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CH2MHILL

March 29, 2010

Mr. John Kessler
Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Rice Solar Energy Project (09-AFC-10)
Draft Biological Assessment in Response to CEC Staff Data Requests 45, 47, and 48

Dear Mr. Kessler:

Attached please find an electronic submittal of Rice Solar Energy, LLC's Draft Biological Assessment in responses to California Energy Commission Staff Data Requests 45, 47, and 48 for the Application for Certification for the Rice Solar Energy Project (09-AFC-10).

If you have any questions about this matter, please contact me at (916) 286-0278 or Sarah Madams at (916) 286-0249.

Sincerely,

CH2M HILL

Douglas M. Davy, Ph.D.
AFC Project Manager

Attachment

cc: POS List
Project File

DRAFT

Biological Assessment

for the

Rice Solar Energy Project

Submitted to the:
Western Area Power Administration

Submitted by:

SOLARRESERVE

With Technical Assistance by:

CH2MHILL

Sacramento, California

March 2010

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AFC	Application for Certification
APN	assessor's parcel numbers
ATV	all-terrain vehicle
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	best management practice
BRMIMP	Biological Resources Monitoring and Mitigation Plan
Cal-IPC	California Invasive Plant Council
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CPM	Compliance Project Manager
CSP	concentrating solar power
DTRO	Desert Tortoise Recovery Office
DWMA	Desert Wildlife Management Area
ECM	Environmental Compliance Manager
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FCR	Field Contact Representative
kV	kilovolts
MW	megawatts

MWh	megawatt-hours
NECO	Northern and Eastern Colorado Desert Coordinated Management Plan
NEPA	National Environmental Policy Act
RSE	Rice Solar Energy, LLC
RSEP	Rice Solar Energy Project
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
URTD	upper respiratory tract disease
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WEAP	Worker Environmental Awareness Program
Western	Western Area Power Administration
WMA	Wildlife Management Area

SECTION 1

Background

1.1 Introduction

Rice Solar Energy, LLC, (RSE) a wholly owned subsidiary of SolarReserve, LLC, proposes to construct, own, and operate the Rice Solar Energy Project (RSEP or project). The RSEP will be a solar generating facility located on a privately owned site in unincorporated eastern Riverside County, California. The project will be capable of producing approximately 450,000 megawatt hours (MWh) of renewable energy annually, with a nominal net generating capacity of 150 megawatts (MW).

The facility will use concentrating solar power (CSP) technology, with a central receiver tower and an integrated thermal storage system. The RSEP's technology generates power from sunlight by focusing energy from a field of sun-tracking mirrors called heliostats onto a central receiver. Liquid salt[1], which has viscosity and appearance similar to water when melted, is circulated through tubes in the receiver, collecting the energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it can be stored with minimal energy losses. When electricity is to be generated, the hot salt is routed to heat exchangers (or steam generation system). The steam is then used to generate electricity in a conventional steam turbine cycle. After exiting the steam generation system, the salt is sent to the cold salt thermal storage tank and the cycle is repeated. The salt storage technology was demonstrated successfully at the U.S. Department of Energy-sponsored 10 MW Solar Two project near Barstow, California, in the 1990s.

1.2 Purpose of the Biological Assessment

This Biological Assessment (BA) has been prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (ESA) (16 United States Code 1536(c)) to address potential effects of the proposed project on federally listed threatened and endangered species, their designated critical habitat, and species proposed for or candidates for ESA protection. Specifically, this BA addresses the potential effects associated with the construction, operation, and maintenance of the RSEP on the Mojave population of the desert tortoise (*Gopherus agassizii*), a federally threatened species under the ESA. The Western Area Power Administration (Western) is the lead federal agency for the Section 7 consultation and will submit this BA to the U.S. Fish and Wildlife Service (USFWS) as part of a request for formal consultation on the desert tortoise. Western is also the lead federal agency for National Environmental Policy Act (NEPA) compliance and an Environmental Impact Statement (EIS) is being prepared concurrent with the ESA Section 7 consultations.

[1] The salt is a mixture of sodium nitrate, a common ingredient in fertilizer, and potassium nitrate, a fertilizer and food additive. These mineral products will be mixed onsite as received directly from mines in solid crystallized form and used without additives or further processing other than mixing and heating.

The United States Department of the Interior Bureau of Land Management (BLM) will be a participating agency in the Section 7 consultation, as the RSEP's generator tie-line is sited partly on federal land under BLM management.

The RSEP will require site certification under the Warren-Alquist Act by the California Energy Commission (CEC). The CEC's jurisdiction includes all power plants that generate electricity using thermal processes (including solar concentrating technologies) that have a nominal generating capacity of 50 MW or more. The CEC's certification and environmental review program is certified as equivalent to the standard environmental impact analysis program under the California Environmental Quality Act (CEQA). The CEC will work closely with Western to prepare a joint NEPA/CEQA document. The CEC's jurisdiction supersedes that of any other state or local agency, including the California Department of Fish and Game (CDFG). RSE has filed an Application for Certification (AFC) before the CEC for the RSEP

The following summarizes the effects determinations of the proposed project:

- Desert tortoise (*Gopherus agassizii*) – May affect and is likely to adversely affect
- Desert tortoise critical habitat – No effect

No other species protected under the ESA would be affected by the proposed project.

It is anticipated that RSE will enter into formal California Endangered Species Act (CESA) consultation with CDFG with the request for a consistency determination for the USFWS's biological opinion addressing the project's effects on the federal and state threatened desert tortoise.

1.3 Consultation History

RSE has coordinated with Western, as lead Federal Agency and BLM as the land management agency for a portion of the project (the generator tie-line). On September 4, 2009, CH2M HILL biologist John Cleckler talked with Peter Sorensen of the USFWS Carlsbad, California Field Office regarding the RSEP (See AFC Appendix 5.2F). Mr. Cleckler provided a copy of the RSEP's wildlife and desert tortoise survey report to Mr. Sorensen following that conversation.

Table 1-1 provides a list of agency contacts.

TABLE 1-1
Agency Contacts

Legislation	Agency	Contact Name and Address
Federal threatened and endangered species – Section 7 consultation; biological surveys	U.S. Fish and Wildlife Service	Pete Sorensen and Tannika Engelhard Biologists 6010 Hidden Valley Road Carlsbad, California 92009 (760) 431-9440 Pete_Sorensen@fws.gov Tannika_Engelhard@fws.gov

TABLE 1-1
Agency Contacts

Legislation	Agency	Contact Name and Address
Federal threatened and endangered species – Section 7 consultation; biological surveys	Western Area Power Administration	John Bridges 12155 West Alameda Parkway Lakewood, CO 80228-2802 (720) 962-7000 bridges@wapa.gov
Federal threatened and endangered species – Section 7 consultation; biological surveys	U.S. Bureau of Land Management	Mark Massar, Biologist 1201 Bird Center Drive Palm Springs, CA 92262 (760) 833-7100 Mark_Masssar@blm.gov
California threatened and endangered species – CDFG 2081; Streambed Alteration Agreement – CDFG 1600; biological surveys	California Department of Fish and Game	Kim Nicols, Program Manager Magdalena Rodriquez, Biologist Inland Desert Region Headquarters 3602 Inland Empire Boulevard Suite C-220 Ontario, CA 91764 (760) 200-9178 knicol@dfg.ca.gov

1.4 Document Organization

This BA is organized into the following sections:

- Section 1: Background
- Section 2: Project Description
- Section 3: Minimization Measures
- Section 4: Affected Environment
- Section 5: Status of Mojave Desert Tortoise
- Section 6: Effects on the Desert Tortoise
- Section 7: References
- Appendix A: Desert Tortoise Relocation and Translocation Plan
- Appendix B: Raven Management Plan
- Appendix C: Incidental Observations of Wildlife Species from the 2009 Desert Tortoise Protocol Surveys of the Project Area

SECTION 2

Project Description

2.1 Project Location

The RSEP site is a privately owned parcel located in eastern Riverside County. The site is adjacent to State Route (SR) 62, which parallels a portion of the Arizona-California Railroad and the Colorado River Aqueduct, near the junction of SR 62 and Blythe-Midland Road, and near the sparse remains of the abandoned town of Rice, California. The nearest occupied residence is approximately 15 miles northeast at the rural crossroads community of Vidal Junction, California. The nearest town is Parker, Arizona (population 3,181), approximately 32 miles east. A small permanent residential settlement is located at the Metropolitan Water District of Southern California's Iron Mountain Pumping Plant, approximately 17 miles west (Figure 2-1).

The RSEP is located within a larger, 3,324-acre, privately owned holding (the ownership property). This holding includes portions of Section 24 and 25, Township 1 South, Range 20 East; and all of Sections 19, 20, 29 and 30, Township 1 South, Range 21 East, San Bernardino Base and Meridian. There are six assessor's parcel numbers (APNs) that make up the ownership property: 801-042-004, 801-062-012, 801-070-003, 801-070-004, 801-100-005, and 801-100-006.

Within the ownership property, the RSEP is sited within a new square-shaped parcel (the project parcel) that will be created by merging what are currently four different assessor's parcels, each of them a discrete section (square mile) of land, resulting in a single 2,560-acre parcel. These are Township 1 South, Range 20 East, Sections 19, 20, 29, and 30. The four parcels are APNs 801-070-003, 801-070-004, 801-100-005, and 801-100-006.

Within this project parcel, a 1,410-acre project area will be fenced and will contain the administration buildings area, heliostat field with power block, and evaporation pond areas (collectively, the project site or facility site) (Figure 2-2). Areas outside the facility site but within the project parcel will not be fenced or developed or disturbed as part of the RSEP.

2.2 Project Components

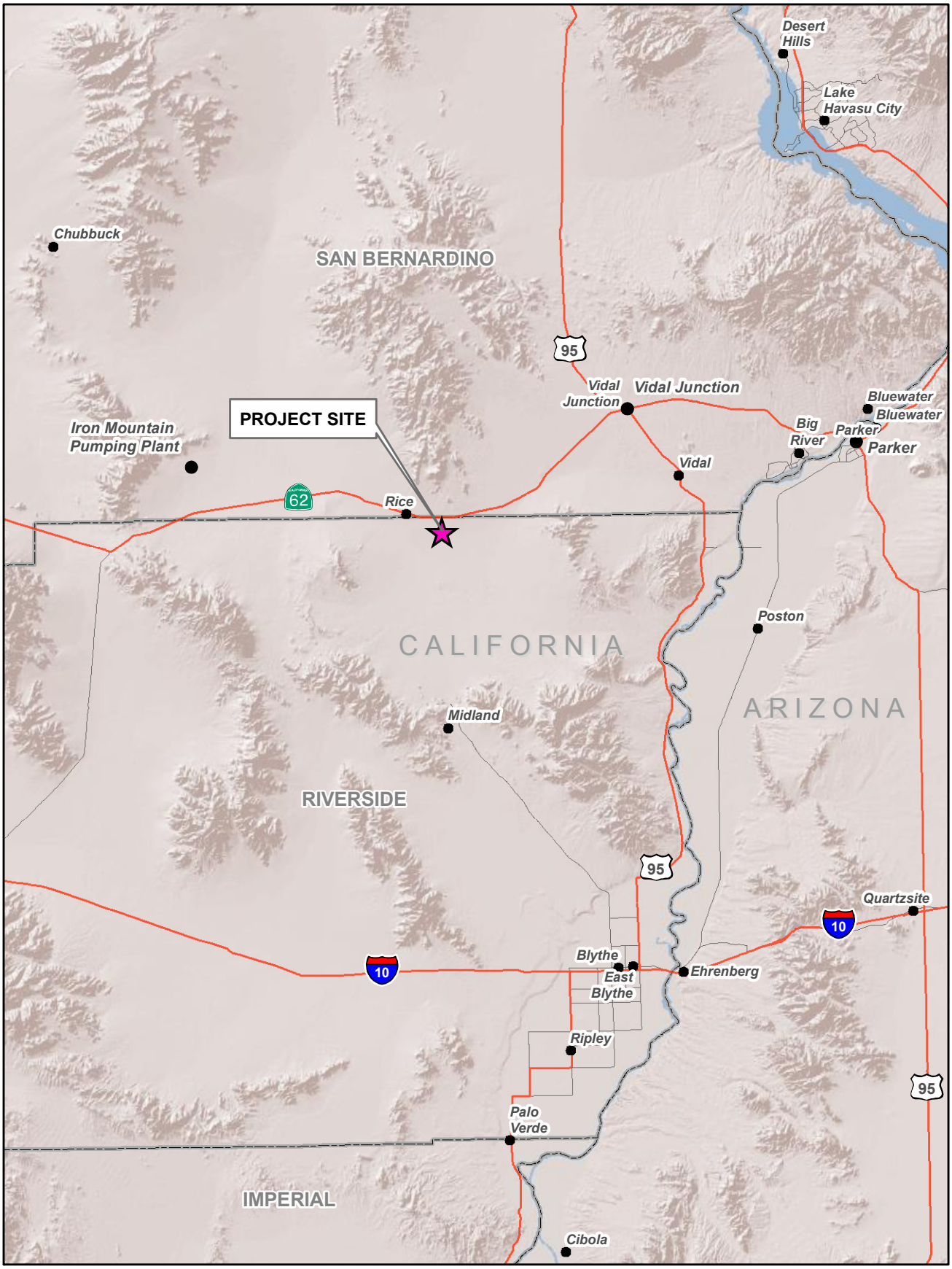
The RSEP design incorporates the following principal elements:

- Heliostat field with up to 17,500 solar-tracking heliostats, each approximately 24 feet tall by 28 feet wide, arranged in a circular array that will reflect and concentrate the sun's energy onto a tower-mounted receiver. A 1,410-acre project area will be fenced and will contain the administration area, heliostat field, administration area, and evaporation ponds.
- A concrete central tower approximately 540 feet tall, upon which is mounted a receiver approximately 100 feet tall topped with a small maintenance crane, for an overall structure height of 653 feet

- A liquid salt storage system featuring insulated "hot" and "cold" salt storage tanks
- A steam turbine generator system rated at 150 MW (net)
- A 20-cell air-cooled condenser to provide water-free cooling and condensing of the steam turbine exhaust
- A 10-mile, 230-kilovolt (kV) generator tie-line to connect the RSEP with the existing Western Parker-Blythe transmission line (The new tie-line has been routed along existing dirt roads for approximately 5.4 miles and will require minimal construction of approximately 4.6 miles of single-lane dirt access road for construction and inspection. A new interconnection substation [approximately 3 acres in size] for the tie-in to Western's system will be constructed adjacent to the existing transmission line. The generator tie-line will cross land managed by the BLM.)
- Extension of the existing low-voltage power distribution network spanning about 1 mile, including a span of less than 200 feet across BLM land, to supply ancillary facilities
- Two onsite water wells to provide water for heliostat washing, steam-cycle makeup and other process uses in an amount not expected to exceed 180 acre-feet per year
- Three lined evaporation ponds of approximately 5 acres each to capture all process wastewater discharge from the project's water treatment system, process blowdown, and stormwater drainage from within equipment areas
- Stormwater drainage features to channelize offsite stormwater flows from upstream of the project site, diverting offsite stormwater around the project site, and rejoining the natural flow channels to the south of the property
- Two emergency diesel generators and associated equipment to supply emergency backup power for the safe shut-down and protection of vital equipment and facilities
- Onsite fire protection facilities, which consist of two sets of electric-motor-driven and diesel-engine-driven fire pumps and related fire detection and protection equipment
- Various buildings for plant control room, administration offices, maintenance and storage, and crew comfort facilities
- Physical security systems including fencing, closed-circuit television, and other means to protect against unwanted entry consistent with electric utility and Department of Homeland Security requirements

2.3 General Facility Description, Design, and Operation

The 1,410-acre RSEP solar generation site will include the solar collection field, power block, administration and maintenance buildings, switchyard, two water wells, two leach fields, and three evaporation ponds. One of the onsite wells is an existing well that will be modified for use. A second new well will be drilled. Construction and operations access to the site will be directly off of SR 62. A temporary logistics area will be used during construction and will be located between SR 62 and the project site. This area will included a temporary 11-acre parking area, 31–acre RV trailer park for the workers, and an 18-acre



LEGEND

PROJECT SITE

COUNTY BOUNDARIES

N

0 5 10

Miles

FIGURE 2-1
PROJECT LOCATION
RICE SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA

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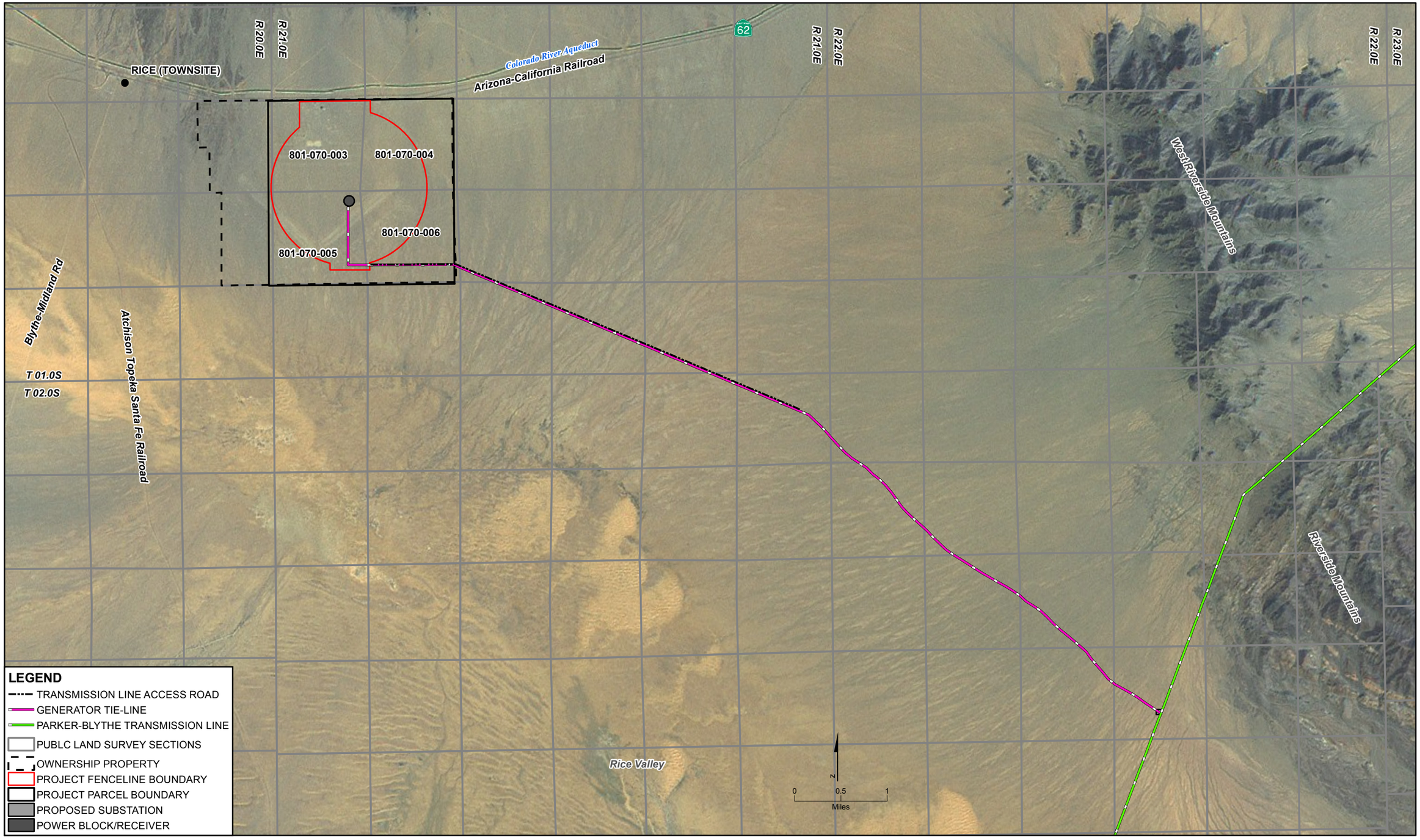


This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE 2-2
SITE LOCATION
RICE SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA

construction office, laydown, and heliostat assembly area. These logistics areas are included within the 1,504-acre area subject to grading, but will be disassembled prior to operation. Power during construction will be provided by a connection to the existing 12-kV generator tie-line that parallels the south side of SR 12 and is immediately adjacent to the project site, and from onsite generators. The structures in the temporary logistics area will be removed following construction. This area will be restored but the habitat value will be limited because it is located between the RSEP site and the aqueduct/railroad/SR 62 corridor.

The perimeter of the project site will be surrounded by a security fence with an attached desert tortoise exclusion fence. The logistics area will be included within the fencing during construction. Following construction, the temporary fencing around the logistics area between the project site and SR 62 will be removed. The perimeter access road around the heliostat field will act as a small berm and will be surrounded by an unlined ditch to direct stormwater around the project site. A dirt, gravel, or paved road will be located on the raised berm on the inside of the ditch and the fenced perimeter. This road will be graded as needed for maintenance. Onsite run-off will be directed toward an onsite, approximately 30-acre-foot detention basin. All detention basins will be designed to percolate, evaporate, or drain the flows (at pre-existing flow rates) from the site.

Site preparation is expected to begin in the first quarter of 2011 with clearing and grubbing of the power block and logistics areas. Other areas within the 1,410-acre heliostat field will be cleared only as needed to install the heliostats or provide permanent access to them for mirror washing. Therefore, some level of grading within the heliostat field is expected to continue for the length of time that it takes to install the 17,500 heliostats. Areas next to and under the heliostats will be left ungraded but may be disturbed by vehicles during construction.

