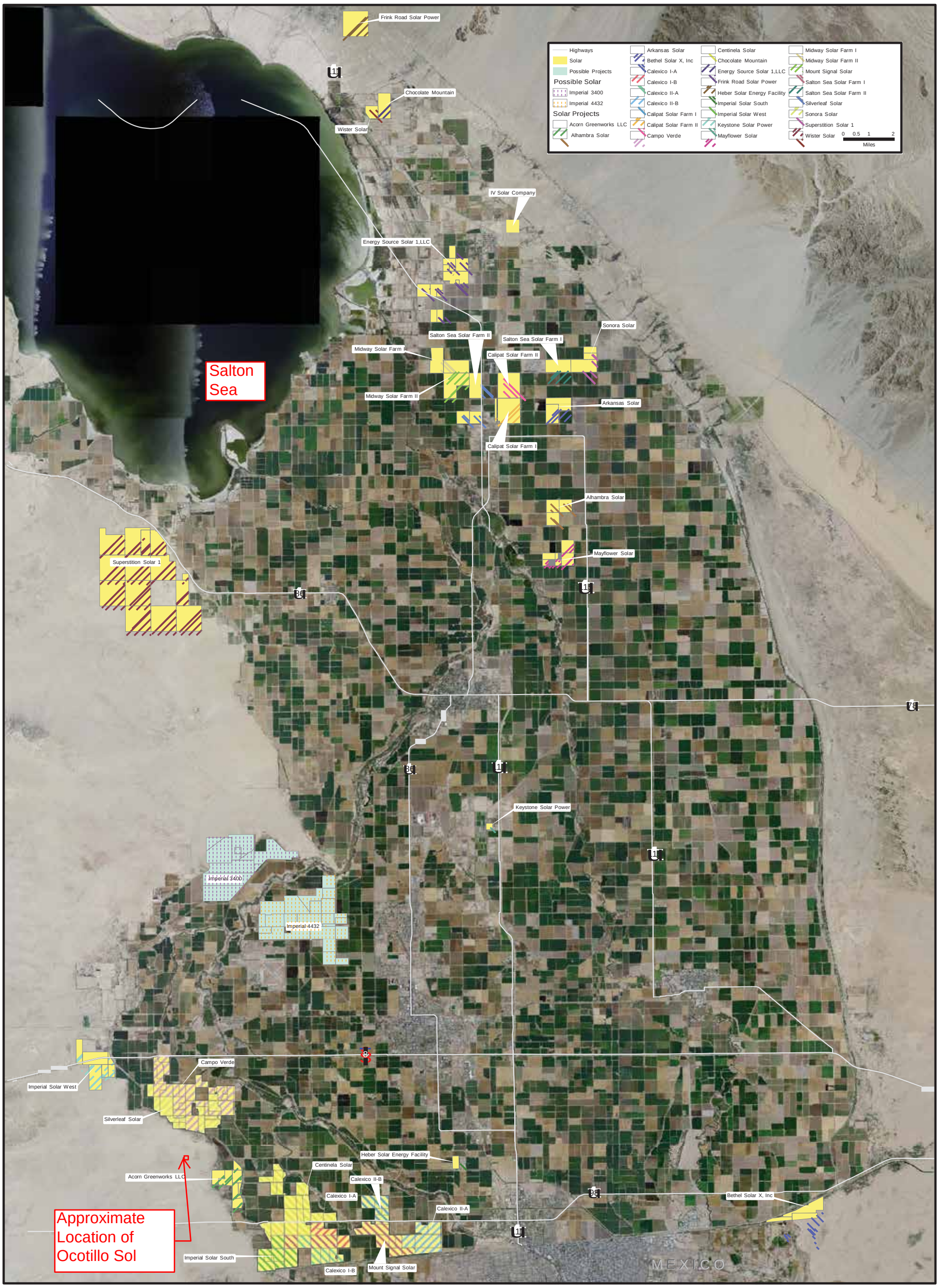
Matt Hagemann, P.G., C.Hg., QSD, QSP

[35] http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/Renewable_Energy_Projects_Approved_to_Date.print.html

[36] http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/priority_projects.Par.55024.File.dat/C-Solar_South_fact_sheet.pdf

