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March 8, 2010

Alan Solomon
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

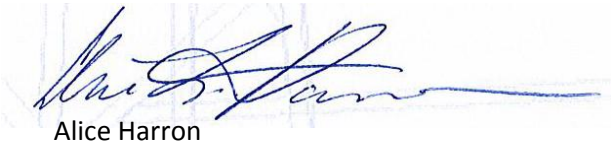
RE: **Palen Solar Power Project, Docket No. 09-AFC-7**
Draft Biological Assessment – Palen Solar Power Project
Technical Area: Biological Resources

Dear Mr. Solomon:

Attached please find the Draft Biological Assessment for the Palen Solar Power Project. This document evaluates the potential effects of the Palen Solar Power Project on species protected under the Federal Endangered Species Act.

If you have any questions on this submittal, please feel free to contact me directly.

Sincerely,



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Draft Biological Assessment

PALEN SOLAR POWER PROJECT

Applicant:

Palen Solar I, LLC
1625 Shattuck Avenue, Suite 270
Berkeley, California 94709

March 2010

AECOM

PALEN SOLAR POWER PROJECT

DRAFT
BIOLOGICAL ASSESSMENT

RIVERSIDE COUNTY, CALIFORNIA



Prepared for:

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March 2010

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1.0 INTRODUCTION

This Biological Assessment (BA) evaluates the potential effects of the Palen Solar Power Project (Project or PSPP) to species protected under the Federal Endangered Species Act (ESA). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Riverside County, California. The Applicant, Palen Solar I, LLC, has submitted an application to BLM for a right-of-way (ROW) grant. The Project will be a 500-megawatt (MW) nominal solar thermal electricity-generating facility using parabolic trough technology. The Project includes installation of two solar power units within an approximately 5,212-acre BLM ROW near the small community of Desert Center, California (Figure 1; see Attachment 1 for all figures). The Project also proposes associated office and maintenance buildings, a laydown area, drainage channels, a bioremediation area, leach fields, a transmission line to a substation that will be constructed, owned and operated by Southern California Edison (SCE), and onsite access roads.

The purpose of this BA is to review the PSPP in sufficient detail to determine the extent to which implementation of the Project may affect any federally listed threatened or endangered species, or designated critical habitats, under the jurisdiction of U.S. Fish and Wildlife Service (USFWS), listed below. This BA is prepared in accordance with legal requirements set forth under Section 7(a)(2) of the ESA (16 U.S. Code [USC] 1536[c]).

2.0 SPECIES CONSIDERED IN THIS DOCUMENT

This document evaluates threatened, endangered, proposed threatened, proposed endangered, or candidate species, as well as any designated or proposed critical habitat, under the jurisdiction of USFWS that have potential to be affected by the proposed action (see Section 6.0, Description of the Proposed Action). A list of species for consideration was compiled based on a letter received on March 19, 2009, from USFWS identifying listed species or critical habitats to be considered in the evaluation of the PSPP (Attachment 2), and a records search of the California Natural Diversity Database (CNDDB) maintained by the California Department of Fish and Game (CDFG) for species or habitats within a 10-mile radius of the PSPP site (CDFG 2009).

The species considered in this document is:

- Desert tortoise (DT) (*Gopherus agassizii*), Threatened

Other species considered for evaluation in this BA include the endangered Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*), known to occur in the region of the PSPP

site. However, the Project does not have the potential to affect this species or its supporting habitat. The nearest known occurrence of the Coachella Valley milkvetch is approximately 7 miles to the west of the Project action area (refer to Section 7.0, Action Area, for a definition) (CDFG 2009). While suitable habitat for the Coachella Valley milkvetch occurs within the action area, no individuals were observed during reconnaissance-level habitat assessments of the entire action area or during focused botanical surveys of suitable habitat conducted between February 11 and April 21, 2009 and on October 8, 2009 (EDAW AECOM 2009a; AECOM 2009a). Additionally, observations by Project botanists at a nearby CNDDB reference population near the Coachella Valley on April 17, 2009, confirmed that this species was flowering during the time period that botanical surveys were conducted in the action area. Hence, this species would have been detected during those surveys, if present within the action area. Therefore, it was concluded that the Coachella Valley milkvetch does not occur in the action area. Therefore, no federally listed species under the jurisdiction of USFWS, other than DT, are considered in this BA because none are anticipated to occur on or adjacent to the action area.