Construction will likely include a peak workforce of approximately 438 onsite personnel and work will occur between 5 a.m. and 7 p.m. on weekdays and Saturdays. Additional hours, including night work will be needed to complete tasks such as continuous concrete pours and to avoid extreme temperatures. RSEP is expected to employ up to 47 full-time employees during operation and is designed for an operating life of 30 years.

2.3.1 Generator Tie-line Construction

The proposed 230-kV electrical generator tie-line will be approximately 10 miles long and extends from the south edge of the site, east to the east corner of the project parcel, and then across Rice Valley to the existing Western Blythe-Parker 161 kV/230 kV transmission line near the base of the Riverside Mountains (Figure 2-2). Approximately 8 miles of the new generator tie-line will be located on BLM land. Construction of the first 4.6 miles of the tie-line originating from the project site will require the construction of a 12-foot-wide dirt service road. The remaining 5.4 miles of the line will follow an existing dirt road (Rice Valley Road) to the interconnection substation. It is unlikely that the existing dirt road will need to be widened or improved for use. Steel, 85- to 115-foot-tall monopoles will be installed approximately every 600 feet for a total of 90 poles. Each pole will be supported by a concrete base foundation. At the interconnection, a new 300- by 400-foot electrical substation will be constructed. The interconnection substation will be surrounded by a chain link security fence with attached tortoise exclusion fencing.

Road construction for the approximately 4.6 miles of new dirt road will be completed with a grader. The majority of the equipment staging for the pole installation (i.e., drill rigs, concrete trucks, and trailers with pole section) will be from the dirt road. After the foundations are drilled and poured, the poles will be assembled in sections. The electrical generator tie-lines will be strung from rubber-tired spooling trucks positioned near the towers.

2.3.2 Operation and Maintenance

The heliostat field and solar power generation equipment will be started daily and generated electricity will be interconnected to Western's Blythe-Parker 161 kV/230 kV transmission line. Raw water will be drawn daily from two onsite wells, located within the main project site.

Groundwater will go through a treatment system for use as boiler makeup water and to wash the heliostats, and water consumption will be minimal (estimated at no more than 180 acre-feet/year). No reject streams from water treatment are planned to be generated onsite under the treatment scheme. However, for current planning purposes, three evaporation ponds of approximately 5 acres each are included. They can serve for boiler commissioning and emergency outfalls from any of the processes.

Operation and maintenance requirements necessitate the washing of the solar heliostats at night for approximately 260 days per year. Best management practices (BMPs) for the use of wash water are outlined in the Stormwater Pollution Prevention Plan (SWPPP). The water used for this process will be of relatively high quality but will contain trace amounts of chemicals such as oxygen scavengers that are not expected to result in substantial changes in water quality. A pressure washer or other method will be used to wash the heliostats to minimize the amount of water used, and no water will run offsite due to the onsite basin catchment system and the earthen berm surrounding the proposed project site. Due to the high evaporation rates in the area, and the minimal amount of water used, it is likely that wash water will evaporate at or just below the ground surface within the immediate area of the heliostat mirror where wash water may drip during the wash operation. By implementing good engineering practices and BMPs in the project design and operation, and because stormwater discharge during construction will adhere to a SWPPP and to state water quality standards, no significant impacts to surface or subsurface water quality are expected during construction or operation of the project.

Rapidly germinating weeds such as tamarisk (*Tamarix* spp), will quickly colonize areas of moist soil such as those expected to occur in the solar fields after wash water is used to clean the mirrors. Aggressive weed control will be needed during construction, operations, and maintenance activities to minimize the germination, introduction, and spread of noxious weeds.

Onsite stormwater runoff will be directed toward onsite detention basins and offsite stormwater will be directed around the site.

Impacts to biological resources resulting from the construction of project facilities (e.g., solar field, substation, and power tower), access road, and staging areas, and the subsequent operation and maintenance of these facilities depend primarily on the proximity and quality of the habitat, the presence and rarity of special-status species, the presence and quality of

breeding habitat, and the effectiveness of measures instituted to protect these resources from exposure to project activities. As discussed in this BA, impacts to biological resources due to construction of the solar field, project facilities, and generator tie-line, as well as operation and maintenance, are considered less than significant with the incorporation of the minimization measures provided in Section 3.

2.4 Project Schedule

Construction of the project is planned to begin in first quarter 2011, assuming all necessary permits have been received. Based on an anticipated construction period of approximately 30 months, commercial operation is targeted for third quarter 2013. RSE has entered into a power purchase agreement with Pacific Gas and Electric Company for deliveries of power from the RSEP.

SECTION 3

Minimization Measures

The following section describes the proposed minimization measures that are intended to avoid, minimize, offset, and mitigate the potential adverse effects of the project to the desert tortoise and biological resources in general. It also includes a summary of the proposed plan to monitor and document the effectiveness of their implementation. Measures associated with the desert tortoise were primarily developed using the guidelines provided in the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) (BLM, 2002). These, and measures contained in the USFWS biological opinion and other resource agency permits, will be coalesced in a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). The BRMIMP will be prepared prior to construction and will outline how RSE will implement the measures.

3.1 Designated Persons

A Field Contact Representative (FCR), Designated Biologist, Authorized Biologist(s), and Biological Monitor(s) will be appointed to oversee compliance with the protection measures for the desert tortoise and other species.

a. The project owner's Environmental Compliance Manager (ECM) will act as the FCR. This individual will be responsible for upper-level management of the natural resources and other environmental compliance issues associated with the project. This person will be the primary point of contact with the resource agencies during construction. The FCR will have the authority to halt any activities that may result in "take" of a special-status species and/or noncompliance with the measures contained in the BRMIMP. The FCR will also submit the monthly compliance report to the CEC Compliance Project Manager (CPM).

b. The Designated Biologist will be assigned to oversee the implementation of the BRMIMP, coordinate the Authorized Biologist and Biological Monitor activity, act as the primary contact with the FCR during construction, and prepare monthly compliance reports for the FCR. The Designated Biologist has the authority to halt any activities that are in violation with the BRMIMP or may result in such a violation and to inform the FCR and construction/operation managers when those activities can be resumed. The Designated Biologist will also have the authority to speak directly with the resource agencies regarding compliance issues. The resume of the proposed Designated Biologist, with at least three references and contact information will be submitted to the CPM for approval at least 90 days prior to the start of construction. If the Designated Biologist needs to be replaced, the resume of the proposed replacement will be submitted to the CPM at least ten working days prior to the termination or release of the former Designated Biologist.

c. The Authorized Biologist(s) or Biological Monitor(s) will be onsite during ground-disturbing activities that have the potential to impact sensitive species and will

be the principal agents in the direct implementation of the BRMIMP and compliance assurance. The Authorized Biologist and Biological Monitor will be responsible for Worker Environmental Awareness Program (WEAP) training, general surveys, compliance monitoring, and reporting. They will act on behalf of the Designated Biologist when the Designated Biologist is not available and will also have the authority to halt any activities that are in violation with the BRMIMP or may result in such a violation. Authorized Biologists will be the only persons to perform desert tortoise surveys and have direct contact with desert tortoises. The names and statement of qualifications of all proposed Authorized Biologists and Biological Monitors will be submitted to USFWS, BLM, Western, CDFG, and CEC for review and approval at least 30 days prior to initiation of any tortoise handling, clearance, and pre-activity surveys. Project activities will not begin until the Authorized Biologist(s) and Biological Monitor(s) are approved.

3.2 Worker Environmental Awareness Program Training

a. The BRMIMP will include a WEAP that will address the types of construction activities that may affect the desert tortoise and other biological resources. The WEAP will also describe the protective measures listed in the BRMIMP. Special emphasis will be placed on explaining the protective measures developed for the desert tortoise and the consequences of noncompliance. At a minimum, the program will contain information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protective measures associated with the desert tortoise.

b. The WEAP training will be administered to all onsite personnel including employees, contractors, contractors' employees, supervisors, inspectors, subcontractors, and delivery personnel. A pamphlet that outlines basic critical information on dealing with desert tortoises encountered on the project will be provided to all personnel attending the program.

c. Participants will sign an attendance sheet and will receive a WEAP sticker to be worn on their hardhat. The stickers will be handed out individually to the attendees by the presenter. Workers will be provided with a wallet-sized card with a summary of key measures and information about what to do if they need to contact someone about compliance issues or if they observe a desert tortoise or other wildlife species on or near the RSEP.

d. The WEAP will be presented by the FCR, Designated Biologist, Authorized Biologist, or Biological Monitor and may include an oral presentation, video/PowerPoint, and written materials.

e. If new construction personnel are added to the project, the contractor's superintendent will ensure that the personnel receive the mandatory training before starting work.

f. The WEAP sign-in sheets will be kept on file for at least 6 months after the start of commercial operation. During RSEP operation, signed statements for operational

personnel shall be kept on file for 6 months following the termination of an individual's employment.

3.3 Compliance and Reporting

a. The FCR will oversee compliance with the BRMIMP including the assurance that sufficient numbers of Authorized Biologists and Biological Monitors are present during ground-disturbing or any other activities that could impact biological resources.

b. All non-compliance with the BRMIMP will be documented immediately and reported to the FCR. The FCR will then document and report the corrective action. As stated in the NECO, such incidents may include but are not limited to the following: (1) imminent threat of injury or death to a desert tortoise; (2) unauthorized handling of a desert tortoise, regardless of intent; (3) operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads; and (4) conducting any construction activity without a biological monitor where one is required (BLM, 2002).

c. The CPM will be contacted for resolution if the FCR, Designated Biologist, Authorized Biologist, or Biological Monitor do not agree on a matter of compliance or the implementation of a measure contained in the BRMIMP.

d. The FCR or Designated Biologist will contact the CPM for a field review once the construction has been completed.

e. Proof of WEAP training and fulfillment of compensation requirements will be provided to the CPM.

f. Observations of desert tortoise, burrowing owls, or of any listed or sensitive animal species will be reported to the California Natural Diversity Database (CNDDB) within 30 calendar days of the observation.

g. The CEC, BLM, Western, USFWS, and CDFG will be notified within one working day of the discovery of death or injury to a desert tortoise or any other special-status animal that occurs due to RSEP-related activities. Notification will include the date, time, and location of the incident or of the finding of a dead or injured animal clearly indicated on a U.S. Geological Survey (USGS) 7.5-minute quadrangle with GPS coordinates, and any other pertinent information.

h. The FCR will also submit the monthly compliance report to the CPM. The report will include the number of persons who have completed the WEAP training in the prior month and a running total of all persons who have completed the training to date, along with a summary of the activities that have taken place and the BRMIMP measures that have been implemented (construction activities that were monitored, species observed).

i. A post-construction compliance report prepared by the Designated Biologist will be submitted to the CEC, BLM, Western, USFWS, and CDFG no later than January 31 following each year of construction or within 30 calendar days of any break in

construction activity lasting more than 30 calendar days. This report will detail (1) dates that construction occurred; (2) a general description of the status of the project site and construction activities, including actual or projected completion dates, if known; (3) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (4) an explanation of failure to meet such measures, if any; (5) known project effects on the desert tortoise and other special-status species, if any; (6) occurrences of incidental take of species; (7) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts, (8) documentation of employee environmental education; and (9) other pertinent information.

j. The FCR or Designated Biologist will report any information to the appropriate agencies regarding take or suspected take of federal or state listed wildlife species not authorized by the USFWS biological opinion or CDFG incidental take permit. The FCR or Designated Biologist will notify the appropriate agencies via electronic mail and telephone within 24 hours of receiving such information. Notification will include the date, time, location of the incident or of the finding of a dead or injured animal, and photographs of the specific animal. The individual animal shall be preserved, as appropriate, and held in a secure location until instructions are received from the appropriate agency regarding the disposition of the specimen or the appropriate agency takes custody of the specimen.

3.4 Compensation

a. RSE will offset the loss of desert tortoise habitat through a USFWS, CDFG, and BLM acceptable assessed financial contribution based on the final construction footprint. The compensation ratio is expected to be 1:1 based on the prescription in NECO for Category III tortoise habitat.

b. If the assessed financial contribution were used to acquire land for compensation, or if land were to be substituted for the financial contribution, then it will have a conservation easement or other appropriate entitlement, management plan, and endowment to manage the habitat in perpetuity; all of which will be reviewed and approved, and completed within 24 months following the start of construction.

3.5 Noxious Weeds

a. Noxious weed control will be implemented during construction and operation of the RSEP to reduce the potential for introducing noxious weeds to the project area. A Noxious Weed Control Plan will be prepared and submitted to CEC, BLM, and Western for review and approval prior to construction. The Noxious Weed Control Plan will contain: (1) an assessment of noxious weeds that potentially could be introduced to the project area; (2) a description of measures to be used to survey for their presence during construction and operation; (3) monitoring and weed control methods to be employed during operation; and (4) reporting requirements. The

BMPs included in the plan to prevent the spread and propagation of weeds will include: limiting ground disturbance and access, washing vehicles as necessary, and restoring areas of temporary disturbance in a timely manner.

The noxious weed control plan will outline steps to take to identify and treat weeds prior to seed maturation and dispersal to minimize the potential for weed establishment. In order to identify weeds while infestations are relatively small and easily controlled, the Authorized Biologist or Biological Monitor will conduct regular surveys for noxious weeds and full inspections at least two times per year (timed to occur early and late in the growing season) with special emphasis placed along the primary construction access roads.

b. Noxious weed infestations will be flagged by the Biological Monitor and controlled, using either mechanical (hand pulling, mowing) or chemical methods as approved by BLM and CEC. Only state- and BLM-approved herbicides will be used, and all herbicide applicators will possess a qualified herbicide applicator license from the state. All herbicide applications will follow U.S. Environmental Protection Agency label instructions and be performed in accordance with federal, state, and local laws and regulations.

c. All temporarily disturbed areas will be rehabilitated following construction as outlined.

3.6 Construction Minimization Measures

a. Authorized Biologists will conduct all activities, such as locating desert tortoises and their sign (i.e., conduct presence/absence and clearance surveys) and attempting to ensure that the effects of the project on the desert tortoise and its habitat are minimized in accordance with the measures stated in the terms and conditions of the USFWS biological opinion. Authorized Biologists will keep current with the latest information on USFWS and CDFG protocols and guidelines. An authorized biologist will have thorough and current knowledge of desert tortoise behavior, natural history, and ecology, physiology, and will have demonstrated substantial field experience and training to safely and successfully:

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

b. Biological Monitors will oversee all project construction activities with the potential to affect the desert tortoise. The Biological Monitors will provide oversight to ensure proper implementation of protective measures, record and report desert tortoise and tortoise sign observations in accordance with approved protocol, report incidents of noncompliance in accordance with the biological opinion and other relevant permits,

and contact an Authorized Biologist in the event that a desert tortoise needs to be moved from harm's way and placed in pre-selected "safe areas."

The Biological Monitors will assist the Authorized Biologists during surveys and often serve as "apprentices" to acquire experience. Biological Monitors will not be authorized to conduct desert tortoise presence/absence or clearance surveys unless directly supervised by an Authorized Biologist. "Directly supervised" means the Authorized Biologist is in direct voice and sight contact with the Biological Monitor.

c. During construction, RSEP will comply with the *Guidelines for Handling Desert Tortoises During Construction Projects* (Desert Tortoise Council, 1994).

d. The boundaries of all areas to be disturbed (project sites and linear corridors) will be flagged before beginning any activities, and all disturbances will be confined to the flagged areas. All project vehicles and equipment will be confined to the flagged areas. Survey crew vehicles would remain on existing roads. Disturbance beyond the construction zone will be prohibited except to complete a specific task within designated areas or emergency situations.

e. A desert tortoise translocation/relocation plan will be implemented as part of the relocation effort and will outline the following procedures.

The Authorized Biologist will maintain a record of all desert tortoises encountered and relocated during project surveys and monitoring. This information will include for each individual: the locations (narrative, vegetation type, and maps) and dates of observations; general conditions and health; any apparent injuries and state of healing; if moved, the location from which it was captured and the location in which it was released, and whether animals voided their bladders; and diagnostic markings (i.e., identification numbers).

All potential desert tortoise burrows within the fenced area will be searched for presence. In some cases, a fiber optic scope may be used to determine presence or absence within a deep burrow. Burrows inhabited by tortoises will be excavated by Authorized Biologists or Biological Monitors supervised by an authorized biologist using hand tools. To prevent reentry by a tortoise or other wildlife, all burrows will be collapsed once absence has been determined. Tortoises excavated from burrows will be relocated to unoccupied natural or artificial burrows outside the fenced area immediately following excavation.

The animals will be transported in clean cardboard boxes. A new box will be used for each individual tortoise and will be properly discarded after a single use. The new burrow will be located at least 300 feet from the outside of the permanently fenced area and will be of similar size, shape, and orientation to the original burrow. The new burrow locations will be determined by the Authorized Biologist. Relocated tortoises will not be placed in existing occupied burrows.

The Authorized Biologist will wear disposable surgical gloves when handling desert tortoises. A new pair will be donned for each tortoise handled to avoid the transmission of upper respiratory tract disease (URTD). Shell notching will not be performed. Any equipment used on the tortoises will be sterilized between each use.

Desert tortoises will be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises will be kept shaded at all times until it is safe to release them. No desert tortoise will be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95 degrees Fahrenheit (ºF) (35ºC). Ambient air temperature will be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface. No desert tortoise will be captured if the ambient air temperature is anticipated to exceed 95ºF (35ºC) before handling and relocation can be completed. If the ambient air temperature exceeds 95ºF (35ºC) during handling or processing, desert tortoises will be kept shaded in an environment that does not exceed 95ºF (35ºC), and the animals will not be released until ambient air temperature declines to below 95ºF (35ºC).

To monitor for survivorship and health, for a period of 1 year following their translocation/relocation, the desert tortoises will be located at least monthly by the Authorized Biologist during the periods of activity (spring: March–May and fall: August–October) and once during the two non-active periods (summer: June–July and winter: November–February). For the following 2 years, they will be located at least once in the spring and once in the fall. In order to locate all translocated/ relocated tortoises, it will be necessary that they be marked and fitted with radio transmitters. All pertinent information will be recorded, such as behavior, physical characteristics, health characteristics and any visible signs of URTD, as well as any potential anomalies the individual desert tortoise might display.

f. Tortoise handling, artificial burrow construction, egg handling and other procedures will follow those described in the *Guidelines for Handling Desert Tortoise During Construction Projects* (Desert Tortoise Council, 1994).

g. Before the start of construction activities for any project element, a temporary tortoise fence will be installed to enclose the work area for those activities. The permanent desert tortoise exclusionary fencing will be incorporated into the permanent security fence and will be consistent with the guidance of the Desert Tortoise Recovery Office (DTRO) and the specifications will be included in the BRMIMP. Desert tortoise guards will be installed at the gated entries to prevent desert tortoises from gaining entry. The temporary exclusionary fencing will consist of galvanized hard wire cloth or silt fencing. The fencing will be buried approximately 6 inches below ground or bent at a right angle toward the outside of the right-of-way and covered with dirt, rocks, or gravel to discourage the desert tortoise from digging under the fence. The fence installation will be supervised and monitored under the direction of authorized biologists and desert tortoise monitors.

h. Within 24 hours prior to the start of construction of the desert tortoise-exclusion fence for a given location, a desert tortoise survey will be conducted using techniques providing 100 percent coverage of the construction area and an additional transect along both sides of the fenceline transect to provide coverage of an area approximately 90 feet wide centered on the fence alignment. Transects will be no greater than 30 feet apart. The fence alignment will be flagged prior to the

biological survey. Two complete passes of complete coverage will be conducted. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, will be examined to determine occupancy. Any burrow within the fenceline will be collapsed after confirmation that it is not occupied by a desert tortoise, or if occupied, the desert tortoise has been removed.

i. Following construction of the desert tortoise exclusion fence, the fenced area will be cleared of desert tortoises. Two complete passes with complete coverage will be conducted as described above. If no desert tortoises are observed during the second survey, a third survey will not be conducted. Transects will be no wider than 30 feet. Each separate survey will be walked in a different direction to allow opposing angles of observation. If a desert tortoise is located during the second survey, a third survey will be conducted. The Authorized Biologists will be primarily responsible for the clearance surveys. Some Authorized Biologists may be substituted with desert tortoise monitors and will be placed between Authorized Biologists during the surveys. Once the area surveyed is deemed free of desert tortoises the areas may be open to a vegetation salvage program, if the BLM desires.