[37] http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/priority_projects.Par.25264.File.dat/Imperial_Solar_West_Fact_Sheet.pdf

ATTACHMENT A



Source: Imperial County, 2011

Proposed Solar Projects in Imperial County

FIGURE 6.2

HDR ONE COMPANY | Many Solutions

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105·3901

JUL 19 2012

Noel Ludwig, Project Manager
California Desert District Office, BLM
22835 Calle San Juan De Los Lagos
Moreno Valley, California 92553

Subject: Draft Environmental Impact Statement for the Proposed Ocotillo Sol Solar Project and Draft California Desert Conservation Area Plan Amendment, Imperial County, California (CEQ# 20120108)

Dear Mr. Ludwig:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the Ocotillo Sol Project, Imperial County, California. Our comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act.

We have rated the DEIS as Lack of Objections (LO) (see enclosed *"Summary of EPA Rating Definitions")*. Although our review did not result in the identification of any substantive changes needed to the project to avoid significant environmental impacts, we recommend that certain information be added or clarified in the Final EIS. In particular, the EPA recommends that the Final EIS include additional discussion regarding the alternatives analysis and direct and cumulative impacts to air resources. Our enclosed detailed comments provide more information regarding these recommendations.

We appreciate the opportunity to review this DEIS and are available to discuss our comments. Please send one hard copy and one CD ROM copy of the FEIS to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please contact me at (415) 972-3521, or contact Scott Sysum, the lead reviewer for this Project, at (415) 972-3742 or sysum.scott@epa.gov.

Sincerely,

Manager
Environmental Review Office (CED-2)
Communities and Ecosystems Division

Enclosures:
(1) Summary of EPA Rating Definitions
(2) EPA's Detailed Comments
(3) Distribution List

cc: Distribution List

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. The EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality.

ADEQUACY OF THE IMPACT STATEMENT

Category "I" (Adequate)

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category "2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category "3" (Inadequate)

The EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

US EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED OCOTILLO SOL SOLAR PROJECT AND DRAFT CALIFORNIA DESERT CONSERVATION AREA PLAN AMENDMENT, IMPERIAL COUNTY, CALIFORNIA, JULY 18, 2012

Alternatives Analysis

CEQ Regulations for implementing NEPA (40 CFR, Parts 1500-1508) state that the alternatives section of an EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly describe the reasons for their having been eliminated" (40 CFR, part 1502.14). "Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of applicant" (46 Federal Register 18026). Reasonable alternatives should include, but are not necessarily limited to, alternative sites, capacities, and technologies as well as alternatives that identify environmentally sensitive areas or areas with potential use conflicts.

The Draft Environmental Impact Statement states that the Applicant's interests and objectives, including any constraints or flexibility with respect to their proposal, help to inform the BLM's decision and cannot be ignored in the NEPA process (BLM IM 2011-059) (p. 2-1). Among the constraints listed by the Applicant is proximity (within 1.5 miles) to the Imperial Valley Substation (based on the project's connection to a 12.47-kV site within the Imperial Valley Substation that limits the feasible length of an interconnection) (p. 2-2). Technically, it is feasible to connect to the substation over a longer distance by using higher voltage transmission lines without excessive power losses. This is currently planned for the Mount Signal Solar Energy project and the Sunrise Powerlink, both of which will connect to the Imperial Valley Substation. The EPA suggests that the restriction of a gen-tie line of only 12.47 kV severely limits the available alternatives and does not appear necessary to meet the project's purpose and need.

> *Recommendation:*
> Discuss, in the FEIS, whether high voltage transmission line technology would allow a wider range of alternative sites, and any economic or other factors that would make the use of higher voltage transmission gen-tie lines infeasible.

Air Quality Cumulative Impacts Analysis

The DEIS states that the Salton Sea Air Basin is in attainment of all federal pollutant standards except for 03, PM10, and PMz.s. The area that includes the Ocotillo Sol Project area is a Serious PM10 Nonattainment area, is Nonattainment for the PMz.s 24-hour standard and is a Moderate 8-hour O_3 Nonattainment area.