3.0 CRITICAL HABITAT

The action area addressed within this BA overlaps with a portion of the Chuckwalla DT critical habitat unit (CHU) (Figure 2). The total size of the Chuckwalla CHU is 1,020,600 acres (USFWS 1994a). A total of approximately 3,057 acres of critical habitat for DT (Chuckwalla CHU) occur in the action area, 209.5 acres (0.021 percent of the entire CHU) of which overlap with the Project disturbance area (i.e., areas of anticipated ground disturbance associated with the Project) (Figure 2). Although this area is designated as critical habitat, critical habitat boundaries are coarsely mapped and adjusted to match adjacent section lines in order to facilitate legal definitions. Therefore, critical habitat mapping may contain both suitable and unsuitable habitat for the species, as stated in the *Determination of Critical Habitat for the Mojave Population of the Desert Tortoise; Final Rule* (USFWS 1994a). As a result of DT protocol surveys and habitat assessments conducted in 2009 (AECOM 2009b), Project biologists characterized DT critical habitat within the Project disturbance area based on the presence and prevalence of the six primary constituent elements (i.e., functions and values) of DT critical habitat (USFWS1994a). According to this Final Rule (USFWS1994a), DT critical habitat consists of the following six primary constituent elements (PCEs):

- Sufficient space to support viable populations within each of the six recovery units (PSPP disturbance area is in Unit #4) to provide for movement, dispersal, and gene flow;
- Sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species;

- Suitable substrates for burrowing, nesting, and overwintering;
- Burrows, caliche caves, and other shelter sites;
- Sufficient vegetation for shelter from temperature extremes and predators; and
- Habitat protected from disturbance and human-caused mortality.

The functions and values of DT critical habitat occurring within the Project disturbance area are considerably lower north of Interstate-10 (I-10) and higher south of I-10, and generally increase with proximity to the Palen Mountains to the south. A total of 0.2 acre of critical habitat within the Project disturbance area north of I-10 are developed (paved roadways) and are unsuitable for DT. For the remaining 209.3 acres of critical habitat, all six PCEs are met where the CHU overlaps with the Project disturbance area south of I-10 (26.4 acres), whereas only three PCEs are met where overlap occurs north of I-10 (182.9 acres, see discussion below). However, due to the presence of some human disturbance (a paved road and several transmission line corridors are present within this area) and the influence of regional climate on DT abundances in the Sonoran Desert (higher temperatures and lower rainfall compared to the Mojave Desert generally result in overall lower DT abundances), the area where the CHU overlaps the Project disturbance area south of I-10 is considered to be of moderate quality for DT.

Of the six PCEs of DT critical habitat listed above, three are firmly associated with the Project disturbance area north of I-10: suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; and sufficient vegetation for shelter from temperature extremes and predators. The three remaining elements are not present and are discussed below.

First, the PCE of "sufficient quantity and quality of forage species" that could support a large onsite population of DT is not met due to the lack of groundwater necessary to maintain a viable source of forage for the species. Additionally, the Project disturbance area overall has low rainfall, likely due to its position on the valley floor. Within this region, topographic effects associated with the mountains (and other factors) are important for the availability of water for plants. As a result, the availability of water and forage north of I-10 would be limited during critical periods for DT survival.

Second, the PCE for critical habitat that requires sufficient space to provide "movement, dispersal, and gene flow" is absent for the portion of the Project disturbance area that occurs north of I-10. I-10 isolates the small portion of the Chuckwalla CHU that overlaps the Project disturbance area north of I-10 from the much larger block of critical habitat to the south of I-10

(Figure 2) and higher quality habitat in the mountains to the south of I-10, which limits the ability of DT to use this area for "movement, dispersal, and gene flow." Additionally, orchards to the west, and palm farms and an existing single-family residence to the north and northwest of the Project disturbance area limit connectivity of the disturbance area north of I-10 to adjacent suitable habitats.

The third PCE that is not met for suitable habitat north of I-10 is the requirement that the habitat be "protected from disturbance and human-caused mortality." Due to the proximity of existing human disturbance along the I-10 corridor, disturbance related to off-highway-vehicle activity, and the associated edge effects of human encroachment, DT habitat within the Project disturbance area north of I-10 is not protected from these types of disturbances. The evidence of human disturbance in the area north of I-10 was noted as high and included off-highway-vehicle use, domestic dog use, and trash dumping. Also, vehicles are commonly parked in this area.