   All potential desert tortoise burrows located will be excavated by hand by an Authorized Biologist, desert tortoises removed, and collapsed or blocked to prevent occupation by desert tortoises. If excavated during May through July, the Authorized Biologist will search for desert tortoise nests/eggs, which are typically located near the entrance to burrows. All desert tortoise handling and removal, and burrow excavations, including nests, will be conducted by an Authorized Biologist in accordance with the USFWS-approved protocol (Desert Tortoise Council, 1994).

j. A Biological Monitor will be onsite during initial clearing and grading to identify tortoises missed during the clearance survey. If a desert tortoise is discovered, an Authorized Biologist will remove the tortoise as outlined in the translocation plan.

k. Access by project-related personnel to RSEP will be restricted to established access points. Cross-country vehicle and equipment use outside designated work areas and approved access areas will be prohibited.

l. Personnel will be required to exercise caution when traveling to and from the site. To minimize the likelihood of vehicle strikes of desert tortoises outside the fenced areas, a 20 mile per hour speed limit will be enforced on authorized access routes other than SR 62. Speed limit signs will be posted on both sides of these roads.

m. Trash receptacles at the work site and workforce trailer/RV park will have self-locking lids to prevent entry by opportunistic predators such as common ravens and coyotes. Trash receptacles will be emptied daily.

n. Other than law enforcement or security personnel, project personnel will be prohibited from bringing pets and firearms to the project site.

o. A comprehensive raven management and control plan will be drafted and submitted to USFWS, CDFG, BLM, Western, and CEC for approval prior to implementation.

p. Project employees working outside the fenced areas will be required to check under a vehicle or equipment before it is moved. Desert tortoises may be moved by an Authorized Biologist.

q. At the end of each work day, trenches, bores and other excavations outside the permanently fenced area that constitute wildlife pitfalls will either be immediately backfilled, sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, covered, or fully enclosed with fencing to prevent any entrapment. All excavations outside the permanently fenced area will be inspected periodically throughout and at the end of each workday by an Authorized Biologist or Biological Monitor. Should a tortoise become entrapped, an Authorized Biologist will remove and relocate the tortoise to a safe location.

r. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches above ground and within desert tortoise habitat (i.e., outside the permanently fenced area) for one or more nights, will be inspected for tortoises before the material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks. These materials would not be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed.

s. All vehicles and equipment will be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. An Authorized Biologist, Biological Monitor, CEC, and the BLM will be informed of any hazardous spills immediately as directed in the project Hazardous Materials Plan. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility.

t. All fuel, transmission or brake fluid leaks, or other hazardous waste leaks, spills or releases will be reported immediately. The project proponent will be responsible for spill material removal and disposal to an approved offsite landfill. Servicing of construction equipment will take place only at a designated area. All fuel or hazardous waste leaks, spills, or releases will be stopped or repaired immediately and cleaned up at the time of occurrence. Service/maintenance vehicles will carry a bucket and pads to absorb leaks or spills.

u. All unused material and equipment, including soil and rock piles, will be removed upon completion of any maintenance activities located outside the permanently fenced area.

v. To minimize dust emissions and topsoil erosion, water will be applied to the construction area, dirt roads, trenches, spoil piles and other areas where ground disturbance has taken place. The minimal amount of water will be applied to meet safety and air quality standards in an effort to prevent puddling, which would attract desert tortoises and common ravens to the construction site.

w. The Designated Biologist, Authorized Biologist, or FCR will notify BLM, Western, USFWS, and CDFG within 24 hours upon locating a dead or injured desert tortoise. The notification will be made by telephone and in writing to the BLM, USFWS

Carlsbad Field Office, CDFG Desert District Office, and CEC. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Tortoises fatally injured due to project-related activities will be submitted for necropsy, at the expense of RSE, as outlined in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Gopherus agassizii)* (Berry, 2001). Tortoises with minor injuries will be transported to a nearby qualified veterinarian for treatment at the expense of RSE. If an injured animal recovers, the BLM, USFWS, CDFG, and CEC will be contacted for final disposition of the animal.

x. A relocation plan for desert tortoises has be developed following guidance from the DTRO. This guidance is currently in draft form. All relocation and translocation activities would adhere to this plan as well as the terms and conditions of the Biological Opinion. A draft of the plan is found in Appendix A.

y. The project owner would implement a comprehensive raven management and control plan. A draft of this plan is found in Appendix B.

3.7 Operation and Maintenance Minimization Measures

The following protection measures will be common to all RSEP operation and maintenance activities:

a. The Authorized Biologist or FCR will make initial notification to the BLM, USFWS, CDFG, and CEC within 24 hours upon locating a dead or injured desert tortoise during the RSEP operation phase. The notification must be made by telephone and in writing to the BLM, USFWS Carlsbad Field Office, CDFG Desert District Field Office, and CEC. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Tortoises fatally injured or killed from project-related activities will be submitted for necropsy, at the expense of RSE, as outlined in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Gopherus agassizii)* (Berry, 2001). Tortoises with minor injuries will be transported to a nearby qualified veterinarian for treatment at the expense of RSE. If an injured animal recovers, the BLM, USFWS, CDFG and CEC will be contacted for final disposition of the animal.

b. An FCR will be responsible for overseeing compliance with the desert tortoise protection measures during operation. The FCR will have a copy of all measures when work is being conducted on the site. The FCR must be onsite during any activities located outside established tortoise exclusion areas or which otherwise have the potential to result in the take of tortoise. The FCR will have the authority to halt all activities that are in violation of the measures. Work will proceed only after hazards to the desert tortoise are removed, the species is no longer at risk, or the individual has been moved from harm's way by the Authorized Biologist. The FCR may be a project manager, RSE's representative, or a biologist.

c. Vehicle parking, material stockpiles, and construction-related materials used for maintenance or repair activities will be located within the permanently fenced area.

d. WEAP training will continue for all RSEP personnel during the RSEP operation phase. All employees and their contractors involved with operation and maintenance will attend the agency-approved WEAP training. These employees will participate in the education program prior to initiation of work activities. New employees will receive formal, approved training prior to working onsite. During the WEAP training, employees will be instructed to exercise caution when commuting to the project area. To minimize the likelihood for vehicle strikes of desert tortoises, the posted speed limit on the access roads other than SR 62 will be 20 miles per hour. Speed limit signs will be posted on both sides of access roads to remind drivers of the speed limit when entering and exiting.

e. The Authorized Biologist(s) and Biological Monitor(s) will be present during maintenance outside the established tortoise exclusion areas and off established roads (such as cleaning the generator tie-line conductors) to assist in the implementation of protection measures for the desert tortoise and to monitor compliance. The appropriate number of Authorized Biologists and Biological Monitors will be dependent upon the nature and extent of the work being conducted.

f. The removal of desert tortoises from harm's way will be conducted according to the *Guidelines for Handling Desert Tortoises During Construction Projects* (Desert Tortoise Council, 1994).

g. All encounters with desert tortoise will be reported to an Authorized Biologist, Biological Monitor, or FCR. These designees will maintain records of all desert tortoises encountered during the operation phase. This information will include for each individual: the locations (narrative, vegetation type, and maps) and dates of observations; general conditions and health; any apparent injuries and state of healing; if moved, the location from which it was captured and the location where it was released, and whether animals voided their bladders; and diagnostic markings (i.e., identification numbers).

h. Only Authorized Biologists will handle desert tortoises during RSEP operations activities and only if necessary. When a desert tortoise is moved, an Authorized Biologist will be responsible for taking appropriate measures to ensure that the animal is not exposed to temperature extremes that could be harmful. When handing desert tortoises or excavating their burrows, the Authorized Biologist will follow the appropriate protocols outlined in *Guidelines for Handling Desert Tortoises During Construction Projects* (Desert Tortoise Council, 1994).

i. An Authorized Biologist will perform desert tortoise clearance surveys and an Authorized Biologist or Biological Monitor will monitor maintenance activities outside the permanently fenced area that have demonstrated the potential to affect the desert tortoise. The Authorized Biologist or Biological Monitor will be responsible for assisting crews in compliance with protection measures, performing surveys in front of the crew as needed to locate and avoid sensitive species, and performing compliance monitoring.

j. Any area of disturbance from maintenance activities outside the permanently fenced areas will be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. As needed, work area boundaries will be delineated with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows identified outside the permanently fenced area by an Authorized Biologist or Biological Monitor will be avoided to the extent possible. Also, previously disturbed areas within the permanently fenced area will, to the extent possible, be used for the stockpiling, storage, parking, and any other surface-disturbing activity.

k. Any damage to the permanent fencing will be repaired immediately. Following installation, the permanent fencing will be inspected yearly and after major rainfall events.

l. Over the long-term, once the RSEP facilities are no longer needed, the structures will be removed and the project area will be rehabilitated to approximate preconstruction conditions. A formal rehabilitation plan for the RSEP facility closure will be developed by RSE and submitted to the BLM, Western, USFWS, CDFG, and the CEC at least one year prior to facility closure. Sensitive natural community type habitat mitigation elements will be addressed as a component of the desert tortoise habitat mitigation effort.

m. The RSEP facility closure rehabilitation plan will follow currently accepted site rehabilitation practices in use by BLM, Western, USFWS, and CDFG or other appropriate resource agencies, at the time of project closure, and it is expected to include the following sections and details: (1) goals and objectives of the rehabilitation; (2) a description of methods employed to achieve the rehabilitation goals and objectives; (3) success criteria used to determine if the rehabilitation is successful; (4) a monitoring and maintenance program, including details on remedial measures; (5) noxious weed control plan; (6) a description of annual reporting; and (7) a rehabilitation implementation and monitoring timeline and schedule of planned activities.

SECTION 4

Affected Environment

This section describes the biological conditions within the areas of the proposed project, beginning with a regional overview, the vegetation types and habitat present in the project area, and a description of wildlife typical to the area.

4.1 Regional Overview

The Rice Valley is a dry shallow basin with a north-south orientation, bounded by the Turtle Mountains to the north and the Big Maria Mountains to the south. The edges of the valley are more weakly defined to the west by the Arica Mountains and to the east by the West Riverside Mountains. These mountain ranges are rugged and provide habitat for Nelson's bighorn sheep (*Ovis canadensis nelsoni*) and desert dry wash woodlands. The sand dunes along the southern end of the valley are nest site opportunities for golden eagles (*Aquila chrysaetos*) and prairie falcons (*Falco mexicanus*). The valley is dominated by a creosote scrub community interrupted by part of a large sand sheet that stretches from Cadiz to Ward Valley.

The rugged mountain areas, lowland valleys, and dunes provide a diversity of topographical features that provide habitat for a variety of plant and animal species (Figure 4-1). The lack of CNDDB records in the area, in particular for the desert tortoise (*Gopherus agassizii*), is likely due to lack of studies in this area. Dune areas are often occupied by rare and endemic plant and animal species. Due to limited resources and limited recent development pressure in the Rice Valley, much of the local focus has likely been on the surrounding Desert Wildlife Management Areas (DWMA) and Wildlife Management Areas (WMA).

Although considered within the West Basin of the Colorado River, which drains primarily into the Salton Sea Trough, Rice Valley is a sink within no broader hydrological connectivity. Rice Valley has a small watershed and lacks any major washes. Although it is a sink, there are no perennial surface water sources and there is no evidence that a lake ever formed in the Valley during wetter climatic periods (BLM, 2007).

Current activity is primarily concentrated on the north end of the valley as evidenced by a heavily disturbed east-west linear corridor composed of the Colorado River Aqueduct, the Arizona-California Railroad, and SR 62. These three parallel features present a major north-south barrier to wildlife passage and interrupt local hydrology.

The community of Rice, the Rice Airfield, and the Camp Rice infantry and artillery training camp were also located along this corridor. Today these long-abandoned sites are more evident from aerial photos than on the ground. At least 50 years of volunteer plant revegetation now provide relatively sparse to moderate vegetative cover of these areas. Most of the Rice Valley was likely used for military training exercises in the early 1940s. Also, an Army-Air Force exercise called Joint Exercise Desert Strike took place in this area in 1964.

Off-road enthusiast websites[2] include warnings of unexploded ordnance in the Rice Valley sand dunes. General Patton's soldiers are credited with one of the few historical records of banded gila monster (*Heloderma suspectum cinctum*) in California from a capture in the Granite Mountains in the adjacent valley to the west (CNDDB, 2009). The Rice Valley dunes are relatively shallow and do not appear to have ever held much appeal to off-road enthusiasts even before the BLM closed the Rice Valley Dunes Off-Highway Recreation Area as part of NECO, partly because of a lack of use. As with much of the area, local mining activity dates back to the late 1800s. Some of these abandoned mines in the local mountains likely provide cavity habitat for bat species.

Other than the development in the northern part of the valley and ephemeral domestic sheep grazing, today Rice Valley appears to be subject to light use by humans. Much of the valley is now contained within the Rice Valley Wilderness Area but, according to the BLM, the valley presents few recreational opportunities other than spring season wildflower viewing due to the lack of water, sparse vegetation, and mostly level topography (BLM, 2007).

4.2 Habitat and Vegetation Communities

Sonoran creosote bush scrub is the most prevalent vegetation community in the Colorado Desert and was the only community type that was identified in the footprint of the proposed project site and generator tie-line alignment. The dominate shrub is creosote bush (*Larrea tridentata*). Other shrubs species present include burrobrush (*Hymenoclea salsola*), burro-weed (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), and white rhatany (*Krameria grayi*). Herbaceous species present include *Calycoseris wrightii*, pebble pincushion (*Chaenactis carphoclinia* var. *carphoclinia*), desert dandelion (*Malacothrix glabrata*), devil's lettuce (*Amsinckia tessellata*), *Cryptantha nevadensis*, mustard (*Brassica tournefortii*), rattlesnake weed (*Chamaesyce polycarpa* var. *hirtella*), Arizona lupine (*Lupinus arizonicus*), *Camissonia boothii* ssp. *condensata*, plantain (*Plantago ovata*), and Mediterranean grass (*Schismus barbatus*). Rice Valley is characterized by widely spaced shrubs and impressive spring wildflower displays. Other habitat community types in the Rice Valley include sand dunes and desert dry wash woodlands.

Although considered within the West Basin of the Colorado River, which drains primarily into the Salton Sea Trough, Rice Valley is a sink within no broader hydrological connectivity. Rice Valley has a small watershed and lacks any major washes. Streams, washes and playas are dry most of the year, with surface water only present in response to storm events. Although it is a sink, there are no perennial surface water sources and there is no evidence that a lake ever formed in the Valley during wetter climatic periods (BLM, 2007). No wetlands or waters were identified in the project area.

Generalized vegetation type descriptions, including the dominant and subdominant plants observed in each community are provided below.

[2] http://www.dirtopia.com/wiki/Rice_Valley_Dunes and http://www.socalfunplaces.com/topic_sanddunes.htm

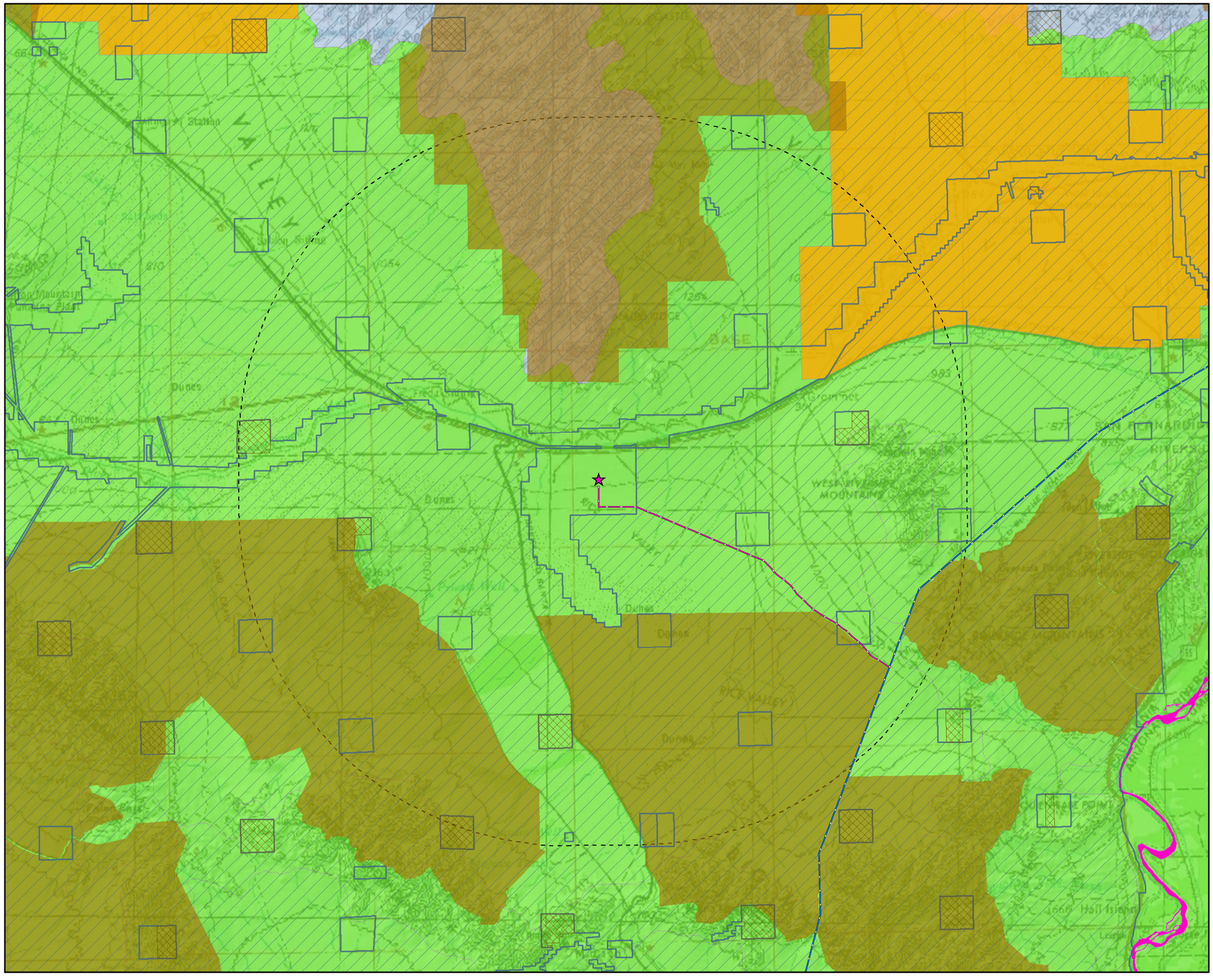


FIGURE 4-1
REGIONAL BIOLOGICAL RESOURCES
RICE SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA

4.2.1 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub was the only vegetation community type that was identified in the proposed project site and generator tie-line right-of-way during the 2009 botanical surveys. Examination of the area within one mile of the proposed project facilities indicates that nearly all of this area also consists of this vegetation community. As stated in the NECO, this creosote bush community is the most dominate plant community below the 3,000 foot elevation throughout the Colorado Desert (BLM, 2002). Sonoran creosote bush scrub (or Sonoran desert scrub) covers approximately 3.8 million acres or 69 percent of the NECO planning area (BLM, 2002). As evident in the Rice Valley, the shrubs in this community are typically widely spaced and flowering annuals are expected to be observed from late February to March.

Shrub species observed in the project area during the March 2009 botanical surveys include creosote bush, burrobrush, burro-weed, brittlebush, and white rhatany. Herbaceous species present include *Calycoseris wrightii*, pebble pincushion, desert dandelion, desert five-spot (*Eremalche rotundifolia*), *Palafoxia arida* var. *arida*, devil's lettuce, *Cryptantha nevadensis*, *Pectocarya platycarpa*, mustard, onyx flower (*Achyronychia cooperi*), rattlesnake weed, Arizona lupine, *Camissonia boothii* ssp. *condensata*, plantain, big galleta (*Pleuraphis rigida*), and Mediterranean grass.

4.2.2 Active and Stabilized Sand Dune

Portions of the Rice Valley Dunes are located within one mile of the proposed RSEP area. The Rice Valley Dunes are a system of small dunes rising 30 to 40 feet above the valley floor to form a long, narrow band running through the middle of Rice Valley. These active and stabilized dune habitats occur south and southwest of the propose RSEP area. Active sand dune habitat is characterized by sparse vegetative cover and actively moving sand. Stabilized dune habitat consists of more dense vegetative cover that limits the movement of sand by wind.

Species typically found in desert dunes include creosote bush, fourwing saltbush (*Atriplex canescens*), burro-weed, big galleta, Indian ricegrass (*Achnatherum hymenoides*), and evening primrose (*Oenothera* spp.) (Sawyer and Keeler-Wolf, 1995). During the March 2009 botanical surveys of the project area, a reference population of the special-status Harwood's eriastrum (*Eriastrum harwoodii*) located adjacent to Blythe-Rice Road within the Rice Valley Dunes was visited. Species observed in the vicinity of the Harwood's eriastrum reference population include chaparral sand-verbena (*Abronia villosa* var. *aurita*, a special-status species), big galleta, creosote bush, evening primrose, *Cryptantha* sp., and Mormon tea (*Ephedra* sp.).

4.2.3 Washes

Numerous washes occur within one mile of the project area and range in size from small, poorly defined ephemeral washes to larger washes with well-defined channel beds and banks. The majority of the washes that flow through the proposed RSEP site flow from north to south and originate in the Turtle Mountains to the north. The majority of washes that cross the generator tie-line corridor flow in a southwest or southerly direction from the West Riverside Mountains. Based on observations during March 2009 botanical surveys in the project area, vegetation is typically sparse in the beds of these washes and consists of annual and perennial herbaceous species. Shrub species typically present along the banks

include creosote bush, burrobrush, burro-weed, and brittlebush. Tree species potentially occurring along the banks of the larger washes include palo verde (*Cercidium* sp.), smoke tree (*Psorothamnus spinosus*), screw bean (*Prosopis pubescens*) and ironwood (*Olneya tesota*). Neither the project site nor the generator tie-line include areas of significant wash vegetation and, for this reason, there are no areas mapped as a Wash vegetation or habitat type in Figure 4-2, although such areas occur in washes upslope and upstream of the generator tie-line corridor.

4.2.4 Areas Previously Disturbed

The proposed RSEP site is located on the site of a former airfield (Rice Army Airfield) that was used during World War II as a training site, later transferred to private use, and then abandoned sometime between 1955 and 1958 (Freeman, 2009). The abandoned airfield once consisted of two paved 5,000-foot-long runways and numerous dispersal pads or hardstands extending beyond the runways to the south (Freeman, 2009). Various dirt roads, concrete pads, and portions of the old runways were observed during surveys in the proposed project site. Since the time the airfield was abandoned, the project area has been colonized by predominately native annual and perennial species. Previously paved areas, such as the runways, taxiways, and aircraft hardstands, have been colonized by burrobrush and creosote bush, but have a lower density of creosote bush shrubs than surrounding areas. It is for this reason that these areas are clearly visible on aerial photographs despite recolonization by native species.