The DEIS states that the geographic scope of air quality impacts is a 6-mile radius for regionally based impacts and a 1-mile radius for sensitive receptor impacts, and that these cumulative analysis impact areas are appropriate for air quality due to the state, regional, and local nature of air quality impacts that could occur cumulatively. According to the DEIS, the identification of cumulative projects for air quality generally ranges from approximately 1 mile to 6 miles from a proposed project because the

effect of downwind dispersion eliminates the potential for project-level significant cumulative air quality impacts over areas larger than a few square miles (p. 4-35).

EPA notes that other renewable energy projects in the area have used a larger geographic area for cumulative impacts analysis. Forexample, the Imperial Solar Energy Center West Draft EIR/EA used the Salton Sea Air Basin as the geographic scope for the analysis of cumulative air quality impacts, due to the existence of an Air Quality Management Plan, State Implementation Plan, and requirements set forth by the Imperial County Air Pollution Control District, which apply to all cumulative projects within the Salton Sea Air Basin.[1]

> *Recommendations:*
> Consider using the Salton Sea Air Basin as the geographic scope for the analysis of cumulative air quality impacts in the Final EIS. If it is determined that this scope is inappropriate for this project, explain why. The cumulative air quality impacts analysis should take into consideration all reasonably foreseeable projects that may cumulatively affect the region's ability to achieve air quality goals.

Grading and Fugitive Dust Control

The DEIS states that initial construction activities would include complete vegetation grubbing of the area. Grubbing would incorporate the clearing of vegetation, use of herbicides, and a water truck for fugitive dust control. Vegetation treatment and weed management would be ongoing throughout the life of the project. The site would be maintained free of vegetation with BLM-approved herbicides. The Ocotillo Sol Weed Management Plan, developed in consultation with the BLM, would outline the vegetation treatment and weed management program for the site (see Appendix D) (p. 2-10).

On page 2-9, the DEIS states that the Applicant's proposed Ocotillo Sol Project site was selected to minimize grading and to allow site hydrology to remain in a quasi-natural state. Site grading would match existing slopes and grades, minimize disturbance, and preserve existing drainage patterns. Soil would not be imported to or exported from the site. On page 4-44, however, the DEIS states that construction activities under Alternative 2 would involve grading to level the site.

The DEIS states that Dust Control Plans for construction and operation will be implemented to further avoid and reduce dust emissions in the project area associated with project construction and operation (p. 4-32). There is no mention of water use for dust suppression during operations, even though the area will be free of all vegetation.

> *Recommendations:*
> The FEIS should clarify whether the site would be graded to match the existing contour and slope or will be graded level. If the site will be graded level, discuss how this may affect soil erosion and stormwater flows.

[1] Imperial Solar Energy Center West, November 2010 Draft EIRIEA, page 5-30

The FEIS should include more details on the content of the two Dust Control Plans. If water is to be used for dust control during operations, the amount of water needed should be estimated.

The FEIS should explain why the site must be maintained free of vegetation; identify the herbicides that may be used on the site; and describe the anticipated frequency and manner of herbicide application.

Hazardous Materials/Hazardous Waste and Decommissioning - Cadmium Telluride containing Solar Modules

The actual photovoltaic technology to be used has not been decided. The DEIS discusses two different technologies that may be used: conventional crystalline and thin film (p. 2-6). The thin-film PV module technology that may be used for the Ocotillo Sol Project contains small amounts of cadmium telluride. According to the DEIS, the potential for CdTe release could only occur if severe pitting of the panel surface occurred, and human exposure to CdTe would only occur if the module, which is sealed in glass, generated flake or dust particles. The DEIS states that dust particles would not be generated unless the modules disintegrated during final disposal or vaporized in a fire. Final disposal of modules would occur off-site and would be covered under the decommissioning plan. The DEIS states that the proposed facility has a minimum expected lifetime of 25 years, with an option to renew the Right of Way for another 25 years (p. 2-4).

In an Environmental Impact Report for the Topaz Solar Farm utility scale thin-film PV power plant, it was stated that, out of the 9,000,000 modules, it was anticipated that 36,000 modules would break during the three-year construction period, and that an average of 2,880 modules would break per year during operation. The project applicant developed a Broken PV Module Detection and Handling plan as a means to ensure prompt detection, removal and proper disposal of broken modules[2].