Based on the site's characteristics relative to the six PCEs of DT critical habitat, critical habitat in the Project disturbance area north of I-10 is considered low quality for DT (0.2 acre of which is unsuitable for DT); critical habitat south of I-10 is considered moderate quality for DT. Critical habitat in the Project disturbance area north of I-10 is considered similar in conservation function and value as the remainder of the Project disturbance area that occurs north of I-10. Therefore, the Applicant proposes that Project areas north of I-10 be assessed for effects as low-quality DT habitat, while the remainder of the site (south of I-10) be assessed as moderate-quality DT habitat. Of the 209.5 acres of critical habitat in the Project disturbance area, 183.1 acres are north of I-10 (0.2 acre are unsuitable for DT, 182.9 acres are low quality) and 26.4 acres are south of I-10 (moderate quality). A portion of the transmission line disturbance area (1.2 acres) and the entire substation disturbance area (25.2 acres) are within designated critical habitat south of I-10 (Figure 2).

4.0 CONSULTATION TO DATE

Listed below, in chronological order from the most recent, are the consultations held to date with USFWS, CDFG, BLM, and/or the U.S. Army Corps of Engineers (USACE) for the PSPP.

- **February 11, 2009:** Conference call with CDFG, USFWS, BLM, and Project representatives to discuss the Project, the proposed biological survey program, potential effects, and mitigation options for the Palen Solar Power Project site.

- **February 20, 2009:** The proposed biological survey program was revised based on the February 11, 2009, conference call and was submitted to Julie Vance of CDFG via email by Bill Graham of AECOM, on behalf of the Project Applicant, for final review and concurrence by agency (USFWS, BLM, and CDFG) staff.

- **March 2, 2009:** Bill Graham of AECOM, on behalf of the Project Applicant, sent a letter to agency (USFWS, BLM, and CDFG) staff requesting a list of listed or proposed species, designated or proposed critical habitats, and other sensitive species to be considered in the evaluation of the proposed Solar Millennium solar sites, including the PSPP.

- **March 10, 2009:** Bill Graham of AECOM**,** representing the Project Applicant, received a joint agency (USFWS, BLM, and CDFG) response to the February 20th request for agency review and concurrence regarding the proposed biological survey program via email from Kimberly Nicol of CDFG. The response indicated that surveys for DT shall conform to the 1992 USFWS protocol, excluding the zone of influence (ZOI) transects, and including California Energy Commission (CEC)-required survey buffers (1 mile from non-linear Project elements and 1,000 feet from linear Project features), as well as adult tortoise density estimate calculations according to the revised USFWS DT protocol (USFWS 2009).

- **March 19, 2009:** A letter sent from Karen Goebel of USFWS was received by Erin Riley of AECOM (representing the Applicant) in response to the March 2, 2009, species request letter. This letter indicated that DT may occur on or in the vicinity of the PSPP site, and that federally designated critical habitat for DT (Chuckwalla Unit) occurs south of the PSPP site. Subsequent email and phone correspondence between USFWS and AECOM staff in August 2009 indicated that the March 19 letter was incorrect in its reference to federally designated critical habitat for DT (Chuckwalla Unit); critical habitat for DT was determined to occur on the PSPP site, not south of the PSPP site.

- **November 3, 2009:** PSPP site visit with CDFG, BLM, CEC, and Project representatives to verify the jurisdictional delineation (JD) data on the Project site prior to submitting the Streambed Alteration Agreement (SAA) application to CDFG and CEC, and to share details and answer questions on the design of rerouted ephemeral desert washes. Additionally, the potential need was discussed for separate processes to occur regarding the 2081 incidental take permit and Section 7 consultation for the PSPP.

5.0 CURRENT MANAGEMENT DIRECTION

In addition to the Federal ESA, the following management direction applies to the evaluation of the Project. This section describes BLM policies, plans, and programs regarding management of DT in the Northern and Eastern Colorado Desert Coordinated Management Plan area, where the Project is proposed.

5.1 Desert Tortoise Recovery Plan

The Mojave population of the DT, including all tortoises occurring north and west of the Colorado River in Arizona, Utah, Nevada, and California, was listed as federally threatened in 1990. A recovery plan was subsequently developed in 1994 that identified proposed Desert Wildlife Management Areas (DWMA) (USFWS 1994b). Critical habitat was also designated in 1994 for the entire Mojave population (USFWS 1994a). A revised recovery plan was drafted in 2008 to reevaluate the status of the population, threats to the population, and identify measures to reduce uncertainties about species threats and management and improve recovery potential (USFWS 2008). Elements of critical importance identified for DT recovery and persistence include adult survivorship, maintenance of genetic and ecological variability within and among populations, and the long-term persistence of extensive, unfragmented habitat. The Draft Revised Recovery Plan identifies an approach to recovery that is based on the following six strategic elements:

- Develop, support, and build partnerships to facilitate recovery.
- Protect existing populations and habitat, instituting habitat restoration where necessary.
- Augment depleted populations in a strategic manner.
- Monitor progress toward recovery.
- Conduct applied research and modeling in support of recovery efforts within a strategic framework.
- Implement a formal adaptive management program.