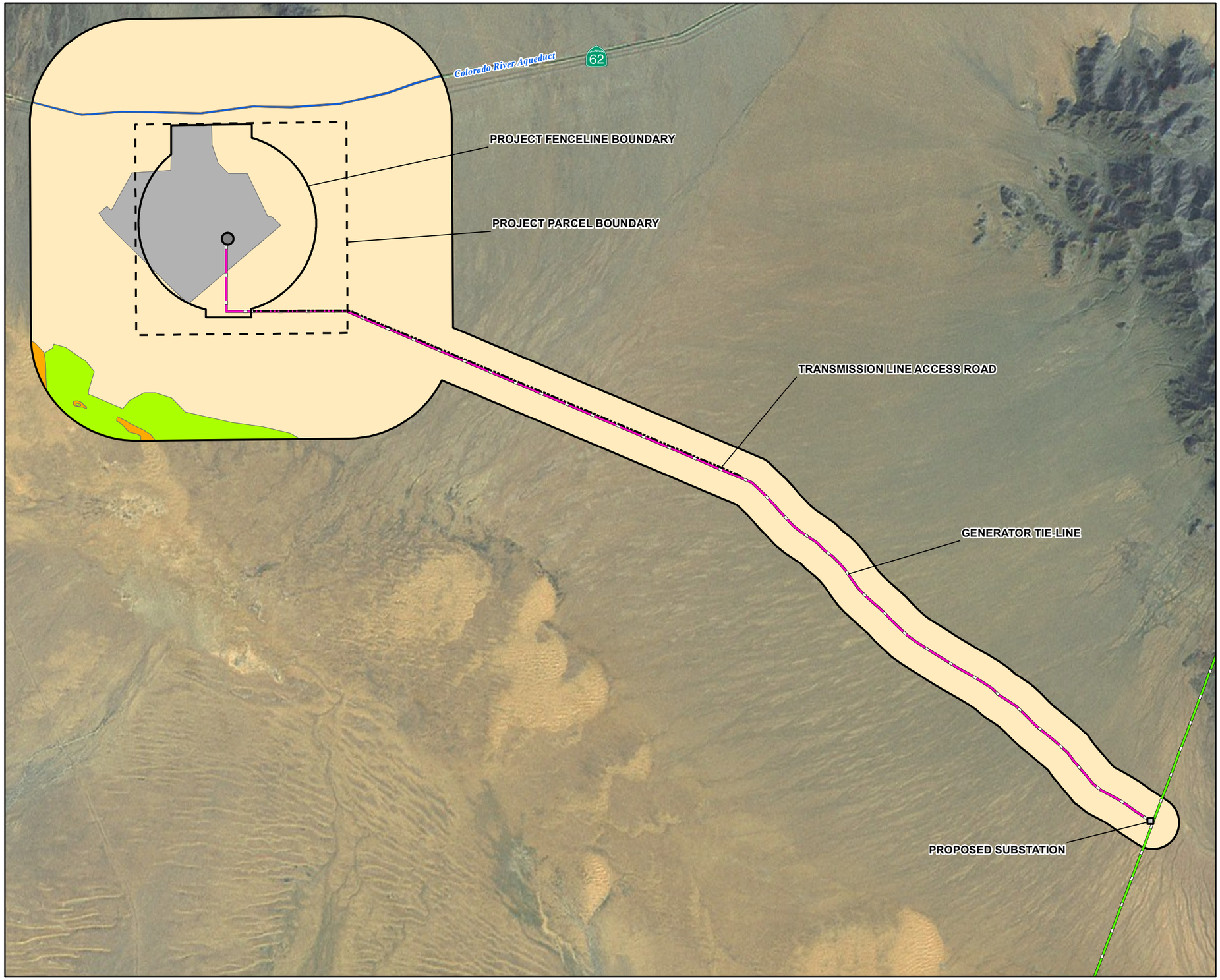
4.2.5 Invasive Weeds

Mediterranean grass (*Schismus arabicus* and *S. barbatus*), Sahara mustard (*Brassica tournefortii*), and filaree (*Erodium cicutarium*) were the only weed species observed in the proposed project area. Sahara mustard has a California Invasive Plant Council (Cal-IPC) rating of "high." Species rated as high have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically (Cal-IPC, 2006). California Department of Food and Agriculture (2007) does not rate Sahara mustard.

Mediterranean grass and filaree are rated by Cal-IPC as "limited." Species with a rating of "limited" are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic (Cal-IPC, 2006)

4.3 Wildlife Species Observed or Expected to Occur

Although dry relative to the general area, flat, and sparsely vegetated, the overall project area provides interesting habitat value based on the context of the surrounding topography, which includes mountains, sand dunes, and dry wash woodlands. The project area provides habitat for lowland desert species such as reptiles and small mammals that are year-round



LEGEND

- TRANSMISSION LINE ACCESS ROAD
- GENERATOR TIE-LINE
- PARKER-BLYTHE TRANSMISSION LINE
- PROJECT PARCEL BOUNDARY
- PROJECT FENCELINE BOUNDARY
- PROPOSED SUBSTATION
- POWER BLOCK/RECEIVER
- BUFFER

VEGETATION TYPE

- ACTIVE SAND DUNE
- COLORADO RIVER AQUEDUCT
- DISTURBED AREA/SONORAN CREOSOTE BUSH SCRUB
- SONORAN CREOSOTE BUSH SCRUB
- STABILIZED SAND DUNE

Notes:
1. Source: Sycamore Environmental Consultants, Inc. Field Survey, 2009. California Department of Forestry and Fire Protection, Multi-source Land Cover Data (v02_2), 2002.
2. 1 mile buffer for Project site, 1/4 mile buffer around proposed transmission line.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 2,500 5,000
Feet

FIGURE 4-2
RSEP VEGETATION MAP
RICE SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA

residents of Rice Valley, to migratory birds that may visit the area during their breeding season or as their winter refuge. Despite the constructed barriers at the north end of the valley, the project area may have significant value as forage and dispersal for species that may occupy Rice Valley on a more ephemeral basis.

The project area provides likely habitat for common reptile species such as the side-blotched lizard (*Uta stansburiana*), zebra-tailed lizard (*Callisaurus draconoides*), long-nosed leopard lizard (*Gambelia* spp.), rattlesnakes (*Crotalus* spp.), western whiptail (*Cnemidophorus tigris*), and desert horned lizard (*Phrynostoma platyrhinos*). More high-profile management species such as the desert tortoise and the Mojave fringe-toed lizard (*Uma scoparia*) are also expected to occur within the project area.

Common desert mammals such as Audubon's cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), and whitetail antelope squirrel (*Ammospermophilus leucurus*) are expected to be found and others such as bobcat (*Felis rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereiagentueus*), and kit fox (*Vulpes macrotis*) are likely frequent visitors if not residents of Rice Valley. Burro deer (*Odocoileus hemionus crooki*), a species subject to BLM management, may also move through the area for forage or dispersal.

The project area likely hosts a large variety of bird species common to the Eastern Colorado Desert. These include the black-throated sparrow (*Amphispiza bilineata*), Brewer's sparrow (*Spizella breweri*), white-crowned sparrow (*Zonotrichia leucophrys*), house finch (*Carpodacus mexicanus*), Anna's hummingbird (*Calypte anna*), Costa's hummingbird (*Calypte costae*), black-tailed gnatcatcher (*Polioptila melanura*), blue-gray gnatcatcher (*Polioptila caerulea*), rock wren (*Salpinctes obsoletus*), canyon wren (*Catherpes mexicanus*), phainopepla (*Phainopepla nitens*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus* verticalis), horned lark (*Ermophila alpestris*), verdin (*Auriparus flaviceps*), mourning dove (*Zenaidura macroura*), Gambel's quail (*Lophortyx gambelii*), turkey vulture (*Cathartes aura*), lesser nighthawk (*Chordeiles acutipennis*), poorwill (*Phalaenoptilus nuttallii*), common raven (*Corvus corax*), American kestrel (*Falco sparverius*), and red-tailed hawk (*Buteo jamaicensis*). The burrowing owl (*Athene cunicularia*) is a particular management concern and is likely to occur in the project area.

The Southern Mojave metapopulation of the Nelson's bighorn sheep is a major management concern in the Colorado Desert with entire portions of their historic range now unoccupied. The Little Maria, Big Maria, and Riverside mountains that surround Rice Valley were once occupied by this large ungulate and CDFG may eventually plan to repopulate these areas if reestablishment does not occur from source populations in the nearby Granite and Turtle mountains (BLM, 2007). The aqueduct, railroad, and SR 62 are major barriers and risks to bighorn sheep that might move from the Turtle Mountains south through Rice Valley. The southwestern portion of the original Rice Valley Grazing Allotment was retired due to its proximity to the Palen Mountain bighorn sheep herd and it is possible that the bighorn from the west or north could move through the Rice Valley. There is a strong potential that the mountains surrounding Rice Valley will eventually be reoccupied by bighorn sheep.

SECTION 5

Status of Mojave Desert Tortoise

5.1 Background information on the Species

On August 4, 1989, USFWS published an emergency rule listing the Mojave Desert population of the desert tortoise (*Gopherus agasizzi*) as endangered (USFWS, 1989). The USFWS final rule, dated April 2, 1990, determined the Mojave population of the desert tortoise to be threatened under the ESA (USFWS, 1990a). The tortoise was listed in response to loss and degradation of habitat caused by numerous human activities including urbanization, agricultural development, military training, recreational use, mining, and livestock grazing. The loss of individual desert tortoises to increased predation by common ravens, collection by humans for pets or consumption, collisions with vehicles on paved and unpaved roads, and mortality resulting from diseases also contributed to the listing. The tortoise was state-listed in California as threatened in 1989.

The Desert Tortoise Recovery Plan was released on June 28, 1994 (USFWS, 1994b) and a draft revised Recovery Plan was issued in 2008 (USFWS, 2008). As part of the recovery strategy, the USFWS designated critical habitat for the desert tortoise in portions of California, Nevada, Arizona, and Utah (USFWS, 1994b). The plan recommends implementation of reserve-level protection of desert tortoise populations and habitat within DWMAs, while maintaining and protecting other sensitive species and ecosystem functions. DWMAs were developed to provide "reserve level" protection for the tortoise (USFWS, 1994b). Critical habitat was designated to identify areas containing key biological and physical attributes that are essential to the desert tortoise's survival and conservation, such as space, food, water, nutrition, cover, shelter, and reproductive sites. As part of the actions needed to accomplish the recovery of this species, land management goals within all DWMAs include restriction of human activities that adversely affect desert tortoises (USFWS, 1994b).

The desert tortoise is a long-lived reptile with a high domed shell, stocky, elephant-like limbs, and a short tail. *Gopherus agassizii* is one of four tortoise species found in North America. The desert tortoise's range includes the Mojave Desert region of Nevada, southern California, and the southwestern corner of Utah, and the Sonoran Desert region of Arizona and northern Mexico. The desert tortoise is divided into two primary populations, the Mojave and the Sonoran. The Mojave population is located north and west of the Colorado River and the Sonoran includes all tortoises south and east of the river in Arizona and Mexico (Averill-Murray and Swann, 2002). The Mojave population is primarily found in creosote bush (*Larrea tridentata*) dominated valleys with adequate annual forbs for forage.

Adult desert tortoises typically weigh 10 pounds or more and reach lengths of 11 to 16 inches (USFWS, 1994b). Desert tortoises have been known to live up to 70 years or more but the typical adult likely lives 25 to 35 years (USFWS, 1994b). Like many long-lived species, the tortoise has a relatively slow rate of reproduction. Sexual maturity is primarily size dependent (≥ 180 to 208 millimeters) with tortoises typically achieving breeding status at

15 to 20 years of age. Mating generally occurs in the spring (mid-March to late-May), with nesting and egg-laying occurring between April and July (Rostral et al., 1994; USFWS, 1994b). Desert tortoises have also been known to lay eggs in the fall (USFWS, 1994b). The female tortoise typically lays eggs in an earthen chamber approximately 2.7 to 3.9 inches deep, excavated near the mouth of a burrow or under a shrub (Woodbury and Hardy, 1948; USFWS, 1994b). Following egg-laying, the female covers the eggs with soil. Clutch sizes range from two to 14 eggs, with an average of five to six eggs (Luckenbach, 1982). Females can produce as many as three clutches in a season. Eggs are subject to predation from a variety of predators, and female tortoises have been observed apparently defending their clutches from Gila monsters (Gienger and Tracy, 2008). The eggs typically hatch 90 to 120 days later, between August and October. Hatchlings are born with a yolk sac that protrudes through the plastron. Eggs incubated above 89.3°F develop into females, and males are the result of cooler incubation (USFWS, 1994b). This yolk sac typically sustains the animal for up to 6 months. Hatchling desert tortoises often go into hibernation in the late fall but often emerge for short active periods on warm sunny or rainy days (Luckenbach, 1982).

Desert tortoise activity is seasonally variable. Peak adult and juvenile desert tortoise activity in California typically coincides with the greatest annual forage availability during the early spring and summer. However, tortoises will emerge from their burrows at any time of year when the weather is suitable. Hatchling desert tortoises typically become active earlier than adults and their greatest activity period can be expected between late winter and spring. During active periods, tortoises feed on a wide variety of herbaceous plants, including cactus, grasses, and annual flowers (USFWS, 1994b).

Annual home ranges have been estimated between 10 and 450 acres and are age, sex, seasonal, and resource density dependent (USFWS, 1994b). Although adult males can be aggressive toward each other during the breeding season, there can be a great deal of overlap in individual home ranges (USFWS, 1994b). More than 1.5 square miles of habitat may be required to meet the life history needs of a tortoise and individuals have been known to travel as much or more than 7 miles at a time (BLM, 2001). In drought years, tortoises can be expected to wander farther in search of forage.

During their active period, desert tortoises retreat to shallow burrows and aboveground shade to escape the heat of the day. They will also retire to burrows at nighttime. Desert tortoises are primarily dormant in winter in underground burrows and sometimes congregate in communal dens.

Tortoise population densities have changed over time, resulting in their federal and state listing. Estimated densities of the total desert tortoise population in the 1980s ranged from 10 to 84 individuals per 0.5 hectare (Boarman, 2002). The same estimate for tortoises less than 140 millimeters in length ranged from 2 to 63 individuals for every 0.5 hectares, with the understanding that juvenile tortoises are more difficult to find and likely underrepresented in population estimates based solely on survey data. As presented in Boarman (2002), juvenile survivorship of 75 percent per year may be necessary to maintain population stability, and survivorship of upwards to 97 percent may be required for the recovery of a declining population, making raven predation a major cause for concern.

The RSEP site is located within the NECO Planning Area Boundary where the BLM classifies the area as Category III tortoise habitat (BLM, 2002). RSEP is also located approximately

6.2 miles west of the Chemehuevi DWMA and the Chemehuevi critical habitat unit. The project area and much of the surrounding Rice Valley contains suitable and occupied desert tortoise habitat.

5.2 USFWS Desert Tortoise Recovery Plan and Critical Habitat Designation

The *Desert Tortoise Recovery Plan* outlines a strategy for recovery and delisting of the Mojave population of the desert tortoise (USFWS, 1994b). The plan divided the range Mojave population up into six distinct geographical recovery units. The RSEP site is within the Eastern Colorado Recovery Unit. The plan recommends general areas within each recovery unit in which to concentrate recovery efforts. These areas are referred to as DWMA's and were formalized by BLM, which manages them as Areas of Critical Environmental Concern. The plan includes 14 DWMAs under reserve-level protection so as to maintain at least one viable population at a minimum density of ten adult desert tortoises per square mile within each of the six recovery units. As stated in the plan, it is critical that these DWMAs be connected by functional habitat in order to be successful. The RSEP is located approximately 6.2 miles west of the Chemehuevi DWMA.

A draft revised recovery plan was issued in 2008 (USFWS, 2008). The revised plan includes the following strategic elements to improve upon the original recovery plan:

1. Develop, support, and build partnerships to facilitate recovery.
2. Protect existing populations and habitat, instituting habitat restoration where necessary.
3. Augment depleted populations in a strategic manner.
4. Monitor progress toward recovery.

The revised recovery plan includes a list of proposed recovery actions intended to achieve the above elements through implementation as well as the following objectives:

1. Maintain self-sustaining populations of desert tortoises within each recovery unit into the future.
2. Maintain well-distributed populations of desert tortoises throughout each recovery unit.
3. Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations.

The revised plan also includes revised recovery units which combine the former Northern and Eastern Colorado units into one Colorado Recovery Unit.

In 1994, the USFWS designed 6.4 million acres of critical habitat for the Mojave population of the desert tortoise (USFWS, 1994a). This designation was largely based on the proposed DWMAs and primarily includes federal lands in southwestern Utah, northwestern Arizona, southern Nevada, and southern California. The designation includes approximately 4,754,000 acres in California, of which 3,327,400 acres are on BLM-managed lands. The project site is located approximately 6.2 miles west of the Chemehuevi critical habitat unit.

Desert tortoise presence/absence surveys were performed for the RSEP between April 18, 2009, and May 18, 2009, by Sundance Biology, Inc. The surveys were performed as outlined in the USFWS's *Survey Protocol for Non-Federal Action that may Occur within the Range of the Desert Tortoise* (USFWS, 1992).

5.3 Status of the Desert Tortoise in the Project Area

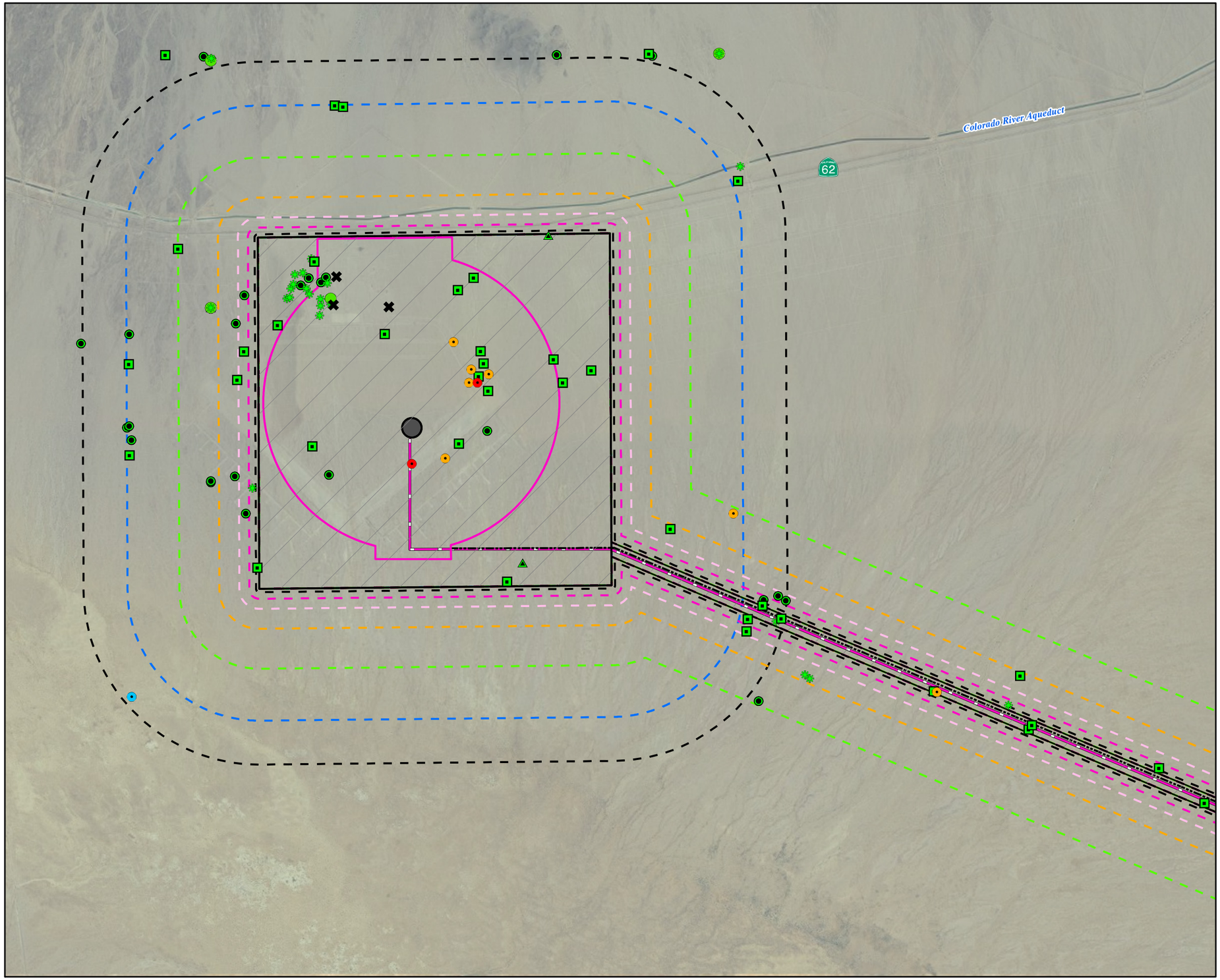
A surprising lack of documentation exists for desert tortoise in Rice Valley. Although Chemehuevi DWMA and desert tortoise critical habitat unit is only 6.2 miles to the east of the proposed site and immediately adjacent to Rice Valley, the closest CNDDB record for tortoise is approximately 4.7 miles to the east in the adjacent Vidal Valley (BLM, 1986). According to the CNDDB record, the densities in that area are between 20 to 50 tortoises per square mile (BLM, 1986). There is lowland connectivity between Rice and Vidal valleys, south of SR 62, on the north and south ends of the approximately 4.5-mile-long West Riverside Mountains (Figure 4-1). As shown in the USFWS's draft revised desert tortoise recovery plan, Bury's (et al.) 1994 distribution map excludes the project area and Rice Valley (USFWS, 2008) but the USGS includes the project area but little else of Rice Valley in its draft desert tortoise habitat model (Nussear et. al, 2009).