Recommendations:
The FEIS should fully disclose the amount of CdTe and Cd that would be on site in the modules for the thin-film option.

The FEIS should include a Broken PV Module Detection and Handling plan that will ensure that, if thin-film modules are used, broken modules are adequately detected and handled as California hazardous waste.

The FEIS should identify bonding or financial assurance strategies for decommissioning, module recycling, and reclamation.

[2] Final Draft Environmental Impact Statement and DOE Loan Guarantee for the Topaz Solar Farm, August 2011

Climate Change

Scientific evidence supports the concern that continued increases in greenhouse gas emissions resulting from human activities will contribute to climate change. One report indicates that observed changes in temperature, sea level, precipitation regime, fire frequency, and agricultural and ecological systems reveal that California is already experiencing the measurable effects of climate change[3]. The report indicates that climate change could result in the following changes in California: poor air quality; more severe heat; increased wildfires; shifting vegetation; declining forest productivity; decreased spring snowpack; water shortages; a potential reduction in hydropower; a loss in winter recreation; agricultural damages from heat, pests, pathogens, and weeds; and rising sea levels resulting in shrinking beaches and increased coastal floods.

> *Recommendation:*
> The DEIS should consider how climate change could influence the proposed project and assess how the projected impacts of the proposed project could be exacerbated by climate change, specifically within the Yuha Basin ACEC, a flat tailed homed lizard management area.

Cultural Resources, National Historic Resources and Consultation with Tribal Governments

EPA commends the BLM for early consultation for tribal cultural resources as required under Section 106 of the National Historic Preservation Act. The DEIS states that the BLM invited Indian tribes to consult on the Ocotillo Sol Project on a government-to government basis at the earliest stages of project planning and that consultation with 15 Indian tribes will continue throughout the NEPA and Section 106 compliance processes (p. 5-6).

The DEIS states that, as explained in Chapters 3 and 4, no significant resources have been identified within the project's Area of Potential Effect, and no other issues have been raised, to date, with respect to the project as a result of Section 106 consultation (p. 5-7).

> *Recommendations:*
> Consider expanding the number of tribes invited for consultation to include the Inaja Band of Diegueno Mission Indians of the Inaja Cosmit Reservation.
>
> Describe, in the FEIS, the process and outcome of government-to-government consultation between the BLM and each of the tribal governments within the project area; issues that were raised (if any); and how those issues were addressed in relation to the proposed action and selection of a preferred alternative.

[3] Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. California Energy Commission, PIER Energy-Related Environmental Research Program. CEC-500-2008-071.

Distribution List

Chairperson Edwin Romero
Barona Band of Mission Indians

Chairwoman Monique LaChappa
Campo Band of Kumeyaay Indians

Chairperson Sherry Cordova
Cocopah Indian Tribe

Chairman Robert Pinto, Sr.
Ewiiaapaayp Band of Kumayaay

Chairman Virgil Perez
Iipay Nation of Santa Ysabel

Chairwoman Rebecca Osuna
Inaja Band of Diegueno Mission Indians of the Inaja and Cosmit Reservation

Chairman Raymond Hunter
Jamul Indian Village

Ms. Carmen Lucas
Kwaaymii Laguna Band of Mission Indians

Chairperson Gwendolyn Parada
La Posta Band of Mission Indians

Chairman Leroy Elliott
Manzanita Band of the Kumeyaay Nation

Chairperson Mark Romero
Mesa Grande Band of Diegueno Mission Indians

President Keeny Escalanti
Quechan Indian Tribe

Chairman Allen Lawson San Pasqua!Band of Diegueno Mission Indians of California

Chairman Daniel Tucker
Sycuan Band of the Kumeyaay Nation

Chairwoman Maxine Resvaloso
Torres Martinez Desert Cahuilla Indians

Chairperson Anthony Pico
Viejas (Baron Long) Group of Capitan Grande Band of Mission Indians

Art Bunce
Barona Band of Mission Indians

Melissa Estes
Campo Band of Kumeyaay Indians

Kevin Conrad
Cocopah Indian Tribe

Desiderio Vela
Ewiiaapaayp Band of Kumayaay

Melody Sees
Iipay Nation of Santa Ysabel

PamArviso
Inaja Band Of Diegueno Mission' Indians of The Inaja And Cosmit Reservation