The Draft Revised Recovery Plan also provides a list of habitat enhancement and management activities that would support recovery of DT, including the following actions:

- Protect intact DT habitat.
- Restore DT habitat.

- Secure lands/habitat for conservation.
- Connect functional habitat.
- Reduce excessive predation.
- Contribute to the DT head-starting program or translocation programs.
- Monitor DT distribution in each recovery unit.
- Track changes in quantity and quality of DT habitat.
- Determine factors that influence the distribution of DT.
- Conduct research on the restoration of DT habitat.
- Conduct research on DT diseases and their effects on populations.

5.2 Northern and Eastern Colorado Desert Coordinated Management Plan

The Federal Land Policy and Management Act (FLPMA) of 1976 requires BLM to develop land use plans (i.e., Resource Management Plans) to guide BLM's management of public land. BLM is required to determine conformity of the Project with the California Desert Conservation Area (CDCA) Plan, including the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) (BLM 2002). NECO is a landscape-scale, multiagency planning effort that protects and conserves natural resources while simultaneously balancing human uses of the California portion of the Sonoran Desert ecosystem. This plan was prepared under the regulations implementing the FLPMA. NECO provides reserve management for DT, integrated ecosystem management for special-status species and natural communities for all Federal lands, and regional standards and guidelines for public land health for BLM lands.

The action area occurs within the Multi-species Wildlife Habitat Management Area (WHMA) and a portion occurs within the Chuckwalla DWMA (only the Project buffer occurs within the DWMA), as designated by NECO (Figure 2). The objective of the Multi-species WHMA is to protect habitats assumed to be suitable for many species and therefore preserve biodiversity. The Multi-species WHMA is complementary to existing restricted areas within the NECO planning area and DWMAs, which also cover other special-status species and habitats (e.g., DT and bighorn sheep). No restrictions are designated in the WHMA other than closure of some routes of travel. Management emphasis is placed on active management, specific species and habitats mitigation, and restoration that addresses impacts from authorized allowable uses. The objective of the DWMAs is to address the recovery of the DT. DWMAs encompass much of the designated critical habitat for the DT. Some additional use restrictions in these areas apply, but emphasis is placed on minimizing disturbance and maximizing mitigation, compensation, and restoration from authorized allowable uses. Compensation for disturbance of public lands within DWMAs is required at a 5:1 ratio within DT habitat; compensation is to be directed to the

Recovery Unit where the disturbance occurs. Additionally, the cumulative new surface disturbance on lands administered by Federal agencies within any DWMA would be limited to 1 percent of the Federal portion of the DWMA.

5.3 California Desert Conservation Area Plan

Per Title 43 Code of Federal Regulations (CFR) Section 1610.5-3, BLM must manage the land within its jurisdiction in compliance with a Resource Management Plan. The entire Project site (including the transmission line route) would be located on lands under BLM jurisdiction and managed pursuant to the CDCA Plan (BLM 1980, as amended in 1999). The CDCA Plan serves as a guide for the management of all BLM-administered lands in three desert areas: the Mojave, the Sonoran, and a small portion of the Great Basin. The CDCA Plan covers approximately 25 million acres, of which 12 million are public lands. The primary goal of the CDCA Plan is to provide overall maintenance of the land while planning for multiple uses and balancing the needs of people with the protection of the natural environment. The NECO is an amendment to the CDCA Plan, identifying specific management direction on BLM lands within the northern and eastern Colorado Desert.

5.4 Desert Renewable Energy Conservation Plan

The State of California Governor's office recently signed a Memorandum of Understanding (MOU) with the U.S. Department of Interior to cooperatively develop long-term renewable energy plans and to streamline eligible projects through State and Federal permitting processes. The MOU establishes the Desert Renewable Energy Conservation Plan (DRECP) process, which is a science-based process for reviewing, approving, and permitting renewable energy applications in California. Once the plan is complete (anticipated in late 2010), it will present a regional road map that will provide a greater level of certainty for renewable energy developers on how and where to site their projects. The DRECP will also create a government-organized habitat mitigation program that consolidates habitat purchases for compensatory mitigation. Depending on when the DRECP mitigation program, or any interim mitigation strategy developed by CDFG becomes established, the PSPP Applicant may be eligible to participate in this program.

6.0 DESCRIPTION OF THE PROPOSED ACTION

Palen Solar I, LLC, (the Applicant) is proposing to construct the PSPP, a nominal 500-MW commercial solar thermal electric-power-generating project using parabolic trough technology.