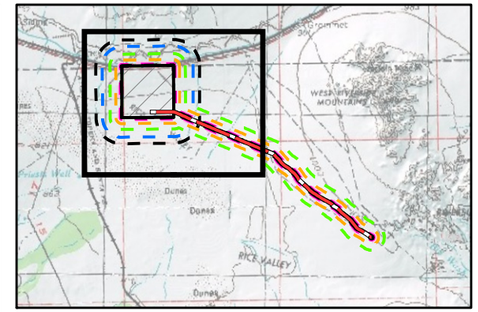
BLM described the Rice Valley as Category III tortoise habitat in the NECO (BLM, 2002). Other than the shallow dunes at the southern edge of Rice Valley, there is reason to believe that the Rice Valley would at least support a low density of desert tortoise. The valley has appropriate habitat and connectivity to well-documented and monitored occupied habitat north, east, and west of the proposed project site. It appears that there has been little monitoring of the desert tortoise in the Rice Valley due to little past development pressure since the species' listing and the dedication of limited resources to the nearby DWMAs.

The Colorado River Aqueduct, railroad, and SR 62 are stacked in a narrow linear corridor crossing the northern end of Rice Valley. Individually each of these features is a significant barrier to north-south tortoise movement. In combination, the three pose a formidable barrier. On the north side of the aqueduct, "V"-ditches are used to funnel runoff from the Turtle Mountains into a series of widely spaced overpasses. The concentrated drainage is then passed under the railroad in box culverts or at locations where the railroad is elevated on small bridge trestles and then flows over SR 62. Connectivity north and south of the aqueduct is limited to aqueduct overpasses. Box culverts or trestles represent "safe" passage across the railroad but there is no safe passage of SR 62. There are only 14 of these conduits within the 12-mile corridor that passes through the Rice Valley. Of these 14 breaches in the linear barrier, two exit directly into the northern boundary of the proposed project site.

Sundance Biology, Inc., confirmed desert tortoise presence on the RSEP site as a result of its April and May 2009 desert tortoise surveys. They found a total of 7 tortoises, 91 shell-skeletal remains, 66 potential burrows, 3 egg shell fragment locations, and 56 scat "events" (Figure 5-1a,b). The majority of the findings in and near the proposed project were concentrated at the northwestern corner of the proposed project site and the southern end of the proposed generator tie-line alignment. The observations included one tortoise on the proposed project site and three along the proposed generator tie-line alignment. Although only seven tortoises were found as a result of covering 2,560 acres for the proposed project site, 10.0 miles of proposed generator tie-line alignment, plus the zone-of-influence

transects, appropriate tortoise habitat was found throughout the project areas. A surprising number of tortoise carcasses were found distributed fairly evenly throughout the survey area including the proposed generator tie-line corridor. This may suggest that tortoises in the Rice Valley were subjected to and continue to experience significant pressure from drought, disease, and/or some combination of adverse effects. Egg shell fragments found on the eastern edge of the proposed project site confirm that breeding is occurring locally, and difficult-to-detect juvenile and hatchling tortoises are likely within the proposed project area.





LEGEND

- BURROWING OWL
- LOGGERHEAD SHRIKE
- MOJAVE FRINGETOED LIZARD
- LIVE DESERT TORTOISE (DT)
- DT BURROW
- DT EGG SHELL FRAGMENTS
- DT SCAT
- DT SHELL-SKELETAL REMAINS
- DT TRACKS
- TRANSMISSION LINE ACCESS ROAD
- GENERATOR TIE-LINE
- PARKER-BLYTHE TRANSMISSION LINE
- 100 FT. ZONE OF INFLUENCE TRANSECT
- 300 FT. ZONE OF INFLUENCE TRANSECT
- 600 FT. ZONE OF INFLUENCE TRANSECT
- 1200 FT. ZONE OF INFLUENCE TRANSECT
- 240 FT. ZONE OF INFLUENCE TRANSECT
- 3/4 MI. ZONE OF INFLUENCE TRANSECT
- 1 MI. ZONE OF INFLUENCE TRANSECT
- INTENSIVE SURVEY AREA
- PROJECT FENCELINE BOUNDARY
- BIOLOGICAL SURVEY AREA
- POWER BLOCK/RECEIVER
- PROPOSED SUBSTATION

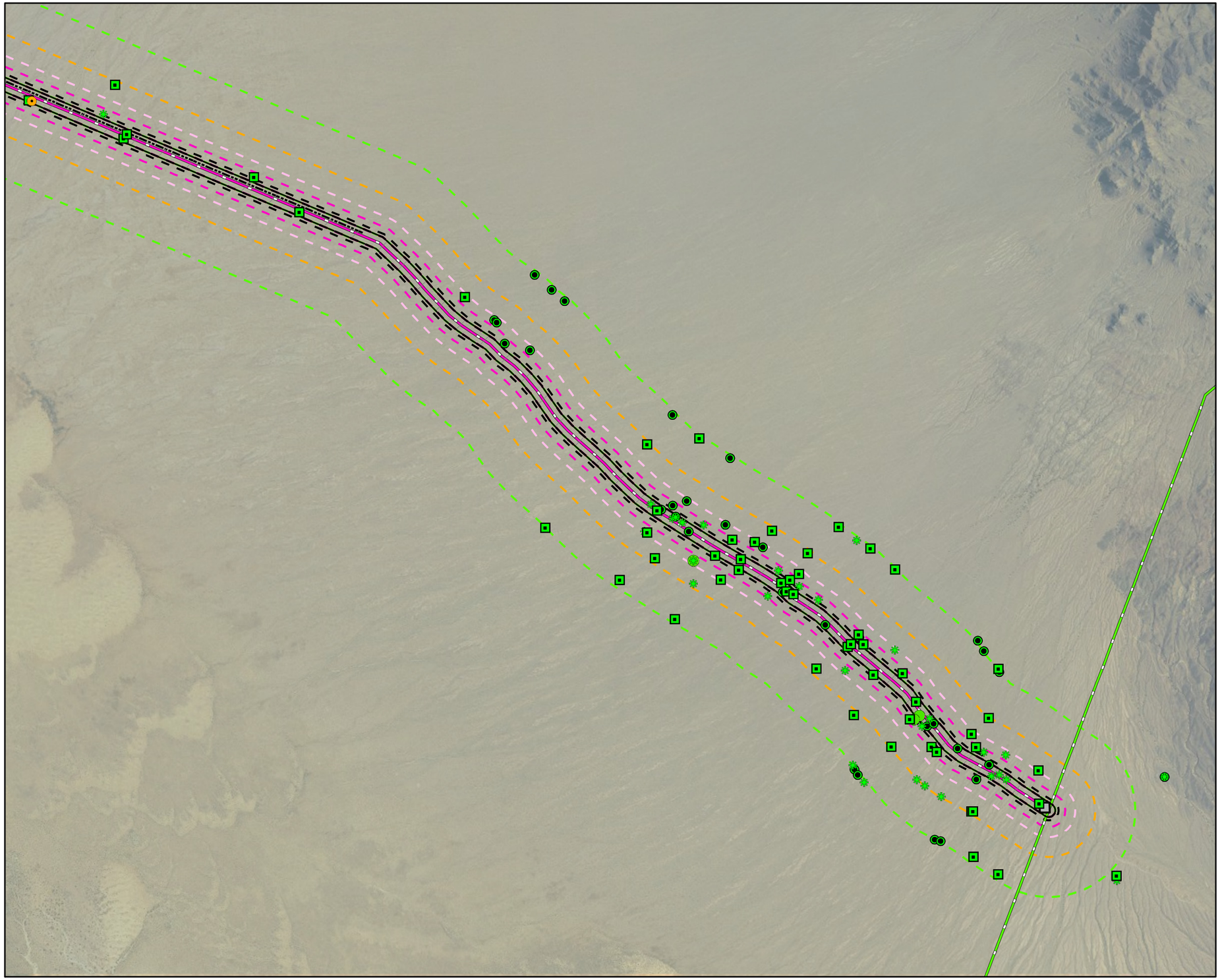
Notes:
1. Source: Sundance Biology Inc. Desert Tortise field survey, 2009.
2. The Intensive Survey Area is the area within the project site boundary and a 200ft. corridor along the Generator Tie-Line.

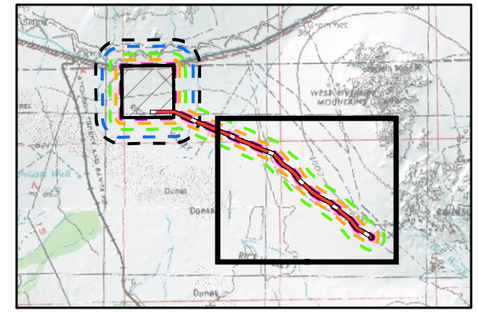
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,500 3,000
Feet

FIGURE 5-1a
WILDLIFE RESOURCES SURVEY AREA AND FIND LOCATIONS
RICE SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA





LEGEND

- BURROWING OWL
- LOGGERHEAD SHRIKE
- MOJAVE FRINGETOED LIZARD
- LIVE DESERT TORTOISE (DT)
- DT BURROW
- DT EGG SHELL FRAGMENTS
- DT SCAT
- DT SHELL-SKELETAL REMAINS
- DT TRACKS
- TRANSMISSION LINE ACCESS ROAD
- GENERATOR TIE-LINE
- PARKER-BLYTHE TRANSMISSION LINE
- 100 FT. ZONE OF INFLUENCE TRANSECT
- 300 FT. ZONE OF INFLUENCE TRANSECT
- 600 FT. ZONE OF INFLUENCE TRANSECT
- 1200 FT. ZONE OF INFLUENCE TRANSECT
- 240 FT. ZONE OF INFLUENCE TRANSECT
- 3/4 MI. ZONE OF INFLUENCE TRANSECT
- 1 MI. ZONE OF INFLUENCE TRANSECT
- INTENSIVE SURVEY AREA
- PROJECT FENCELINE BOUNDARY
- BIOLOGICAL SURVEY AREA
- POWER BLOCK/RECEIVER
- PROPOSED SUBSTATION

Notes:
1. Source: Sundance Biology Inc. Desert Tortise field survey, 2009.
2. The Intensive Survey Area is the area within the project site boundary and a 200ft. corridor along the Generator Tie-Line.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,500 3,000
Feet

FIGURE 5-1b
WILDLIFE RESOURCES SURVEY AREA AND FIND LOCATIONS

RICE SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA

SECTION 6

Effects on the Desert Tortoise

6.1 Direct and Indirect Effects

The RSEP site is not within critical habitat for the desert tortoise or a DWMA but desert tortoise presence has been confirmed in the project footprint. The construction of the RSEP would result in the loss of approximately 1,504 acres of desert tortoise habitat through the clearing and grubbing of vegetation for the installation of project facilities and structures. Tortoises will be permanently excluded from the project site, which will limit the amount of available suitable habitat for burrowing and forage as well as providing a barrier to movement. Displacement of desert tortoises will likely adversely affect individuals who have lost all or a portion of their established home range as a result of the exclusion as well as the tortoises that occupy home ranges in which the displaced tortoises would subsequently occupy. Without the implementation of appropriate mitigation measures, these actions could result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicle or heavy equipment, whether on the project site or from vehicles straying from existing roads or designated areas into adjacent habitat. Other direct impacts could include individuals being crushed or entombed in their burrows, possible collection or vandalism by project-related personnel, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise, injury, or mortality from encounters with workers' or visitors' pets. Also, tortoises may take shelter under parked vehicles and be killed, injured, or harassed when the vehicle is moved.

Additionally, the permanent loss of desert tortoise habitat that would occur from the removal and crushing of shrubs and herbaceous vegetation would indirectly impact the species through the loss of burrowing, breeding, and foraging habitat. Other potential direct impacts to desert tortoise resulting from construction and installation, operation, modifications or improvements, and maintenance of project facilities may include project facilities acting as a barrier impeding the natural movements of desert tortoise throughout their habitat and compaction of soils. Also, increased levels of surface-disturbing activities and potentially wash-water-induced vegetation may increase the abundance of alien plants and wildfire frequency (Brooks et al., 2003).

Increased vehicle travel will occur from the construction and improvement of access roads, which could disturb or kill individual tortoises. During the 24-month-long period in which the RSEP workforce is at its largest (months 6 to 30) an estimate of the average daily traffic would be as high as 765. Likewise during this period, the average total of construction truck traffic would be approximately 90 per day. However, for all other periods during construction (and to a much greater extent during operations and maintenance activities) daily average vehicle activity would be less. In addition to potential collisions between vehicles and individual tortoises, additional impacts may include habitat fragmentation, increases in predator populations (especially common raven and coyote) using vehicle road kills to supplement the diet, changes in plant community from fires, loss of foraging and burrowing habitat from the road, restriction of movements and gene flow, changes in plant

composition due to alien plant introductions along the road corridor, and mortality of tortoises from various illegal activities such as collecting for pets or food and shooting of tortoises. The potential for the most severe impacts are along paved roads where vehicle frequency and speed is greatest, although tortoises on dirt roads may also be affected depending on vehicle frequency and speed. Census data indicate that desert tortoise numbers decline as vehicle use increases (Bury et al., 1977) and tortoise sign increases with increased distance from roads (Nicholson, 1978). Additional unauthorized impacts may occur from casual use of the new and existing roads in the project area, including unauthorized trail creation.

Food-related trash or excess water associated with the RSEP activities could attract tortoise predators such as the common raven, kit fox, and coyote. Natural predation in undisturbed, healthy ecosystems is generally not an issue of concern. However, predation rates may be altered when natural habitats are disturbed or modified. Common raven populations in some areas of the Mojave Desert have increased 1,500 percent from 1968 to 1988 in response to expanding human use of the desert (Boarman, 2002). Because ravens were scarce in this area prior to 1940, the current level of raven predation on juvenile desert tortoises is considered to be an unnatural occurrence (BLM, 1990). In addition to ravens, feral dogs have emerged as significant predators of the tortoise. Dogs may range several miles into the desert and have been found digging up and killing desert tortoises (USFWS, 1994a; Evans, 2001). Dogs brought to the project site may harass, injure, or kill desert tortoises, particularly if allowed off leash to roam freely. The worker environmental awareness training is intended to reduce the potential for these impacts.

If tortoise-proof fencing is installed to exclude tortoises from the work areas, over time breaches may occur, thus allowing tortoises to pass through the barrier and be impacted by project-related activities. Temporary fencing left in place following removal of the threat to tortoises in the area may also contribute to habitat fragmentation. Materials and equipment left behind following construction may entrap or entangle tortoises, attract desert tortoise predators, or provide shelter for tortoises, which when removed may result in displacement or injury of the tortoise.

Construction of the generator tie-line interconnection would result in and additional 12 acres of desert tortoise habitat impacts. This includes the permanent loss of vegetation for forage and cover within the approximately 13.4 acres that will be cleared for the new generator tie-line maintenance and access road (4.6 miles of new 24-foot-wide roadway disturbance area) and small areas of disturbance for the transmission towers (approximately 90 towers and 400-square-foot disturbance area per tower) totaling less than one acre. The impacts of habitat restoration after the 30-year life of the facility and weed-control during operations and maintenance in these and other project areas may be significant without proper planning and implementation. These activities may involve the use of heavy equipment, all-terrain vehicles (ATVs), or hand-tools and include re-contouring, ripping of soil, ground watering, broadcast seeding, use of water trucks for dust abatement, and planting of live vegetation. Use of vehicles and heavy equipment may increase the risk of injury or mortality of individual tortoises, result in short-term displacement and/or noise during the project, create short-term loss of vegetation, and result in temporary ground disturbance due to fencing or the installation of barricades. Many potential effects of habitat restoration are the same as, or similar to, other surface-disturbing activities identified above.

Activities associated with weed treatments that may affect the desert tortoise include application of herbicides, clearing or cutting vegetation by hand or machinery, and use of ATVs on disturbed areas for site access. Effects to the desert tortoise include unintentional removal or destruction of plants used by tortoises for forage or shelter, soil compaction, alteration of local microclimate through vegetation removal, and harassment, injury, or mortality of tortoises as a result of vehicle or machinery operation.

Beneficial effects of the habitat restoration activities may include long-term improvement of species diversity (including food sources), long-term reduction in erosion, long-term increased habitat quality, increased tortoise abundance and distribution through habitat enhancement, decreased potential for future alien plant invasions, and decreased wildfire potential.

Potential impacts from the activities of capturing, handling, and relocating desert tortoises might be significant. Blythe et al. (2003) found that Sonoran desert tortoises moved less than 0.5 mile had returned to their home ranges within a few days. Unless movement barriers are in place, tortoises are likely to return to potentially harmful conditions. Tortoises may die or become injured by capture and relocation if these methods are performed improperly, particularly during extreme temperatures, or if they void their bladders. Averill-Murray (2001) determined that tortoises that voided their bladders during handling had significantly lower overall survival rates (0.81 to 0.88) than those that did not void (0.96). If multiple desert tortoises are handled by biologists without the use of appropriate protective measures, such as reused latex gloves, pathogens may be spread among tortoises.

6.2 Cumulative Effects

Consideration of the cumulative effects that would be associated with the RSEP is focused on activities located along the SR 62 corridor. Those activities include past, present, and reasonably foreseeable future developments along this roadway. There are no developments that are currently planned and also undergoing a review process preparatory to permitting and construction. Existing infrastructure, such as the Arizona-California Railroad, SR 62, and Colorado River Aqueduct, have been considered as part of the project baseline for this impact analysis. There are currently no projects actively seeking authorization within 15 miles of the RSEP. For this reason, cumulative adverse impacts are unlikely to occur.

SECTION 7

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Appendix A
Desert Tortoise Relocation and Translocation Plan

DRAFT

DESERT TORTOISE RELOCATION/TRANSLOCATION PLAN FOR THE RICE SOLAR ENERGY PROJECT

MARCH 6, 2010

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DRAFT DESERT TORTOISE RELOCATION/TRANSLOCATION PLAN FOR THE RICE SOLAR ENERGY PROJECT

1.0 BACKGROUND

1.1 PROJECT DESCRIPTION AND SETTING

Rice Solar Energy, LLC, (RSE) a wholly owned subsidiary of Solar Reserve, LLC, proposes to construct, own, and operate the Rice Solar Energy Project (RSEP or project). The RSEP will be a solar generating facility located on a privately owned site in unincorporated eastern Riverside County, California. The project will be capable of producing approximately 450,000 megawatt hours (MWh) of renewable energy annually, with a nominal net generating capacity of 150 megawatts (MW).

The facility will use concentrating solar power (CSP) technology, with a central receiver tower and an integrated thermal storage system. The RSEP's technology generates power from sunlight by focusing energy from a field of sun-tracking mirrors called heliostats onto a central receiver. Liquid salt (The salt is a mixture of sodium nitrate, a common ingredient in fertilizer, and potassium nitrate, a fertilizer and food additive. These mineral products will be mixed onsite as received directly from mines in solid crystallized form and used without additives or further processing other than mixing and heating), which has viscosity and appearance similar to water when melted, is circulated through tubes in the receiver, collecting the energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it can be stored with minimal energy losses. When electricity is to be generated, the hot salt is routed to heat exchangers (or steam generation system). The steam is then used to generate electricity in a conventional steam turbine cycle. After exiting the steam generation system, the salt is sent to the cold salt thermal storage tank and the cycle is repeated. The salt storage technology was demonstrated successfully at the U.S. Department of Energy-sponsored 10-MW *Solar Two* project near Barstow, California, in the 1990s.

1.2 PROJECT COMPONENTS

The RSEP design incorporates the following principal elements.

- Heliostat field with up to 17,500 tracking heliostats, each approximately 24 feet tall by 28 feet wide, arranged in a circular array that will reflect and concentrate the sun's energy onto a tower-mounted receiver. A 1,410-acre project area will be fenced and will contain the administration area, heliostat field, administration area, and evaporation ponds.
- A concrete central tower approximately 540 feet tall, upon which is mounted a receiver approximately 100 feet tall topped with a small maintenance crane, for an overall structure height of 653 feet
- A liquid salt storage system featuring insulated "hot" and "cold" salt storage tanks
- A steam turbine generator system rated at 150 MW (net)
- A 20-cell ACC to provide water-free cooling and condensing of the steam turbine exhaust
- A 10-mile, 230-kilovolt (kV) generator tie-line to connect the RSEP with the existing Western Area Power Administration (Western) Parker-Blythe transmission line (The new tie-line has been routed along existing dirt roads for approximately 5.4 miles and will require minimal

construction of approximately 4.6 miles of single-lane dirt access road for construction and inspection. A new interconnection substation [approximately 3 acres in size] for the tie-in to Western's system will be constructed adjacent to the existing transmission line. The generator tie-line will cross land managed by the Bureau of Land Management [BLM].)