Robert Mesa
Jamul Indian Village

Javaughn Miller
La Posta Band of Mission Indians

Marc Anderson
Manzanita Band of the Kumeyaay Nation

Darrel Langley
Mesa Grande Band of Diegueno Mission Indians

Chase Choate
Quechan Indian Tribe

John Flores
San Pasqua!Band of Diegueno Mission Indians of California

Lisa Haws
Sycuan Band of the Kumeyaay Nation

Gerardo Bojorquez
Torres Martinez Desert Cahuilla Indians

Donald Butz
Viejas (Baron Long) Group of Capitan Grande Band of Mission Indians

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
Alternative Methods		
A1	Solar Power and the Electric Grid	Not Identified
A2	California Energy Commission, 2009 Integrated Energy Policy Report, Final Commission Report	December 2009
A3	California Rooftop Photovoltaic Resource Assessment and Growth Potential by County	September 2007
A4	Los Angeles Rooftop Solar Atlas	2011
A5	California Public Resources Code § 25740	Not Identified
A6	California Public Resources Code § 25780-25784	Not Identified
A7	California Public Utilities Code § 399.15	Not Identified
A8	California Public Utilities Code § 2581	Not Identified
A9	California Public Utilities Code § 2827-2830	Not Identified
A10	California Revenue and Tax Code § 73	Not Identified
A11	Senate Bill No. 1: An Act to Add Sections 25405.5 and 25405.6 to, and to Add Chapter 8.8 to Division 15 of, the Public Resources Code, and to Amend Section 2827 of, and to Add Sections 387.5 and 2851 to, the Public Utilities Code, Relating to Solar Electricity	Not Identified
A12	Executive Order S-14-08	Not Identified
A13	Executive Order S-21-09	Not Identified
A14	Governor Signs Legislation to Complete Million Solar Roofs Plan	August 21, 2006
A15	About the California Solar Initiative	Not Identified
A16	Electricity and Natural Gas Regulation in California	Not Identified
A17	California Solar Initiative Success and Request for Comment on Budget Issues	July 2010
A18	San Diego Smart Grid Study Final Report	October 2006

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
A19	About Edison SmartConnect	Not Identified
A20	Edison SmartConnect Installation Schedule	Not Identified
A21	Smart Meter Installation Schedule	Not Identified
A22	Full Installation Schedule	Not Identified
A23	Senate Bill 17: An Act to Add Chapter 4 to Division 4.1 of the Public Utilities Code, Relating to Electricity	Not Identified
A24	"CPUC Reports on Success of California's Solar Program"	June 30, 2009
A25	"Freeing the Grid, Best Practices in State Net Metering Policies and Interconnection Procedures"	December 2010
A26	Energy Efficiency in the Power Grid	Not Identified
A27	"Optimization of Distributed Generation Capacity for Line Loss Reduction and Voltage Profile Improvement Using PSO"	2008
A28	"Quantitative Assessment of Distributed Generation Benefits to Improve Power System Indices"	Not Identified
A29	FERC, "The Potential Benefits of Distributed Generation and Rate-Related Issues that May Impede Their Expansion"	February 2007
A30	"Implementing California's Loading Order for Electricity Resources"	July 2005
A31	"Impact Assessment of Plug-In Hybrid Vehicles on Electric Utilities and U.S. Power Grids; Part 1: Technical Analysis"	Not Identified
A32	FERC's Solicitation of Comments on the Frequency Response Report: An Opportunity for Energy Storage?	February 7, 2011
A33	Energy Law Journal, "Recognizing the Importance of Demand Response: The Second Half of the Wholesale Market Equation"	2007