6.1 Project Location

The proposed PSPP is located approximately 10 miles east of Desert Center, and 0.5 mile north of the I-10 corridor in eastern Riverside County, California (Figure 1). The Project would be located within a 5,212-acre ROW owned by the Federal government and administered by BLM. Use of the Federal land would involve issuance of a ROW grant to the Applicant by BLM. The Project site is currently undeveloped and vacant. The PSPP would occur within the following parcels:

- APN 8101-100-21
- APN 8101-820-02
- APN 8101-100-30
- APN 8101-100-28
- APN 8102-110-02
- APN 8101-100-01
- APN 8101-100-23
- APN 8101-100-16
- APN 8102-120-01
- APN 8101-100-29
- APN 8101-100-24
- APN 8102-110-01
- APN 8101-700-01
- APN 8101-100-09
- APN 8101-100-26
- APN 8102-020-02
- APN 8101-100-22
- APN 8102-010-01
- APN 8101-100-20
- APN 8101-100-06
- APN 8101-100-05
- APN 8101-820-01
- APN 8101-100-27
- APN 8101-100-07
- APN 8101-900-03
- APN 8101-100-15
- APN 8101-900-04
- APN 8101-900-01

6.2 Project Description

The proposed action includes installation of two commercial solar thermal electric-power-generating stations, each composed of a main solar field (i.e., unit) and a main power-generating facility (power block), associated office and maintenance buildings, a laydown area, drainage channels, a bioremediation area, leach fields, a transmission line, and onsite access roads (Figure 2).

The Project would use solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation onto a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to a high temperature (approximately 750 degrees Fahrenheit [°F]) as it circulates through

the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would have a nominal output of 500 MW, produced by two adjacent, identical, and independent 250-MW power-generating facilities (power units). The two power units would share a main office building, main warehouse/maintenance building, parking lot, onsite access roads, bioremediation area for HTF-contaminated soil, and central internal switchyard. Each power unit would have its own solar field, composed of piping loops arranged in parallel groups, and its own power block, centrally located within the solar field. Each solar field would cover approximately 1,380 acres. Each power block would have its own HTF pumping and freeze-protection system, solar steam generator, steam turbine generator, an air-cooled condenser (ACC) for cooling, transmission lines and related electrical system, and auxiliary equipment (e.g., water treatment system, emergency generators). The Project would require a new transmission line to interconnect to the regional transmission grid. The transmission line is proposed to extend approximately 1.2 miles south from the Project disturbance area beyond I-10 where it would turn west to just past Chuckwalla Road (Figure 2). SCE will be constructing a new Red Bluff Substation (25.2 acres) as part of the strengthening and upgrading of its transmission network to support integration of renewable projects. The Red Bluff Substation is planned in the area immediately west of the southern end of the PSPP transmission line (Figure 2). Final placement and development of the 25.2-acre substation will be the responsibility of the utility (SCE); however, in order to provide full disclosure, it is included in this BA. Features associated with the transmission line and a substation that would be affected by construction activities include crossing structures, pole pads, crane pads, pull sites, splice sites, spur roads, and an access road.

Access to the Project site would be via a new 1,350-foot-long, 24-foot-wide paved access road from Corn Springs Road off of I-10 at the southwest corner of the Project disturbance area. Only a small portion of the overall Project disturbance area (i.e., area of anticipated ground disturbance as a result of the Project) would be paved: primarily, the onsite access road, the service roads to the power blocks, and portions of each of the Project's two power blocks. The remaining portions of each power block would be gravel surfaced. Each power block would be approximately 18.4 acres, with approximately 6 acres of paved area. The solar fields would remain unpaved and without a gravel surface to prevent rock damage from mirror-wash vehicle traffic; a dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar fields and support facilities perimeter would be secured with chain

link metal-fabric security fencing, 8 feet tall, with 1-foot-tall barbed wire or razor wire on top. Controlled access gates would be located at the site entrance.