- Extension of the existing low-voltage power distribution network spanning about 1 mile, including a span of less than 200 feet across BLM land, to supply ancillary facilities
- Two onsite water wells to provide water for heliostat washing, steam cycle makeup and other process uses in an amount not expected to exceed 180 acre-feet per year
- Three lined evaporation ponds of approximately 5 acres each to capture all process wastewater discharge from the project's water treatment system, process blowdown, and stormwater drainage from within equipment areas
- Stormwater drainage features to channelize offsite stormwater flows from upstream of the project site, diverting offsite stormwater around the project site, and rejoining the natural flow channels to the south of the property
- Two emergency diesel generators and associated equipment to supply emergency backup power for the safe shut-down and protection of vital equipment and facilities
- Onsite fire protection facilities, which consist of two sets of electric-motor-driven and diesel-engine-driven fire pumps and related fire detection and protection equipment
- Various buildings for project control room, administration offices, maintenance and storage, and crew comfort facilities
- Physical security systems including fencing, closed-circuit television, and other means to protect against unwanted entry consistent with electric utility and Department of Homeland Security requirements

1.3 PROJECT LOCATION

The RSEP site is a privately owned parcel located in eastern Riverside County. The site is adjacent to State Route (SR) 62, which parallels a portion of the Arizona-California Railroad and the Colorado River Aqueduct, near the junction of SR 62 and Blythe-Midland Road, and near the sparse remains of the abandoned town of Rice, California. The nearest occupied residence is approximately 15 miles northeast at the rural crossroads community of Vidal Junction, California. The nearest town is Parker, Arizona (population 3,181), approximately 32 miles east. A small permanent residential settlement is located at the Metropolitan Water District of Southern California's Iron Mountain Pumping Project, approximately 17 miles west.

The RSEP is within a larger, privately owned holding that is 3,324 acres (the ownership property). Within this larger property, the RSEP is sited within a new square-shaped parcel (the project parcel) that will be created by merging what are currently four different assessor's parcels, each of them a discrete section (square mile) of land, resulting in a single 2,560-acre parcel. Within this project parcel will be the administration buildings area, heliostat field with power block, and evaporation pond areas, (collectively, the project site or facility site) totaling 1,410 acres, that will be surrounded by a security fence. Areas outside the facility site but within the project parcel will not be fenced or developed or disturbed as part of the RSEP.

1.4 SCHEDULE

RSE is filing this Application for Certification (AFC) under the California Energy Commission's (CEC) standard certification process. Construction of the project is planned to begin in spring 2011, assuming all necessary permits have been received. Based upon an anticipated construction period of approximately 30 months, commercial operation is targeted for October 2013. RSE executed a Power Purchase Agreement (PPA) with PG&E in December 2009 for 100 percent of its electricity production. The PPA is currently under review for approval by the California Public Utilities Commission.

Construction of the generating facility, from site preparation and grading to commercial operation, is expected to take place from the first quarter of 2011 to the third quarter of 2013 (30 months total). Major milestones are listed in Table 1.

Table 1. Project Schedule Major Milestones

Activity	Date
Begin construction	First Quarter 2011
Begin startup and testing	First Quarter 2013
Begin commercial operation	Third Quarter 2013

There will be a peak workforce of approximately 438 construction craft people, supervisory, support, and construction management personnel on-site during construction. The peak construction site workforce level is expected to occur between months 8 and 20.

Construction activities will generally occur between 5 a.m. and 7 p.m. on weekdays and Saturdays. Construction at times may take place on a 24-hour, 7-day-per-week basis to make up schedule deficiencies, to work around extreme mid-day heat during summer months and other extreme weather events, or to complete critical construction activities (e.g., pouring concrete at night during hot weather, working around time-critical shutdowns and constraints). During the commissioning phase of the project, some limited work activities may continue around the clock.

Table 2 provides an estimate of the average and peak construction traffic during the 30-month construction period for the project and associated linear facilities.

Table 2. Average and Peak Construction Traffic

Vehicle Type	Average Daily Trips	Peak Daily Trips
Construction Workers	306	438
Deliveries	51	90
Total	**357**	**528**

The construction laydown and parking areas will occupy those areas of the project site that are both inside and outside the edges of the heliostat fields. Construction access will be from SR 62 to the project entrance road. All materials and equipment will be delivered to the site by truck.

The RSEP will receive deliveries of materials from local, regional, and some international points of origin including bulk commodity materials, engineered equipment and machinery, and general construction materials. The RSEP site is not currently served by rail. The RSEP will rely on transport by truck for the final delivery of materials to the site including those materials that are brought into the region by rail or ship. These materials will be trans-loaded onto trucks at various ports and depots for delivery to the site.

Heavy and oversized loads will be delivered using trucks and trailers equipped to handle these specialized loads. Oversized loads will be individually permitted to transport each such load to the site. Heavy and oversized loads are typical of a common power project or process facility and may include items such as the step-up transformer, the solar receiver panels, steam turbine, generator, tanks and certain heavy equipment.

The RSEP site is approximately 40 miles from Blythe, 65 miles from Needles, and 75 miles from Twentynine Palms. Major cities in the surrounding region include Yuma, Arizona, (85 miles), San Bernardino, California (140 miles), Phoenix, Arizona (150 miles), Riverside, California (172 miles), and Las Vegas, Nevada (200 miles). The port of Long Beach is 235 miles from the RSEP.

Given the remote location of the project site, regional truck deliveries may be routed to the RSEP from Interstate 10 and Interstate 40, accessing the site via US 95, Desert Center Road, and SR 62. It may be possible to route some deliveries into the local area via rail and off-load the deliveries onto drayage trucks at nearby, existing rail sidings close to the site. If this proves possible, this may reduce by some amount the quantity and or frequency of long-haul truck trips and may ease traffic burden on surrounding highways and through local communities.

Also because of the remote location of the site, RSE will make available a construction workforce RV/trailer parking camp on the project site near the parking and laydown areas at the north end of the heliostat field. The workforce camp will offer spaces for up to 300 trailers or RVs (in keeping with the county requirement that limits trailer parks to 20 per acre), electrical hookups, and mobile water and sanitary sewer service for the trailers and RVs.

Desert Tortoise Habitat

The desert tortoise is listed as a threatened species by both State and federal governments (California Department of Fish and Game 2006).

During the spring of 2009 a US Fish and Wildlife Service (USFWS) protocol desert tortoise *(Gopherus agassizii)* presence or absence survey was conducted on the proposed 2,560 acre RSEP site. It should be noted that the proposed collective footprint for the project site is 1,410 acres. The project area is relatively flat and ranges in elevation from 730 to 935 ft (south to north) above mean sea level. The geomorphology of the RSEP area is lower bajada with predominantly sandy loam soils, with shallow braided drainages that rarely flow. The vegetation is characterized by a creosote-bursage desert bush scrub vegetation community. A well-defined wash to the northeast of the fenced site boundary runs northwest to southeast receiving drainage from the bajada north of the aqueduct. This wash contains smoke trees (*Dalea spinosa*), paloverde (*Cercidium floridum*) and ironwood (*Olneya tesota*). The asphalt/oil and gravel airstrip that was once on the site is barely recognizable as Creosote bush (*Larrea*

tridentata) and Burrobush (*Ambrosia dumosa*) have recolonized the area. Shrub cover is relatively low, and in some areas homogenous creosote. Common under story species include plantain (*Plantago ovata*), pebble pincushion flower (*Chaenactis carphoclinia*), split grass (*Schismus* sp.), and desert dandelion (*Malacothrix glabrata*).

Most common human impacts within the project area are dirt roads and the abandoned air field. There is minimal litter or OHV activity in the area. The overall habitat condition is fair. The entire main site as well as the surrounding area is suitable desert tortoise habitat.

Desert Tortoise Occurrence in the Project Area

On the main project site, 1 tortoise was detected as well as 16 shell-skeletal remains, 7 burrows, 13 scat events, and 2 locations with egg shell fragments (Figure 2). All but one scat event occurred this year. Thirteen of the shell-skeletal remains were over four years since time of death. Two were between two and four years since time of death and one died within the last year.

Surveys of the ZOI (zone-of-influence) transects for both the main site and a proposed transmission line produced a considerable amount of tortoise sign. Six tortoises (3 within RSEP ZOI, 1 along Transmission line, and 2 along Transmission line ZOI) were located, as well as 66 shell-skeletal remains, 52 burrows, 35 scat events, and 1 location with egg shell fragments. All but eleven scat events occurred this year. Forty-six of the shell-skeletal remains were over four years since time of death. Fifteen were between two and four years since time of death. One was between one and two years since time of death, and one died within the last year. Details of the 2009 spring surveys can be found in the RSEP AFC.

2.0 PURPOSE OF THE PLAN

The purpose of this relocation/translocation plan (Plan) is to provide direction for the removal of tortoises from harm's way on the Project site during all Project phases. For the purposes of this Plan, the following terminology is used:

- Relocation – Moving a tortoise out of harm's way to a point within that tortoise's home range.
- Translocation – Moving a tortoise out of harm's way to a point distant from the tortoise's home range

Generally, males have been shown to have larger home ranges than females in studies of sufficient length and sample size (O'Connor et al. 1994; TRW 1999), approximately 43.5 acres (range: 4.7–143.3 acres) (17.6 ha; range: 1.9–58.0 ha) for adult females and 111.6 acres (range: 10.4–487.8 acres) (45.2 ha; range: 4.2–197.5 ha) for males, in a three-year study when tortoises were recaptured at least 50 times/year (TRW 1999). Studies of shorter duration or with a smaller sample size found smaller home ranges (e.g., Burge 1977, Barrett 1990, O'Connor et al. 1994, Duda et al., 1999). Home ranges for both genders (Duda et al, 1999) or for males only (TRW 1999) decreased significantly in drought years.

This Plan first addresses desert tortoise relocation or translocation during Project construction activities, Project operations, and Project decommissioning, including final site restoration. The Plan then describes general procedures applicable to all tortoise relocations/translocations (data collected on all tortoises, temperature considerations, tortoise transportation, authorized handlers, monitoring). The Plan also discusses options that may occur based on the timing of construction. This Plan does not discuss

other actions associated with tortoise protection (clearance surveys, construction monitoring, fence monitoring, reporting) that are or will be fully discussed in the AFC, California Endangered Species Act (CESA) 2081 application, and federal Biological Assessment.

3.0 RELOCATION/TRANSLOCATION DURING SPECIFIC PROJECT PHASES

3.1 Temperature Considerations

In general, it is unwise to translocate tortoises in seasons when daily ground temperatures exceed 109°F (mid-April through early October) because tortoises must find new refuges in unfamiliar areas, with the added pressure of lethal daily temperatures. Karl (1992) and Zimmerman *et al.*(1994) observed that 109°F was the approximate surface temperature at which tortoises must go underground to escape heat. During each Project phase discussed below, options are provided for relocating/translocating tortoises found at ground temperatures exceeding 109°F.

3.2 Construction Phase

Tortoise relocation/translocation that is necessary during Project construction may occur during Project site clearance, initial perimeter fence construction, utilities' construction, diversion channel construction, revegetation of temporarily disturbed areas or initial grading on the project site. Based on the 2009 survey results, it is anticipated that fewer than five desert tortoises would require removal from the main project area.

Clearance on linear facilities may occur at any time of the year. Measures for relocation/translocation within the Project site boundary are based on either:

1. Project site perimeter fencing beginning in the winter, with tortoise clearance and relocation/translocation occurring the following late March and early April, or

2. Project site perimeter fencing beginning in the fall, with tortoise clearance and relocation/translocation occurring in later October or early November.

Should this schedule change, then other options will be employed to ensure that tortoises are safe during construction, clearance, and relocation/translocation procedures. These alternatives will be approved by the resource agencies prior to their implementation.

Perimeter Fencing

During Project site perimeter fencing, tortoises found in burrows will be avoided, and the burrow fenced with high visibility fencing and monitored. If a tortoise in a burrow cannot be avoided, and tortoises are still in hibernation, then an artificial burrow that replicates the capture burrow (location relative to a shrub, direction, length) will be constructed 100 ft from the capture burrow. The tortoise will be captured at night and placed in the artificial burrow along with soil and scat from the capture burrow. The tortoise will be blocked into the burrow for no more than two weeks (unless the weather warms, in which case the barriers will be removed) and then monitored to ensure that it either remains in the burrow or finds another burrow. If the tortoise attempts to find another burrow

but is unsuccessful, and the nighttime air temperatures fall below approximately 35º F, then the tortoise will be captured, held in a climate-controlled, dark, quiet, and safe location (e.g., Project office closet), until temperatures warm and tortoises are observed to be active in the area. At that point, it will be released within 100 ft of its capture burrow and monitored as described in Section 4.4, below. If necessary, temporary fencing will be erected to keep the tortoise out of the construction area.

Project Area

During tortoise clearance surveys (following Project site perimeter fencing and prior to any surface disturbance) and during initial vegetation removal on the Project site, any tortoise found will be placed outside the Project site's perimeter fence on suitable habitat (i.e., along the south, east, and west sides of the Project area), as close to the capture location as possible. Tortoises will be placed onto adjacent private lands owned by RSE or BLM abutting the Project area (Figure 2). Lands owned by RSE outside the construction area but adjacent to the construction area will be proposed as a conservation easement. Based on the 2009 surveys and habitat, it is highly likely that any tortoises found on the Project site would be close to the Project site borders, so moving them outside the fence would constitute relocation. All tortoises would be placed in the shade of a shrub and monitored as described in Section 4.4, below.

Although unlikely (based on sign found during spring surveys), a possibility exists that a tortoise might be found further inside the Project site boundary and would have established a home range inside the Project area. Such a tortoise will be translocated to the nearest suitable habitat outside the Project site, consistent with relocation described above. In this circumstance, however, an artificial burrow will be constructed into which the tortoise would be released. The artificial burrow will be at least 1.5 meters long and constructed using a gas-powered auger or shovel/plywood, per the Desert Tortoise Council (1994) guidelines.

Because most tortoises are likely to be relocated, carrying capacity is not an issue. However, even a few translocated tortoises would not create carrying capacity pressure. Tortoise populations are currently well below carrying capacity throughout their documented range due to a long-term drought and other factors (Karl 2004, McLuckie et al. 2006, Boarman et al. 2008).

Based on the Project construction schedule, tortoises would be relocated/translocated from the Project area during area clearance, when daily ground temperatures are below 109°F. However, the possibility exists that a tortoise could be found when ground temperatures exceed 109°F. In such cases, the following options will be employed at the Authorized Biologist's (AB; see Section 4.3, below) discretion. A summary of these activities is found in Table 3.

- *If a tortoise is >125mm in carapace length and is found under a shrub*, a small transmitter (e.g., Holohil R1-2B) can be taped to the rear carapace (to avoid interference with normal movements) with duct or sports tape, and the tortoise released at the capture area. Alternatively, and for smaller tortoises, the tortoise can be secured in an individual, sterilized box and placed in a quiet, climate-controlled environment (e.g., the on site Project office). Adult tortoises that are either transmittered or held temporarily due to ambient temperatures will be released in the late afternoon/early evening of the same day, when ambient temperatures subside. Juvenile tortoises, which are highly subject to depredation by canids, badgers, and ravens, will be

released in the early morning to minimize depredation. Relocated tortoises would be released to a shrub; translocated tortoises would be released to an artificial burrow. All transmittered or boxed tortoises will be monitored periodically during the day to ensure their safety.

- *If a tortoise is found in a burrow,* either of the above options is applicable. A third option is to erect a temporary pen around the tortoise and burrow. The pen would be constructed of 1- by 2-inch mesh or other, adequate temporary fencing (e.g., silt fencing), and would be several meters across. The tortoise will be relocated or translocated when temperatures subside, as above. All transmittered, boxed, or penned tortoises will be monitored periodically during the day to ensure their safety.

Table 3. Alternatives for relocating or translocating tortoises found at temperatures above 109ºF.

Project Phase	Project Activities	Alternatives for Relocation/Translocation	
		Tortoise Found Under Shrub	**Tortoise Found In Burrow**
Construction	Project site clearance, initial vegetation removal from Project site	• Temporarily affix transmitter; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor	• Temporarily affix transmitter; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor • Erect pen around burrow; release late afternoon; monitor
	Construction of Project site perimeter fence, linear facilities, and drainage channels; revegetation of temporarily disturbed areas	• Relocate to a shrub or burrow • Erect pen around burrow; release late afternoon; monitor	• Erect pen around burrow; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor
Operations	Project site	• Hold in climate-controlled facility; release late afternoon; monitor	
	Access road, utilities' maintenance	• Allow tortoise to proceed out of area unimpeded	
Decommissioning	Project site decommissioning and area restoration	• Relocate to a shrub or burrow • Erect pen around burrow; release late afternoon; monitor	• Erect pen around burrow; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor

In all cases, relocated/translocated tortoises will be monitored as described in Section 4.4, below, following their release.

Relocating Tortoises near SR 62

The northern side of the Project site borders SR 62. The increased traffic from project construction has the potential to place tortoises at a greater risk for road injury/mortality. Tortoises that are relocated/translocated may have increased movement searching for shelter or food or known territory. In order to minimize risk to any animals moved off the Project site that are found within 1 mile of SR 62, a temporary transmitter will be affixed and the tortoise tracked until the AB is satisfied that the tortoise

has settled into its new area. Any tortoises found pacing the Project perimeter fence that travel towards and onto Hwy 62 will also be transmittered and monitored until they settle into a safe area.

Linear Facilities and Project Site Fence Construction, Revegetation of Temporarily Disturbed Areas

Construction of the perimeter fence, transmission line, access roads, and revegetation of temporarily disturbed areas may occur in unfenced, native habitat. Tortoises that need to be relocated from construction zones will be placed outside the construction zone but on the Project's linear right-of-way (ROW) components. (It is generally appropriate that any tortoise removed from utility ROWs or fence construction areas be placed 100-200 feet away or outside a known or suspected burrow for that tortoise (it is anticipated that the Biological Monitors would have found and mapped most burrows close to the ROWs). This distance would be within the home range of any tortoise found on the ROW but sufficiently far from construction activity for minimal disturbance to the tortoise from construction activities. It would also be close enough that if the tortoise had been placed on the wrong side of the ROW, it would not be too far for the tortoise to travel to reach its normal activity areas. However, unless permission can be obtained to place tortoises on private or public lands, they must be removed only as far as the edge of the Project right-of-way. All tortoises will be placed in the shade of a shrub or in the tortoise's known burrow and monitored as described in Section 4.4, below. It is possible that a tortoise might attempt to re-enter an unfenced construction zone (for example, during fence construction), in which case a temporary fence could be erected to exclude the tortoise to increase its safety.

All tortoises needing to be moved during the construction of linear facilities and the Project area fence will be relocated to familiar areas within their home ranges, where burrows are well known. As such, relocation can occur when ground temperatures exceed 109°F using the following alternatives:

- *If a tortoise is found under a shrub*, at the AB's discretion it may be moved to another shrub or known burrow for that tortoise. Alternatively, a temporary pen can be erected around the tortoise and shrub and flagged to ensure avoidance. The pen would be constructed of 1 by 2-inch mesh or other, adequate temporary fencing (e.g., silt fencing). The pen would be removed later in the day when the tortoise could be safely moved or allowed to move away from the construction area of its own accord. All penned tortoises will be monitored adequately to ensure their safety.
- *If a tortoise is captured in a burrow*, it can be penned as described above and then put outside the pen in the late afternoon/early evening. If it is either impractical to pen the tortoise or it cannot be avoided by construction activities, then it will be held in a climate- controlled location (e.g., Project office) and released in the early evening after temperatures fall below 109°F.

If Project site perimeter fencing or linear facilities' construction occurs during winter (e.g., Winter 20 10/1 1), tortoises found in burrows will be avoided, and the burrow fenced with high visibility fencing and monitored. If a tortoise in a burrow cannot be avoided, and tortoises are still in hibernation, then an artificial burrow that replicates the capture burrow (location relative to a shrub, direction, length) will be constructed 100 ft from the capture burrow. The tortoise will be captured at night and placed in the artificial burrow along with soil and scat from the capture burrow. The tortoise will be blocked into the burrow for no more than two weeks (unless the weather warms, in which case the barriers will be removed) and then monitored to ensure that it either remains in the burrow or finds another burrow.

If the tortoise attempts to find another burrow but is unsuccessful, and the nighttime air temperatures fall below approximately 35ºF, then the tortoise will be captured, held in a climate-controlled, dark, quiet, and safe location (e.g., Project office closet), until temperatures warm and tortoises are observed to be active in the area. At that point, it will be released within 100 ft of its capture burrow and monitored as described in Section 4.4, below. If necessary, temporary fencing will be erected to keep the tortoise out of the construction area.

In all cases, relocated/translocated tortoises will be monitored as described in Section 4.4, below, following their release.

Diversion Channel Construction

Construction of the diversion channels that re-route water around the Project area will occur within the area protected by the temporarily tortoise fence. The temporary tortoise fence will be placed beyond the limits of all construction. The permanent tortoise fence will be located along the base of the security fence.

Nest Relocation

Any nests found between November 1 and April 15 are unlikely to be viable and will not be moved. Hatching will probably be finished by October. In the event that nests are found between April 15 and October 1 and must be moved (e.g., for construction of linear facilities), the nests will be moved. Eggs would be inspected to determine if they are viable and, if so, will be moved to an identical micro-area (e.g., cover, project species, soil type, substrate, aspect) on BLM land or adjacent RSE owned lands using standard techniques (e.g. Desert Tortoise Council, 1994). Translocated nests will be fenced with open-mesh fencing (e.g. 2-inch wide mesh) that will permit hatchlings to escape but prevent depredation by canids that might be attracted to the new nests by human scent. Open-mesh fencing or avian netting also will be installed on the roof to prevent predator entry. Nests will be monitored from a 30-foot distance once a month until late November, at which time they will be excavated for examination. If possible, hatchlings will be weighed, measured, photographed, described and marked.