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
A34	Energy Law Journal, "Recognizing the Importance of Demand Response: The Second Half of the Wholesale Market Equation"	2007
A35	Solar Energy: Better Than Fossil Fuels, Worse than Anything Else	April 11, 2011
A36	Distributed Energy Resources Guide: Wind Turbines-Strengths and Weaknesses	January 18, 2002
A37	Federal Energy Management Program, Federal Correctional Institution-Phoenix, Arizona	April 8, 2011
A38	"Navy Region Southwest Saves Energy, Money with Solar Project"	April 30, 2009
A39	Superior Solar Systems, LLC Completes 79-Kilowatt Solar Electric Installation for NASA	April 8, 2011
A40	VanGuard Energy Partners LLC-Fairton Federal Correctional Institution	April 8, 2011
A41	United States Navy, Pearl Harbor-Case Study	Not Identified
A42	"U.S. Navy's Solar Power Push"	November 22, 2010
A43	"Solar Panels for Federal Building Awaiting Final Ok"	March 18, 2011
A44	The United States Postal Service Generates Clean Energy with 4 SunPower Systems-Case Study	Not Identified
A45	Solar Millennium AG Adopts Strategic Realignment	August 8, 2011
A46	Solar Panels-Solar Thermal vs. Photovoltaic	August 23, 2011
A47	Federal Government Betting on the Wrong Solar Horse, by Bill Powers	December 2010
A48	Integrated Resource Planning and Demand-Side Management in Electric Utility Regulation: Public Utility Panacea or Waste of Energy?	1994
A49	Focusing on Demand Side Management in the Future of the Electric Grid	2010

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
Air Quality		
AQ1	Photos of Ocotillo Express Wind Project Construction Dust	May 2012
Biological Resources		
B1	Endangered Species Law and Policy, "Fish and Wildlife Service Reinstates Proposed Listing of the Flat-Tailed Horned Lizard"	March 2, 2010
B2	UC Davis, "Preserving the Swainson's Hawk"	November 6, 1998
B3	CDFG: Staff Report on the Burrowing Owl	May 2012
B4	Map of Flat-tailed Horned Lizard Management Areas	Not Identified
B5	State and Federally Listed Endangered and Threatened Animals of California	January 2011
B6	The California Desert Conservation Plan	1980
B7	Flat-tailed Horned Lizard Rangewide Management Strategy	2003
Cumulative Impact		
C1	Record of Decision for the Imperial Valley Solar Project	October 2010
C2	Record of Decision for the Ivanpah Solar Electric Generating System Project	October 2010
C3	Record of Decision for Blythe Solar Power Project	October 2010
C4	Record of Decision for the Calico Solar Project	October 2010
C5	Record of Decision for the Genesis Solar Energy Project	November 2010
C6	Record of Decision for the Chevron Energy Solutions Lucerne Valley Solar Project	October 2010
C7	Record of Decision for Desert Sunlight Solar Farm Project	August 2011
C8	Imperial Valley Project Fact-Sheet	Not Identified

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
C9	Imperial Valley Project Map	July 2010
C10	Ocotillo Wind Energy Facility Location	Not Identified
C11	Record of Decision for Ocotillo Wind Energy Facility	May 2012
C12	Flat-tailed Horned Lizard Management and Research Areas	Not Identified
C13	Organizational Comment Letters for Ocotillo Wind Energy Facility	2011
Cultural Resources		
CR1	An Early Human Fossil from the Yuha Desert of Southern California: Physical Characteristics (UC Davis)	1978
CR2	A Preliminary Report on a Burial Excavated in the Yuha Desert of Imperial County, California (BLM Library)	May 10, 1973
CR3	Holocene Age of the Yuha Burial: Direct Radiocarbon Determinations by Accelerator Mass Spectrometry	March 29, 1984
CR4	California Tribal & Federal Lands	January 1998
CR5	Exploring the Yuha Desert	2004
CR6	Informational Sheet on the Yuha Desert Cultural History Audio Tour	March 16, 2010
CR7	Searching for Ancient Seashells in the Desert	Not Identified
CR8	Court document	December 15, 2010
Hazards Impact		
H1	Earthquake Hazards Program: Magnitude 5.4 Southern California	July 7, 2010
H2	San Diego News, “Earthquake Rattles Borrego Springs”	April 30, 2008