The existing topographic conditions of the PSPP site show an average slope of approximately 1 foot every 330 feet (0.30 percent) toward the northeast, with a series of desert washes traversing the site (i.e., a primary wash and a few secondary washes). Drainage across the undeveloped property is concentrated in these washes until the drainage features disappear and flows fan out across the landscape as sheet flow. During infrequent large precipitation events, runoff through sheet flow may reach Palen Dry Lake, located approximately 1 mile northeast of the site. Development of the site would include intercepting the storm flows in three washes at the Project site boundaries, channelizing and rerouting the flows into three channels on the west side, center, and east side of the site corresponding to the three bridges that direct flow passing under I-10, and then returning the flows to their sheet flow regime on the north side of the site. These channels would intercept flows prior to their entry to the site and convey them in realigned channels to approximately the same locations where they exit the site under existing conditions. Outlets for each channel would end in diffusers. The west and east channels would be located entirely outside of the proposed chain link perimeter fencing. The center channel would be located between and outside of the perimeter security (i.e., chain link) fencing associated with the two main solar fields, with the inlet and outlet to the central channel remaining unfenced. The channels would be constructed with native material, and scour protection (i.e., rip rap) would be added to the channel sides and bottoms in stress areas such as curves and slope transitions. No scour protection is proposed for the channel bottom in the straight sections of the channels. This is to allow the low flows to meander across the bottom, replicating as nearly as possible the flow regimes under current conditions. Maintenance of native vegetation on the channel banks would occur to reduce the hydraulic roughness and improve flood conveyance capacity, and also to maintain adequate cover to protect stream banks from erosion. Vegetation cover would be maintained at less than 15 inches in height in rerouted channels. The channel segments would be designed to meet Riverside County requirements, as well as biological considerations such as wildlife movement, where feasible.

The power units would be graded generally following the existing contours of the site to minimize the amount of disturbance and allow a balanced distribution of material. Runoff from the units would be collected in a series of swales and small channels that would direct the flow to the appropriate perimeter channel. The power block areas that are centrally located within the two power units would have their own detention/water quality basins within the block, from which flows would be directed to the nearest downstream channel. The PSPP would employ a comprehensive system of management controls, including site-specific best management practices (BMPs), to minimize storm water contact with contaminants.

Thermal power plants require cooling, which historically has involved large quantities of cooling water. The PSPP would use ACCs in a process commonly referred to as "dry cooling," thereby dramatically reducing the amount of water needed by the facility. Water would be used principally for solar mirror washing, ancillary equipment heat rejection, feed water makeup, dust suppression, firewater supply, and onsite domestic use. Total water consumption for both units is estimated at approximately 300 acre-feet per year (AFY); this water would be supplied by two onsite groundwater wells. The groundwater would be treated by the reverse osmosis or electrodialysis reversal process in a single treatment unit located on site prior to storage in two 1-million-gallon treated water tanks, one located within each solar field.

To facilitate dust and contaminant removal, treated water would be used to spray-clean the solar mirrors on a periodic basis, determined by a reflectivity monitoring program. This operation is generally done at night and involves a water truck spraying treated water on the mirrors in a drive-by fashion. Solar mirror washing would use approximately 114 AFY of water. Rinsate from the washing operation is expected to evaporate on the mirror surface with no appreciable runoff.

The Project's lighting system would provide operations and maintenance personnel with illumination in normal and emergency conditions. The Project's lighting system would provide the minimum illumination required to ensure safety and security objectives, and lighting would be located and oriented to minimize illumination in areas not pertinent to safety and security. All lights would be installed within the perimeter fence of the Project. Where practicable, lights would be shielded and down-directed to illuminate only the needed area. Lights used for a particular operation would be extinguished once that operation is complete, providing they are not required for ongoing safety or security purposes.

Construction activities would be limited to daytime hours, thereby minimizing nighttime noise disturbance. Similarly, the plant's electrical-generating facilities would operate during daylight hours, and nighttime noise from operations would be minimal. Noise from the gas-fired auxiliary boiler would typically only occur during the 2 hours at dawn when the boiler is in operation. Construction and operational noise emissions would comply with applicable laws, ordinances, and regulations (LORS) thresholds for sensitive wildlife receptors.

Project construction is scheduled to begin in late 2010. Project construction is expected to occur over 39 months. Project construction would require an average of 566 employees per month over the entire 39-month construction period, with manpower requirements peaking at approximately

1,141 workers in month 17 of construction. Temporary construction laydown and parking areas would be located within the power plant facility footprint (refer to Section 6.3, Avoidance and Minimization Measures, below for a definition).

Commercial operation is expected to begin in late 2012 for the first unit and late 2013 for the second unit. While electrical power is to be generated only during daylight hours, the PSPP would be staffed 24 hours a day, 7 days per week. A total estimated workforce of 84 full-time employees would be needed to staff the first phase of the Project (operation of the first of the two units). When the second unit comes online, the full-time staff would increase to 134. The projected operating lifespan of the Project is 30 years.

A draft Conceptual Decommissioning Plan (AECOM 2010a) has been developed to describe how the Project and its component structures will be properly removed, if necessary, at the end of the Project's useful lifespan, and that the Project site is reclaimed in accordance with the requirements of the Bureau of Land Management (BLM), the land owner. BLM currently is developing reclamation requirements for utility-scale solar projects. The Conceptual Decommissioning Plan provides an initial approach to reclamation that will be modified to ensure compliance with those reclamation requirements once BLM adopts them. In addition, the Plan describes how financial resources will be available to undertake proper decommissioning of the Project.