3.3 Operations Phase

Because on-site shrubs will be clipped over much of the heliostat field, there will be few areas where a tortoise could reside on site. Therefore, any tortoise found during Project operations likely will have entered the site through a gate or breach in the fence. It is likely, although not impossible, that any tortoise found during Project operations would not yet have constructed a burrow and would have entered the area only recently. Any such tortoise would be relocated to the nearest suitable habitat outside the fence on BLM land or adjacent RSE owned lands. Because any tortoise found inside the Project site is likely to be a transient, it is anticipated that the tortoise would seek a familiar burrow when released outside the Project area. All tortoises would be placed in the deep shade of a large shrub and monitored, as described in Section 4.4, below, to ensure their safety.

In the event that surface temperatures are in excess of 109°F, the tortoise will be secured in an individual, sterilized box and placed in a quiet, climate-controlled environment (e.g., the on-site Project office). The tortoise will be released in the late afternoon/early evening of the same day, when ambient temperatures subside. Juvenile tortoises will be released in the early morning to minimize depredation.

All transmittered or boxed tortoises will be monitored periodically during the day to ensure their safety, and following release, according to Section 4.4, below.

Tortoises observed on the utility corridors during inspection activities or along the main access road by personnel leaving or entering the Project will not be disturbed or handled and will be allowed to move away of their own accord. Any maintenance that required surface disturbance or heavy equipment would require the same protection measures as for construction.

3.4 Decommissioning Phase

During the Project decommissioning phase, activities will take place both inside fenced areas and in unfenced native habitat. Techniques provided above for tortoise relocation during linear facilities' construction would apply to decommissioning activities. Newer information will be incorporated as appropriate to optimize tortoise relocation.

4.0 PROCEDURES APPLICABLE TO ALL RELOCATIONS/TRANSLOCATIONS

4.1 Data Gathered on Relocated/Translocated Tortoises

Each captured tortoise will be processed prior to relocation/translocation. The gender, carapace length, distinguishing morphology, clinical signs of disease, capture area location and description, release area location and description, and the amount of void, if any, will be recorded and the tortoise photographed and drawn. All tortoise handling will be accomplished by approved techniques (e.g., Desert Tortoise Council, 1994), incorporating newer research for minimization of disease transmission (e.g., Brown 2003). Each tortoise will be assigned an individual number. Marking techniques will be approved by USFWS, but temporary marks using very small epoxy numbers with a project-specific identifier are suggested. Such numbers will last for several years, long enough to be able to identify specific tortoises if subsequently observed during Project activities, in particular construction activities, wherein a tortoise could re-enter an unfenced construction zone, on the linear facilities, for instance.

4.2 Tortoise Transportation

Most tortoises will be captured sufficiently near the fence or release area to be hand-carried to the release area. Each tortoise that is hand-carried will be kept upright and the handler, wearing disposable examination gloves (one pair per tortoise), will move the tortoise as quickly and smoothly as possible. Tortoises kept in a climate-controlled situation due to temperature considerations or captured further from the release area will be transported to their release areas in individual, sterilized tubs or boxes with taped, sterilized lids. If transported by vehicle, the tortoise tub will be kept shaded during transport and the tub will be placed on a well-padded surface, not over a heated portion of the vehicle floor.

4.3 Authorized Handlers

USFWS (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt) describes a single designation for biologists who can be approved to handle tortoises - "Authorized Biologist." Such biologists

have demonstrated to USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately. Authorized Biologists are permitted to then approve specific monitors to handle tortoises, at their discretion. The California Department of Fish and Game (CDFG) must also approve such biologists, potentially including individual approvals for monitors approved by the Authorized Biologist. Notwithstanding that the California Energy Commission only has designations for "Designated Biologist" and "Biological Monitor," only those biologists authorized by USFWS and CDFG, presumably including the Designated Biologist and certain Biological Monitors, can handle desert tortoises.

4.4 Post-Release Monitoring

All tortoises moved, whether during initial fence construction, from the Project area, during construction for linear facilities, or later, will be monitored sufficiently to ensure their safety.

This is especially critical for juvenile tortoises, which are highly subject to depredation. Any tortoise moved will be watched for at least two hours to determine if it is behaving safely or if it is likely to try and re-enter the construction area (during fence construction or for utility corridors). In addition to the initial monitoring at release, in any instance where a tortoise is relocated outside a tortoise exclusion fence, that release location and surrounding area will be monitored for at least the next two days during tortoise activity temperatures (i.e., <43ºC ground surface temperature [Karl 1992, Zimmerman *et al.* 1994]) to ensure that the tortoise is not fence-walking. The latter would suggest that the release area had been incorrectly chosen and that release outside a different fence should be attempted (for example, outside the opposite side of the fenced utility corridor, should it be fenced during construction). If moved to another area, the monitoring of the desert tortoise would be initiated.

Tortoises released in the evening due to temperature considerations will be monitored until dark with a resumption of monitoring at dawn. Such tortoises will be watched until they enter a burrow that provides thermal relief and predator protection.

Because the sample size of tortoises relocated/translocated is anticipated to be very low, and because most, if not all, will be released into another part of their current home range, no scientific study is proposed for these tortoises. Because few tortoises currently occupy the Project area, even a tortoise that moves onto the Project site and requires translocation is already highly likely to be familiar with the release area. So, monitoring these few (if any) tortoises for survival appears unwarranted. If determined to be necessary, a short-term monitoring program can be implemented that would include telemetry and a sufficiently frequent monitoring schedule (e.g., for tortoises translocated in the spring: daily for two to three weeks, then twice weekly until the tortoise enters hibernation the following winter; for tortoises translocated in fall: daily until hibernation, then monthly until March 10, then weekly) to identify that the tortoise has established a home range in the translocation area.

4.5 Health Considerations

Because all tortoises removed from the Project site will likely be relocated – i.e., moved into another part of their existing home range – and the number of animals expected to be removed is very few, disease testing is unwarranted. Clinical signs of disease will be recorded during the examination of all tortoises relocated/translocated. Should a clinically ill tortoise be encountered, regulatory agencies will be contacted immediately to determine appropriate action.

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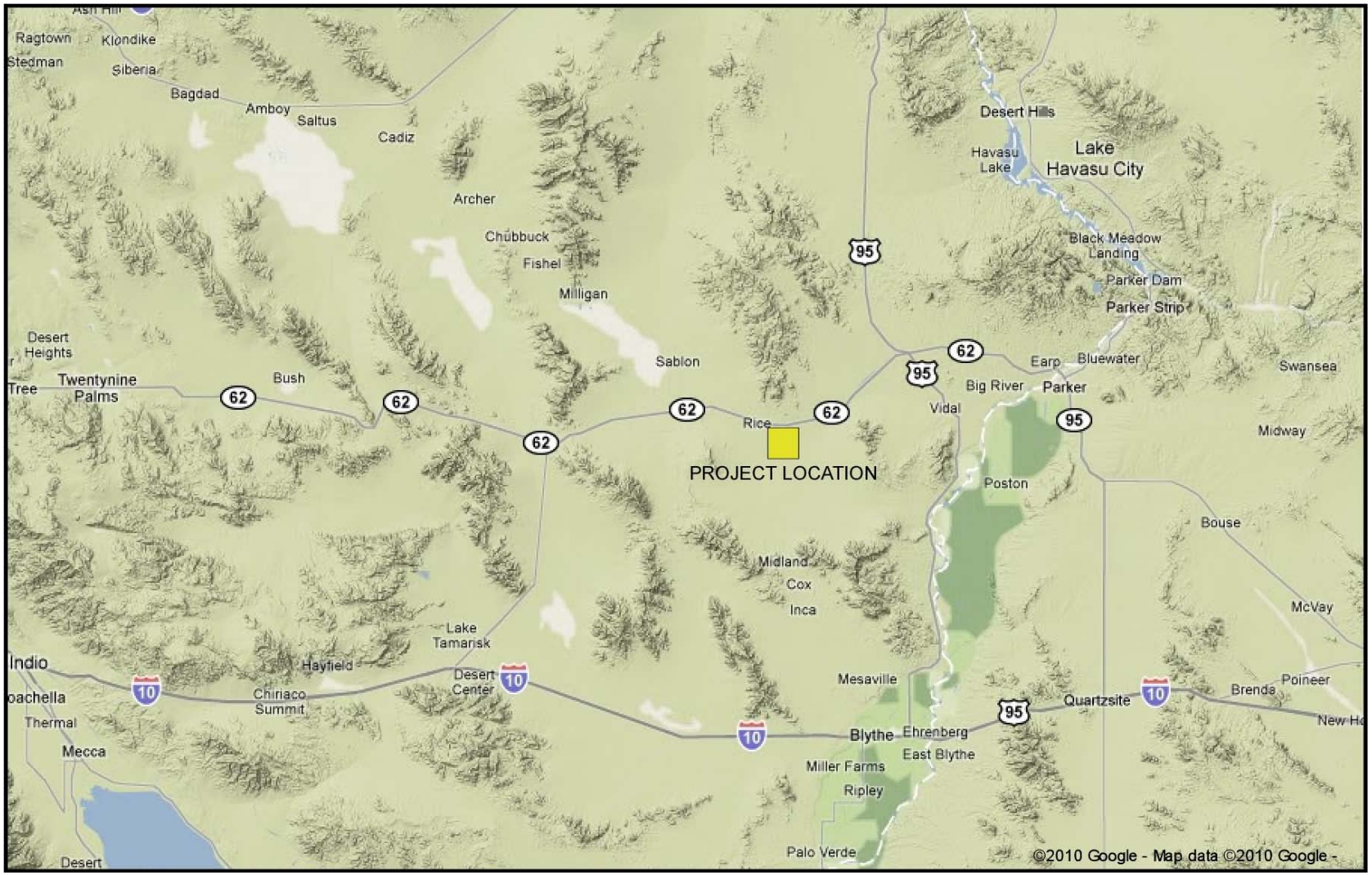

FIGURE 1. RICE SOLAR ENERGY PROJECT GENERAL LOCATION IN EASTERN RIVERSIDE COUNTY, CALIFORNIA.

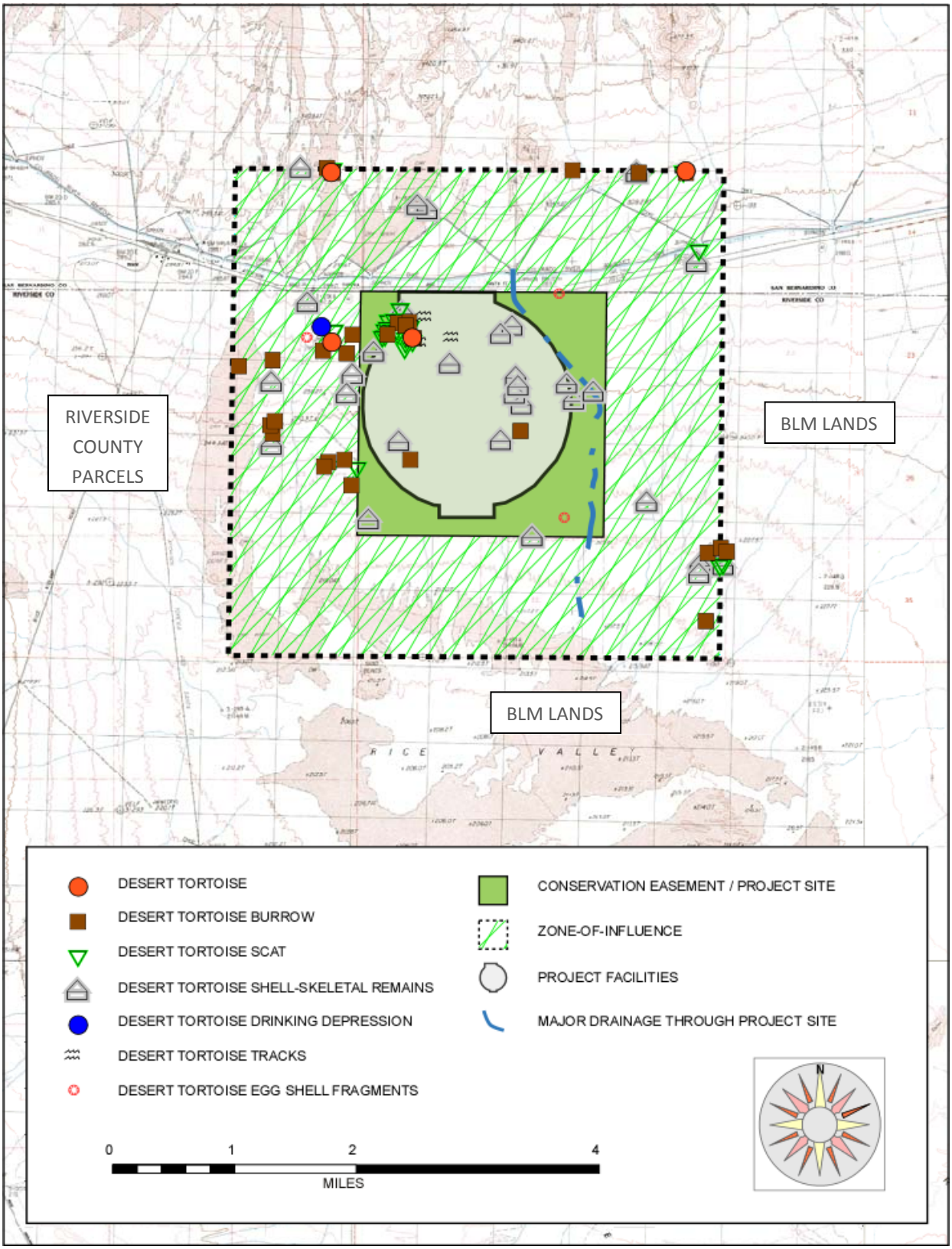

FIGURE 2. DESERT TORTOISE SIGN FOUND ON THE RICE SOLAR ENERGY PROJECT SITE.

Appendix B
Raven Management Plan

DRAFT

RAVEN MANAGEMENT PLAN:

FOR THE RICE SOLAR ENERGY PROJECT

RIVERSIDE COUNTY, CALIFORNIA

March 6, 2010

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1 PROJECT DESCRIPTION

Rice Solar Energy, LLC, (RSE) a wholly owned subsidiary of Solar Reserve, LLC, proposes to construct, own, and operate the Rice Solar Energy Project (RSEP or project). The RSEP will be a solar generating facility located on a privately owned site in unincorporated eastern Riverside County, California. The project will be capable of producing approximately 450,000 megawatt hours (MWh) of renewable energy annually, with a nominal net generating capacity of 150 megawatts (MW).

The facility will use concentrating solar power (CSP) technology, with a central receiver tower and an integrated thermal storage system. The RSEP's technology generates power from sunlight by focusing energy from a field of sun-tracking mirrors called heliostats onto a central receiver. Liquid salt, which has viscosity and appearance similar to water when melted, is circulated through tubes in the receiver, collecting the energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it can be stored with minimal energy losses. When electricity is to be generated, the hot salt is routed to heat exchangers (or steam generation system). The steam is then used to generate electricity in a conventional steam turbine cycle. After exiting the steam generation system, the salt is sent to the cold salt thermal storage tank and the cycle is repeated. The salt storage technology was demonstrated successfully at the U.S. Department of Energy-sponsored 10-MW *Solar Two* project near Barstow, California, in the 1990s.

1.1 PROJECT COMPONENTS

The RSEP design incorporates the following principal elements.

- Heliostat field with up to 17,500 tracking heliostats, each approximately 24 feet tall by 28 feet wide, arranged in a circular array that will reflect and concentrate the sun's energy onto a tower-mounted receiver. A 1,410-acre project area will be fenced and will contain the administration area, heliostat field, administration area, and evaporation ponds.
- A concrete central tower approximately 540 feet tall, upon which is mounted a receiver approximately 100 feet tall topped with a small maintenance crane, for an overall structure height of 653 feet
- A liquid salt storage system featuring insulated "hot" and "cold" salt storage tanks
- A steam turbine generator system rated at 150 MW (net)
- A 20-cellACC to provide water-free cooling and condensing of the steam turbine exhaust
- A 10-mile, 230-kilovolt (kV) generator tie-line to connect the RSEP with the existing Western Area Power Administration (Western) Parker-Blythe transmission line (The new tie-line has been routed along existing dirt roads for approximately 5.4 miles and will require minimal construction of approximately 4.6 miles of single-lane dirt access road for construction and inspection. A new interconnection substation[approximately 3acres in size] for the tie-in to Western's system will be constructed adjacent to the existing transmission line. The generator tie-line will cross land managed by the Bureau of Land Management [BLM].)
- Extension of the existing low-voltage power distribution network spanning about 1 mile, including a span of less than 200 feet across BLM land, to supply ancillary facilities
- Two onsite water wells to provide water for heliostat washing, steam cycle makeup and other process uses in an amount not expected to exceed 180 acre-feet per year

- Three lined evaporation ponds of approximately 5 acres each to capture all process wastewater discharge from the project's water treatment system, process blowdown, and stormwater drainage from within equipment areas
- Stormwater drainage features to channelize offsite stormwater flows from upstream of the project site, diverting offsite stormwater around the project site, and rejoining the natural flow channels to the south of the property
- Two emergency diesel generators and associated equipment to supply emergency backup power for the safe shut-down and protection of vital equipment and facilities
- Onsite fire protection facilities, which consist of two sets of electric-motor-driven and diesel-engine-driven fire pumps and related fire detection and protection equipment
- Various buildings for plant control room, administration offices, maintenance and storage, and crew comfort facilities
- Physical security systems including fencing, closed-circuit television, and other means to protect against unwanted entry consistent with electric utility and Department of Homeland Security requirements

1.2 PROJECT LOCATION

The RSEP site is a privately owned parcel located in eastern Riverside County. The site is adjacent to State Route (SR) 62 (Figure 1), which parallels a portion of the Arizona-California Railroad and the Colorado River Aqueduct, near the junction of SR 62 and Blythe-Midland Road, and near the sparse remains of the abandoned town of Rice, California. The nearest occupied residence is approximately 15 miles northeast at the rural crossroads community of Vidal Junction, California. The nearest town is Parker, Arizona (population 3,181), approximately 32 miles east. A small permanent residential settlement is located at the Metropolitan Water District of Southern California's Iron Mountain Pumping Plant, approximately 17 miles west.

The RSEP is within a larger, privately owned holding that is 3,324 acres (the ownership property). Within this larger property, the RSEP is sited within a new square-shaped parcel (the project parcel) that will be created by merging what are currently four different assessor's parcels, each of them a discrete section (square mile) of land, resulting in a single 2,560-acre parcel. Within this project parcel will be the administration buildings area, heliostat field with power block, and evaporation pond areas, (collectively, the project site or facility site) totaling 1,410 acres, that will be surrounded by a security fence. Areas outside the facility site but within the project parcel will not be fenced or developed or disturbed as part of the RSEP.

1.3 PROJECT CONSTRUCTION

Construction of the generating facility, from site preparation and grading to commercial operation, is expected to take place from the first quarter of 2011 to the third quarter of 2013 (30 months total). Major milestones are listed in Table 1.

TABLE 1. PROJECT SCHEDULE MAJOR MILESTONES

Activity	Date
Begin construction	First Quarter 2011
Begin startup and testing	First Quarter 2013

There will be a peak workforce of approximately 438 construction craft people, supervisory, support, and construction management personnel on site during construction. The peak construction site workforce level is expected to occur between months 8 and 20.

Construction activities will generally occur between 5 a.m. and 7 p.m. on weekdays and Saturdays. Construction at times may take place on a 24-hour, 7-day-per-week basis to make up schedule deficiencies, to work around extreme mid-day heat during summer months and other extreme weather events, or to complete critical construction activities (e.g., pouring concrete at night during hot weather, working around time-critical shutdowns and constraints). During the commissioning phase of the project, some limited work activities may continue around the clock.

Table 2 provides an estimate of the average and peak construction traffic during the 30-month construction period for the plant and associated linear facilities.

TABLE 2. AVERAGE AND PEAK CONSTRUCTION TRAFFIC

Vehicle Type	Average Daily Trips	Peak Daily Trips
Construction Workers	306	438
Deliveries	51	90
Total	357	528

The construction laydown and parking areas will occupy those areas of the plant site that are both inside and outside the edges of the heliostat fields (see Figure 2). Construction access will be from SR 62 to the plant entrance road. All materials and equipment will be delivered to the site by truck.

The RSEP will receive deliveries of materials from local, regional, and some international points of origin including bulk commodity materials, engineered equipment and machinery, and general construction materials. The RSEP site is not currently served by rail. The RSEP will rely on transport by truck for the final delivery of materials to the site including those materials that are brought into the region by rail or ship. These materials will be trans-loaded onto trucks at various ports and depots for delivery to the site.

Heavy and oversized loads will be delivered using trucks and trailers equipped to handle these specialized loads. Oversized loads will be individually permitted to transport each such load to the site. Heavy and oversized loads are typical of a common power plant or process facility and may include items such as the step-up transformer, the solar receiver panels, steam turbine, generator, tanks and certain heavy equipment.

The RSEP site is approximately 40 miles from Blythe, 65 miles from Needles, and 75 miles from Twentynine Palms. Major cities in the surrounding region include Yuma, Arizona, (85 miles), San Bernardino, California (140 miles), Phoenix, Arizona (150 miles), Riverside, California (172 miles), and Las Vegas, Nevada (200 miles). The port of Long Beach is 235 miles from the RSEP.