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
H3	KPBS News, “2 Moderate Earthquakes Near Borrego Springs Shake San Diego”	June 12, 2010
Land Use		
LU1	California Desert Conservation (“CDCA”) Plan	1980
LU2	Riverside County General Plan	November 2007
LU3	Camping Within a Limited Use Area	August 17, 2011
Programmatic EIS		
P1	BLM National Environmental Policy Act Handbook H-1790-1	January 2008
P2	Executive Summary	December 2010
P3	Comment Period for Draft Solar PEIS	April 13, 2011
Purpose and Need		
PN1	Executive Order 13212	May 22, 2001
PN2	Energy Policy Act of 2005	2005
PN3	Department of the Interior Secretarial Order 3285A1	February 22, 2010
PN4	The High Cost of Renewable-Electricity Mandates	February 2012
Socioeconomic Impact		
SE1	Renewables Portfolio Standards: A Factual Introduction to Experience From the United States (UC Berkeley).	April 2007
Water Supply		
W1	“Park Service Warns of Solar Projects’ Impacts to Mojave Desert”	April 23, 2009
W2	“Western Reservoirs Could be Dry by 2050"	July 20, 2009
W3	Future of Western Water Supply Threatened by Climate Change	Not Identified
W4	The Colorado River’s Uncertain Future	Not Identified

INDEX OF EXHIBITS
Ocotillo Sol Project

Exhibit	Description	Date
W5	Managing the Uncertainties on the Colorado River System	Not Identified
W6	Scripps News: Climate Change Means Shortfalls in Colorado River	Not Identified
W7	Sustainable Water Deliveries from the Colorado River in a Changing Climate	Not Identified
W8	Impact of Climate Change and Land Use in the Southwestern United States: Land Subsidence from Ground-Water Pumping	January 6, 2004
W9	Chapter 5: The Impact of Aquifer Intensive Use on Groundwater Quality	February 10, 2002
W10	DPLU Policy Regarding CEQA Cumulative Impact Analyses for Borrego Valley Groundwater Use	January 17, 2007
W11	USGS: Quality of Ground Water	Not Identified

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, BOOM 364
SACRAMENTO,CA 95814

May 16, 2012

Mr. Noel Ludwig, Environmental Planner
United States Department of the Interior
Bureau of Land Management
22835 Calle San Juan de los Lagos
Moreno Valley, CA 92553

Re: SCH#2012044-003; NEPA Notice of Completion; pdrft Environmental Impact Statement (DEIS) for the "Draft EIS/CDCA Plan Amendment, Ocotillo Sol Project (vols. I & II) Project: located in the vicinity of the City of Seely, Imperial County, California

Dear Mr. Ludwig:

The Native American Heritage Commission (NAHC) is the California State Trustee Agency' pursuant to Public Resources Code §21070 for the protection of California's Native American Cultural Resources. The NAHC is also a 'reviewing agency' for environmental documents prepared under the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et* seq), 36 CFR Part 800.3, .5 and are subject to the Tribal and interested Native American consultation as required by the National Historic Preservation Act, as amended (Section 106) (16 U.S.C. 470; Section 106 [f) 110 [f) [k], 304). The provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001-3013) and its implementation (43 CFR Part 10.2), and California Government Code §27491 may apply to this project if Native American human remains are inadvertently discovered.

The NAHC is of the opinion that the federal standards, pursuant to the above-referenced Acts and the Council on Environmental Quality (CSQ; 42 U.S.C. 4371 et seq) are similar to and in many cases more stringent with regard to the 'significance' of historic, including Native American items, and archaeological, including Native American items at least equal to the California Environmental Quality Act (CEQA.). In most cases, federal environmental policy require that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Statement (EIS).

The NAHC conducted a Sacred Lands File (SLF) search of its Inventory determined that Native American Cultural Resources were not identified in the project area you specified; early and quality consultation with the Native American on the attached list may provide detailed information of sites with which they are aware. However, this area is known to the NAHC to be very culturally sensitive. Also, the absence of archaeological resources does not preclude their existence, particularly at the subsurface level.

The NAHC Sacred Lands File Inventory of the Native American Heritage Commission is established by the California Legislature pursuant to California Public Resources Code §§5097.94(a) and 5097.96. The NAHC Sacred Lands Inventory is populated by submission to the data by Native American tribes and Native American elders. In this way it differs from the California and National Register of Historic Places under the jurisdiction of the U.S. Secretary of the Interior.