6.3 Avoidance and Minimization Measures

This section describes avoidance and minimization (i.e., biological resource protection) measures that would be implemented as part of the PSPP. Implementation of these measures is expected to reduce potential adverse effects of the PSPP to DT. The PSPP's Application for Certification (AFC) document (AECOM 2009c) submitted to CEC includes 63 biological resource protection measures; 44 of these address potential effects to DT and are applicable to this BA. Consistent with the requirements of CEC, the Applicant is required to implement mitigation measures as Conditions of Certification. (Note: The CEC licensing process is legally a California Environmental Quality Act [CEQA]-equivalent process.) One of the expected Conditions of Certification will be development of a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) that would be submitted for review and approval by CEC. The BRMIMP will comprehensively describe avoidance and minimization measures and provide a matrix to document their implementation and monitor their effectiveness.

Biological resource protection measures from the Palen AFC document (AECOM 2009c) are provided in their entirety in the AFC document (AECOM 2009c). Because many of the measures are applicable to this BA, they are presented below in their entirety except where revisions were necessary to address specific effects of the PSPP to DT. Revisions were made to four AFC measures [BIO-21, BIO-22, BIO-37, and BIO-62]. Two measures have been added (BIO-64 and BIO-65) to address potential common raven effects during Project construction, and the monitoring and maintenance of DT-proof fencing during Project operation. The numbering and general organization of avoidance and minimization measures shown below follows that presented in the PSPP AFC document (AECOM 2009c) for ease of cross-referencing. In a few cases, the ordering of measures has been rearranged relative to the AFC to improve overall organization of topics addressed; however, the AFC numbering has been retained. A definition of terms and acronyms associated with measures reproduced from the AFC document are presented below:

- BRSA: Biological Resources Survey Area. This area is equivalent to the Project action area (see Section 7.0, Action Area).

- Project disturbance area: The area of anticipated direct ground disturbance associated with implementation of the Project.

- BO: Biological Opinion.

- ITP: Incidental Take Permit.

- WBO: western burrowing owl (*Athene cunicularia hypugaea*).

- Facility footprint: The area within the facilities' perimeter fenceline, including solar fields, office and maintenance buildings, laydown area, bioremediation area, and leach fields.

6.3.1 General Avoidance and Minimization Measures during Construction

The following is a list of general avoidance and minimization measures from the AFC that are applicable to Project construction activities and the DT. These measures are standard practices designed to prevent environmental degradation, and the Project applicant shall be responsible for implementation of these measures to avoid and minimize effects to the greatest extent feasible. Those measures include the following:

BIO-1 The Project proponent shall identify a Designated Biologist(s) approved by BLM, USFWS, and CDFG. The construction contractor(s)/crew(s) shall be informed about the biological constraints of the Project. All construction personnel who work in the BRSA shall attend a contractor education program, developed and presented by a Designated Biologist prior to the commencement of construction activity. The construction crews and contractor(s) shall be responsible for unauthorized effects from construction activities to sensitive biological resources that are outside of the areas defined as subject to effects by CEC and other agencies that issue approvals for the Project.

BIO-2 The Designated Biologist shall be responsible for overseeing monitoring and compliance with protective measures for the biological resources. A Section 10(a)(1)(A) permit shall be required for the monitoring or handling of federally listed species. The Designated Biologist shall maintain communications with the appropriate personnel (project manager, resident engineer) to ensure that issues relating to biological resources are appropriately and lawfully managed. The Designated Biologist shall also be present to verify compliance with all conservation measures. The Designated Biologist shall submit reports that document compliance with these measures to BLM, USFWS, and CDFG upon request or, at a minimum, in the end-of-the-year report. In addition, the Designated Biologist shall perform the following duties:

a. The Designated Biologist shall conduct pre-construction surveys for listed species within 30 days prior to commencement of construction activities in the Project disturbance area.

b. The Designated Biologist shall be on site during all vegetation clearing and grubbing, and weekly during Project construction in upland and riparian habitat to be impacted.

c. A Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) shall be prepared to comply with Regional Water Quality Control Board (RWQCB) and CEC requirements; a preliminary DESCP (equivalent to a SWPPP but covering both construction and operation phases) is provided as Appendix F to the AFC. The DESCP and SWPPP identify the design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion-control measures shall be regularly checked by inspectors, the Designated Biologist, and/or resident engineer. Specific BMP plans shall be reviewed by a

Designated Biologist and modified, if necessary, prior to implementation. Fencing and erosion-control measures of all Project areas shall be inspected a minimum of once per week.

d. Each employee shall participate in a training/awareness program that shall be presented by the Designated Biologist prior to working on the PSPP.

e. Proper implementation of protective measures, developed in coordination with USFWS, to avoid all effects to all encountered sensitive species and nesting birds shall be verified.

f. The resident engineer shall be immediately notified to halt work, if necessary, and coordinate with USFWS and CDFG to ensure the proper implementation of species and habitat protection measures. The Designated Biologist shall report any breech of the conservation measures within 24 hours of its occurrence.