Given the remote location of the project site, regional truck deliveries may be routed to the RSEP from Interstate 10 and Interstate 40, accessing the site via US 95, Desert Center Road, and SR 62. It may be possible to route some deliveries into the local area via rail and off-load the deliveries onto

drayage trucks at nearby, existing rail sidings close to the site. If this proves possible, this may reduce by some amount the quantity and or frequency of long-haul truck trips and may ease traffic burden on surrounding highways and through local communities.

Also because of the remote location of the site, RSE will make available a construction workforce RV/trailer parking camp on the project site near the parking and laydown areas at the north end of the heliostat field. The workforce camp will offer spaces for up to 300 trailers or RVs (in keeping with the county requirement that limits trailer parks to 20 per acre), electrical hookups, and mobile water and sanitary sewer service for the trailers and RVs.

2 RAVENS (CORVUS CORAX)

The Common Raven is an important predatory species that is hampering the recovery of threatened desert tortoise populations in the western Mojave Desert of California (USFWS 2007, 2008, Boarman 2003). This plan includes a number of stipulations designed to reduce the probability that the Project construction and operations and any area that has a reestablished tortoise population will facilitate an increase in raven presence and their predation on nearby tortoise populations. Measures to mitigate against ravens include annual nest removal in occupied desert tortoise habitat by a qualified biologist in consultation with the California Department of Fish and Game and the United States Fish and Wildlife Service, removal of carrion on the site, storage of garbage in raven-proof containers, and installation of anti-nesting devices on structures where raven nests could be built.

2.1 BACKGROUND

Known as subsidized predators, Common Ravens thrive on human activities (Boarman and Heinrich1999). By providing ample food, water, and nesting and roosting sites, humans have facilitated greater survival thereby greatly increasing the abundance of ravens in the Mojave Desert (Webb et al 2004, Kristan et al. 2004, Kristan and Boarman 2007). The most important human source of food for ravens is garbage, from landfills, dumpsters, and trashcans, but another important source of food is road-killed animals. Ravens appear to need to drink at least once per day and will fly several miles to obtain water (Sherman 1993). Water sources include sewage ponds, agricultural and horticultural irrigation, and puddles of water from leaking faucets, car washes, and other industrial sources. Nesting opportunities for ravens, which usually nests in trees and cliffs, are greatly enhanced by the presence of human structures. These include buildings, communication towers, power pylons, light standards, ornamental trees, shade structures, and billboards (pers. obs.). Ravens also can use any of these structures for communal night roosts, which sometimes serve as sources of information for ravens about locations of local and distant food bonanzas (Marzluff et al. 1996). Because they expect to find many of these resource subsidies near human developments, ravens tend to be attracted to and stay near such sites. The resulting increase leads to considerably more ravens that may venture into the desert and prey on tortoises (Kristan and Boarman 2003), even away from the actual sources of food, water, and nesting substrate.

2.2 RAVEN MANAGEMENT

2.2.1 ANTI-PERCH/NESTING DEVICES

Anti-perch devices will be installed on constructed structures throughout the project area on which raven nesting becomes a concern. The specifications of the anti-perch devices will be chosen to deter

nesting on the various surfaces after construction is complete. Follow up on the anti-perch devices includes two additional measures:

- Periodically check suspected sites of communal night roosts on and adjacent to the site. If several birds are using any roost, hazing methods (particularly using occasional bursts of light and noise) should be devised and deployed.

- Twice each spring, inspect and perhaps alter several specific structures that may be used by ravens for nesting or roosting, including the roof of any operations buildings, corners of fenced areas and power line towers or poles.

2.2.2 Garbage, Water and Carrion

Throughout the Project area all trash that could attract ravens shall be removed from work sites and construction workforce RV/trailer parking camp or completely secured at the end of each work day in raven-proof containers. This includes not only during construction activities, but at any time garbage will be present on site. Any water source on site must be monitored closely. No water of any kind or amount should be left available. Even a small leak could potentially attract ravens and other wildlife. All carrion shall be removed from all work sites. This includes carrion from ground disturbing activities and roads.

2.2.3 Nest and Roost Management within On-Site and adjacent Off-Site Occupied Desert Tortoise Habitat

An aggressive nest and roost management program will be implemented on all occupied tortoise habitat. These areas are defined on-site as the portion of the four square mile project site not developed and off-site within one mile of the project site boundary on public lands (Fig. 2). The reasoning for this is twofold: 1) anti-perch devices would yield almost no benefit to tortoises since ravens hunt primarily from the air and ground (Sherman 1993 and Boarman and Heinrich 1999), and predation risk at the site is likely highest for any tortoise living within one mile of an active raven nest (Sherman 1993, Kristan and Boarman 2003), so removal of nests would remove the areas of greatest risk to tortoises. There are two additional advantages of removing nests. First, if re-nesting does not occur, the number of young birds being raised on the site is reduced. Second, fewer birds will be available to become nesters on the site in the future.

During the fall or winter, all nests from the occupied lands and any area that has a reestablished tortoise population will be removed. In spring, nesting and predation activity will be monitored at any active nests and in areas from which nests were previously removed to document success of removal. It will then be determined if additional nests need to be removed.

2.2.4 Base-line and Long Term Raven Population Monitoring

Prior to construction, base-line data on raven populations on the site and surrounding area will e collected to provide an opportunity to quantify any increase in populations occurring in the region as a result of this project. Point counts surveys to obtain baseline data will be conducted on-site as well as at the sparse remains of the abandoned town of Rice, California two miles west; the rural crossroads community of Vidal Junction, California 15 miles east, and the small permanent residential settlement located at the Metropolitan Water District of Southern California's Iron Mountain Pumping Plant, approximately 17 miles west. These areas may have resident ravens that could be attracted to the project site. Spring nesting activity would be the best time to monitor the raven population (pers. comm. William Boarman 2010).

2.3 METHODS

2.3.1 SITE VISITS

Initial site visits will take place in the fall or winter. The winter visits are primarily to search for and remove (if on the site) new raptor nests and to monitor the status of all nests. The primary focus of the spring visits will be checking for nesting activity at previous nest locations (including where nests had been previously removed) and to thoroughly search the study area for new nests.

2.3.2 PRE-CONSTRUCTION NEST SEARCHING

On each visit all trees within the occupied habitat area will be searched for old and new nests. Raven behavior will be observed to discern if they are exhibiting behaviors typical of breeding birds near their nest. Because of the openness of the desert habitat and from previous experience, this method of searching is effective at locating at least 95% of the nests in an area with road and tree densities similar to that at the project site. UTM coordinates (Datum: NAD-83) will be recorded for each raptor nest and the species of bird using the nest. Species assignments will be based on presence of birds at the nest during the breeding season. Unoccupied nests are assigned to the species that were next seen using the nest or were classified as "unknown" if a bird was never seen. Nests are considered "active" if birds are seen at or in the nest during the breeding season (approximately 15 March through June). Nests are considered "successful" if birds of near-fledgling size were observed in the nest or nest tree at any time (most likely late May through early July). Occasionally, nests may fall naturally or slowly degrade becoming harder to see. These are all classified as "fell on own."

2.3.3 NEST REMOVAL

In winter all raptor nests will be removed within the site and within one mile of the site on public lands. All raptor nests will be removed both because ravens are known to use other raptor nests and because ravens are the dominant raptor species nesting in the area. Nests will be knocked down using a telescoping pole with either a pruning hook or a push broom head attached. An attempt will be made to remove all sticks and twigs that are left behind in the tree as the main nest contents fall. Fallen nest material will be left beneath the nests for three reasons.

- Usually, there is pre-existing debris under the nest tree from earlier nests. In many cases, materials from old nests may be found, sometimes in large quantities, beneath other trees in the area.
- It is thought by some raven biologists that ravens will not use old nest material in newly constructed nests (pers. comm.).
- Old nest material occurs beneath many trees. Collecting all potential nest materials from the ground would be a cumbersome and nearly endless task, especially when pack rats are using sticks for their dens.

2.3.4 NOCTURNAL COMMUNAL ROOSTING BEHAVIOR

Project structures and other potential sites will be visited during evenings to determine if ravens are using them to roost on or exhibit roosting or pre-roosting behaviors. Occasional early evening observations of the entire area will be made for evidence of groups of ravens heading towards any specific spot or general direction.

2.3.5 SEARCHING FOR RECONSTRUCTED NESTS

Repeat searches will be made at all original nest locations and other trees in the vicinity for newly constructed nests throughout the life of the project.

2.3.6 Annual, Long-Term Nest Removal

The nest removal may be more successful if removals are also done during the breeding season. Nothing can be done directly to prevent ravens from nesting in trees other than keeping ravens out of the area altogether, which is a near impossible task, or nest removal, which we have shown reduces the incidence of nesting, but does not eliminate it entirely. Reducing the number of ravens nesting at the site will reduce the number of young generated on the site who can then move off of the site, establish breeding territories, and eventually begin feeding on desert tortoises. An annual program of nest removing would likely involve two 3-day visits each winter to find and remove nests and two 3-day visits each spring to monitor the continued effectiveness of the action at reducing nesting. Currently, the Migratory Bird Treaty Act prohibits removing nests without a special permit when eggs or chicks are present, and such a permit is not easy to obtain. If it is desirable to attempt to obtain a permit, implementing springtime removals would require a minimum of two, and perhaps three additional 2-day visits, but it would almost certainly effectively eliminate most if not all nesting on the site.

2.3.7 Minimize Raven Food Resources

Establish facility management programs to prevent food and water from being available to ravens. Prevent leakage from the waterspout used to fill water trucks. The large number of ravens nesting in the area supports the need for the Project to monitor the use of the site by ravens to ensure no new actions or facilities further facilitate raven nesting or population increases.

2.3.8 Offending Ravens

The USFWS will be contacted immediately should any ravens observed on the Project site be seen or suspected of killing desert tortoises. Tortoise carcasses with evidence of avian depredation beneath a nest or roost site will be noted. The USFWS has the authority to legally dispose of offending ravens.

2.3.9 Base-line Data collection and Long Term Raven Population Monitoring

Point counts will be conducted on-site and off-site in the nearby communities starting in 2010. Point counts will be conducted annually after that in conjunction with spring nest removal activities. In consultation with regulatory agencies adaptive management measures may be implemented should new information come available over the life of the Project.

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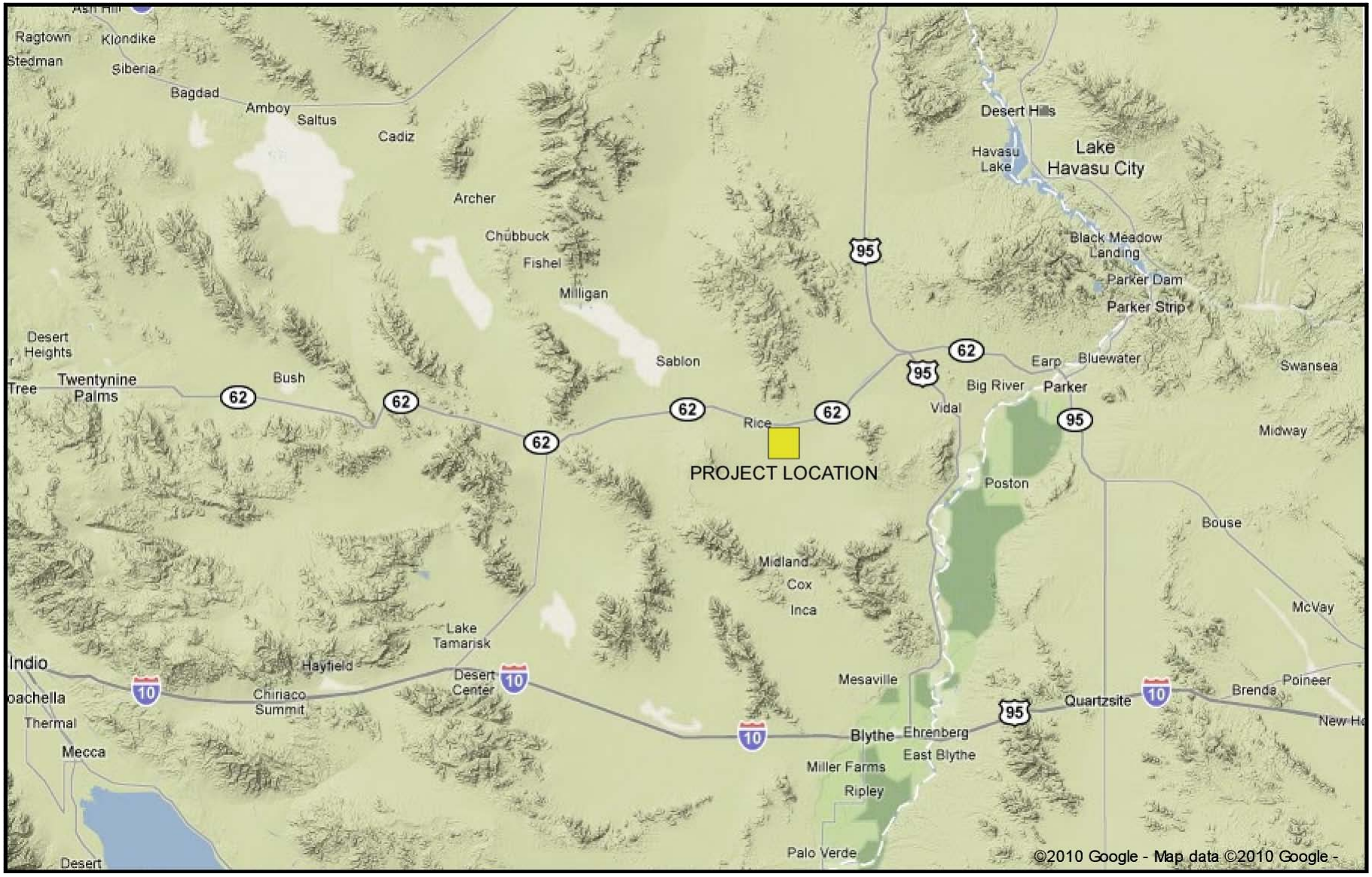

FIGURE 1. PROJECT LOCATION, RICE SOLAR ENERGY PROJECT, EASTERN RIVERSIDE COUNTY, CALIFORNIA

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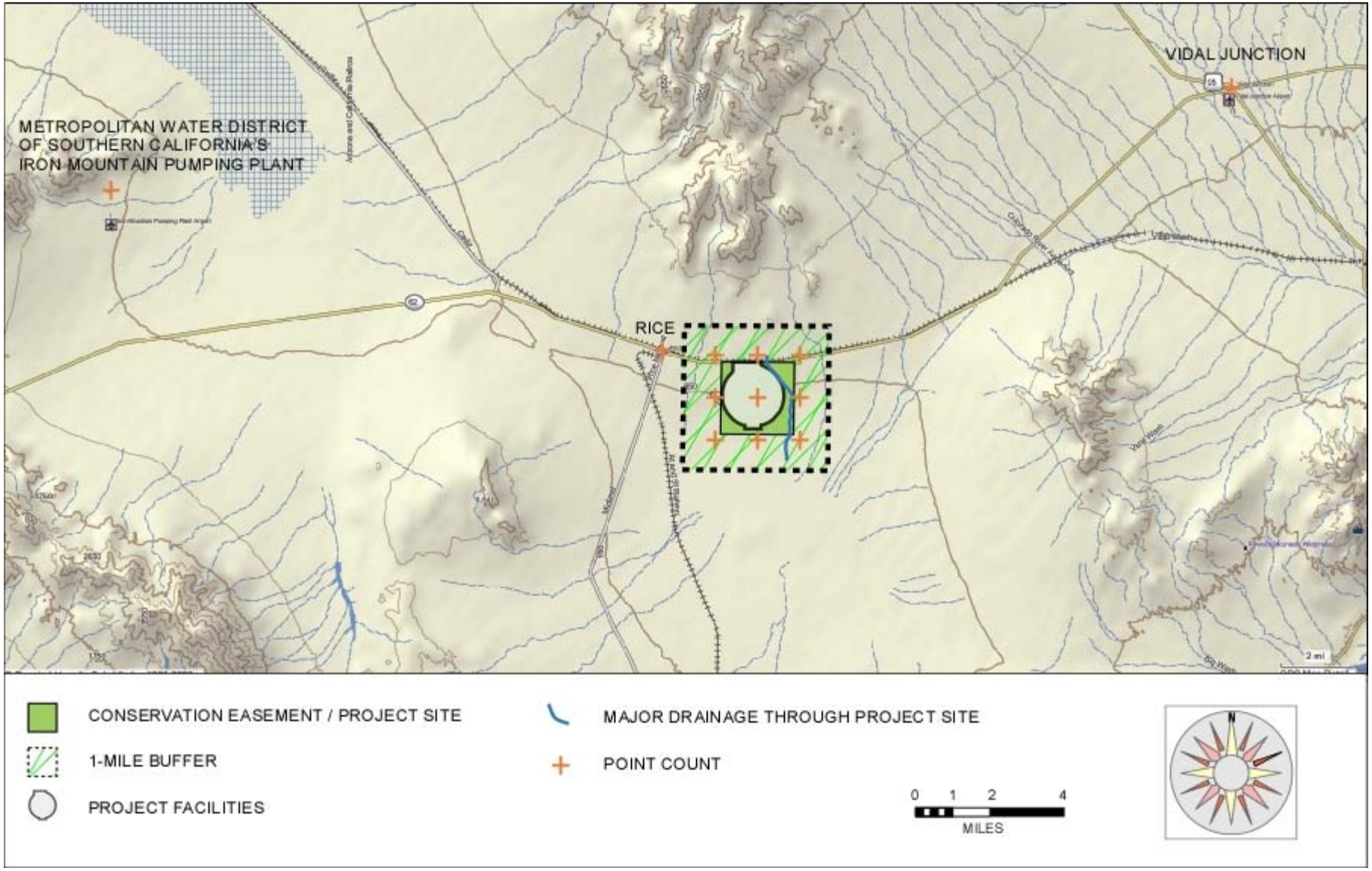

FIGURE 2. PROJECT FEATURES AND POINT COUNT LOCATIONS, RICE SOLAR ENERGY PROJECT, EASTERN RIVERSIDE COUNTY, CALIFORNIA

Appendix C
Incidental Observations of Wildlife Species from the 2009 Desert Tortoise Protocol Surveys of the Project Area

TABLE C-1
Incidental Observations of Wildlife Species from the 2009 Desert Tortoise Protocol Surveys of the Project Area

Scientific Name	Common Name
BIRDS	
Order: Falconiformes	**Hawks and Vultures**
Cathartidae	**New World Vultures**
Cathartes aura	Turkey Vulture
Accipitiridae	**Hawks**
Buteo jamaicensis	Red-tailed Hawk
Falconidae	**Falcons**
Falco mexicanus	Prairie Falcon
Order: Columbiformes	**Doves And Pigeons**
Columbidae	**Pigeons and Doves**
Zenaida asiatica	White-Winged Dove
Order: Strigiformes	**Owls**
Strigidae	**Typical Owls**
Athene cunicularia	*Burrowing Owl*
Order: Caprimulgiformes	**Nightjars**
Caprimulgidae	**Goatsuckers**
Chordeiles acutipennis	Lesser Nighthawk
Phalaenoptilus nuttallii	Common Poorwill
Order: Passeriiformes	**Passerines and Perching Birds**
Laniidae	**Shrikes**
Lanius ludovicianus	Loggerhead Shrike
Corvidae	**Jays, Magpies, and Crows**
Corvus corax	Common Raven
Alaudidae	**Larks**
Eremophila alpestris	Horned Lark
Hirundinidae	**Swallows**
Hirundo rustica	Barn Swallow
Mimidae	**Mimic Thrashers**
Mimus polyglottos	Northern Mockingbird
Parulidae	**Wood-Warblers**
Dendroica townsendi	Townsend's Warbler
Wilsonia pusilla	Wilson's Warbler
Thraupidae	**Tanagers**
Piranga ludoviciana	Western Tanager
Emberizidae	**Emberizids**
Amphispiza bilineata	Black-throated Sparrow
Icteridae	**Blackbirds**
Xanthocephalus xanthocephalus	Yellow-Headed Blackbird
Molothrus ater	Brown-headed Cowbird

TABLE C-1
Incidental Observations of Wildlife Species from the 2009 Desert Tortoise Protocol Surveys of the Project Area

Scientific Name	Common Name
MAMMALS	
Order: Carnivora	**Flesh-Eaters**
Canidae	**Dogs, wolves, and foxes**
Canis latrans	Coyote
Vulpes macrotis	Kit Fox
Order: Lagomorpha	**Pikas, Hares, and Rabbits**
Leporidae	**Hares and Rabbits**
Lepus californicus	Black-tailed Jackrabbit
REPTILES	
Order: Testudines	**Turtles**
Testudinidae	**Land Tortoises**
Gopherus agassizii	Desert Tortoise
Order:Squamata	**Lizards And Snakes**
Iguanidae	**Iguanids**
Callisaurus draconoides	Zebra-tailed Lizard
Dipsosaurus dorsalis	Desert Iguana
Uta stansburiana	Side-blotched Lizard
Crotaphytidae	**Collard and Leopard Lizards**
Gambelia wislizenii	Long-Nosed Leopard Lizard
Teiidae	**Whiptails**
Cnemidophorus tigris	Western Whiptail
Viperidae	**Pit Vipers**
Crotalus cerastes	Sidewinder
Colubridae	**colubrids**
Masticophis flagellum	Coachwhip
Pituophis catenifer	Gopher Snake
Salvadora hexalepis	Western Patch-Nosed Snake