The NAHC, pursuant to Appendix B of the Guidelines to the California Environmental Quality Act (CEQA) is designated as the agency with expertise in the areas of issues of cultural significance to California Native American communities. Also, in the 1985 California Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites

Culturally affiliated tribes are to be consulted to determine possible project impacts pursuant to the National Historic Preservation Act, as amended. Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. The NAHC recommends as part of 'due diligence', that you also contact the nearest Information Center of the California Historical Resources Information System (CHRIS) of the State Historic Preservation Office (SHPO) for other possible recorded sites in or near the APE (contact the Office of Historic Preservation at 916-445-7000).

A list of Native American contacts is attached to assist you; they may have knowledge of cultural resources in the project area. It is advisable to contact the persons listed and seek to establish a 'trust' relationship with them; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area.

Lead agencies should consider avoidance, in the case of cultural resources that are discovered. A tribe or Native American individual may be the only source of information about a cultural resource; this is consistent with the NHPA (16 U.S.C. 470 *et seq* Sections. 106, 110, and 304) Section 106 Guidelines amended in 2009. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful

NEPA regulations provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Even though a discovery may be in federal property, California Government Code §27460 should be followed in the event of an accidental discovery of human remains during any groundbreaking activity; in such cases California Government Code §27491 and California Health & Safety Code §7050.5 will apply and construction cease in the affected area.

If you have anyquestions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,
Dave Singleton

Cc: State Clearinghouse

Attach: Native American Contacts list

Native American Contacts
Imperial County
May 16, 2012

Diegueno/Kumeyaay:

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
PO Box 1120
Boulevard, CA 91905
gparada@lapostacasino
(619) 478-2113
619-478-2125

Quechan:

Fort Yuma Quechan Indian Nation
Keeny Escalanti, Sr., President
PO Box 1899
Yuma, AZ 85366
qitpres@quechantribe.com
(760) 572-0213
(760) 572-2102 FAX

Kumeyaay:

Manzanita Band of Kumeyaay Nation
Leroy J. Elliott, Chairperson
PO Box 1302
Boulevard, CA 91905
ljbirdsinger@aol.com
(619) 766-4930
(619) 766-4957 Fax

Diegueno/Kumeyaay:

Ewiiaapaayp Tribal Office
Will Micklin, Executive Director
4054 Willows Road
Alpine, CA 91901
wmicklin@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 - fax

Native American Contacts
Imperial County
May 16, 2012

Diegueno/Kumeyaay:

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1
Campo, CA 91906
chairgoff@aol.com
(619) 478-9046
(619) 478-5818 Fax

Diegueno/Kumeyaay:

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road
Alpine, CA 91901
michaelg@leaningrock.net
(619) 445-6315 - voice
(619) 445-9126 – fax

Diegueno:

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas
P.0. Box 775
Pine Valley, CA 91962
(619) 709-4207

Cocopah:

Cocopah Museum/Cultural Resources Department
H. Jill McCormick, Tribal Archaeologist
County 15th & Ave. G
Sommerton, AZ 85350
culturalres@cocopah.com
(928) 530-2291 - cell
(928) 627-2280- fax

Quenchan:

Quenchan Indian Nation
John P. Bathke, THPO
P.O. Box 1899
Yuma, AZ 85366
b.nash@quechantribe.com
(928) 920-6068- CELL
(760) 572-2423
(760) 572-0515- FAX

Native American Contacts
Imperial County
May 16, 2012

Quechan/Kumeyaay:

Ah-Mut-Pipa Foundation
Preston J. Arrow-weed
P.O. Box 160
Bard, CA 92222
ahmut@earthlink.net
(928) 388-9456

Diegueno/Kumeyaay:

Inter-Tribal Cultural Resource Protection Council
Frank Brown, Coordinator
240 Brown Road
Alpine, CA 91901
FIREFIGHTER69TFF@ AOL
(619) 884-6437

Diegueno/Kumeyaay:

Kumeyaay Cultural Repatriation Committee
Bernice Paipa, Vice Spokesperson
1095 Sarona Road
Lakeside, CA 92040
(619) 478-2113
(KCRC is a Coalition of 12 Kumeyaay Governments.)

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined In Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2012044003;NEPA Notice; draft Environmental Impact Statement (DEIS) for the Draft EIS/Draft COCA Plan Amendment, Ocotillo Sol Project (vols.I& II), located near the City of Seely, Imperial County, California