BIO-3 The anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid natural resources where possible. No construction-related activities shall occur outside of the designated impact area (i.e., Project disturbance area).

BIO-4 The Project proponent shall ensure that all construction materials, staging, storage, dispensing, fueling, and maintenance activities are located in upland areas outside of sensitive habitat, and that adequate measures are taken to prevent any potential runoff from entering waters of the U.S. Staging areas shall be located within permanent impact areas or previously disturbed sites within the Project footprint.

BIO-5 New and existing roads that are planned for either construction or widening shall not extend beyond the Project disturbance area. All vehicles passing or turning around shall do so within the Project disturbance area. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

BIO-6 The solar units shall be graded generally following the existing contours of the site in order to minimize the amount of ground disturbance.

BIO-7 Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas shall be marked to define the limits where stockpiling can occur.

BIO-8 Spoils, trash, or any debris shall be removed off site to an approved disposal facility. A trash abatement program shall be established. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.

BIO-9 Workers shall be prohibited from bringing pets and firearms to the site.

BIO-10 If construction activities occur at night, all Project lighting (e.g., staging areas, equipment storage sites, roadway) shall be directed onto the roadway or construction site and away from sensitive habitat. Light glare shields shall also be used to reduce the extent of illumination into adjoining areas.

BIO-11 BMPs shall be employed to prevent loss of habitat due to erosion caused by Project-related effects (i.e., grading or clearing for new roads). The Project inspector shall periodically monitor the work area to ensure that construction-related activities do not generate erosion or excessive amounts of fugitive dust. All detected erosion shall be remedied within 2 days of discovery.

BIO-12 Fueling of equipment shall take place within existing paved roads and not within 300 feet of or adjacent to drainages or native desert habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

BIO-13 Wildfires shall be prevented to the greatest extent possible by exercising care when driving and by not parking vehicles where catalytic converters could ignite dry vegetation. In times of high fire hazard (e.g., high wind or drought conditions), trucks may need to carry water and shovels or fire extinguishers in the field, and high-fire-risk installations (e.g., electric lines) may need to be delayed. The use of shields, protective mats, or other fire-prevention equipment shall be used during grinding and welding to prevent or minimize the potential for fire. No smoking or disposal of cigarette butts shall take place within vegetated areas.

BIO-14 The introduction of exotic plant species shall be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources shall include measures such as implementing Trackclean or other method of vehicle cleaning for

vehicles coming and going from the site. Earth-moving equipment shall be cleaned prior to transport to the Project site. Weed-free rice straw or other certified weed-free straw shall be used for erosion control. Weed populations introduced onto the site during construction shall be eliminated by chemical and/or mechanical means approved by CEC, BLM, CDFG, USFWS, and the California Invasive Plant Council (Cal-IPC). These measures collectively form the Weed Management Plan for the PSPP.

BIO-15 In addition to the avoidance and minimization measures outlined in this chapter, the Project proponent shall implement measures stipulated in the permits and approvals issued by CEC, BLM, USFWS, and CDFG as a condition of Project certification, including CEC Certification, Final Environmental Impact Statement, USFWS BO, and CDFG 2081 ITP.

BIO-64 Project design features (PDFs) shall be employed as detailed in the Common Raven Monitoring, Management, and Control Plan (AECOM 2010b) to prevent raven occurrence on site. PDFs shall include, but are not limited to, the following:

a. potential use of perch-deterrent devices and locations of their installation,

b. measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage, no standing water on site, removal of unoccupied raven nests), and

c. adaptive management measures (e.g., hazing, lethal removal) if raven monitoring suggests current PDFs are ineffective.

6.3.2 Resource-Specific Avoidance, Minimization, and Mitigation Measures

Resource-specific avoidance and minimization measures from the AFC that are applicable to Project construction, including those specific to DT, are presented below.

6.3.2.1 Special-Status Wildlife

BIO-20 Mitigation requirements for the Project's permanent effects to habitats occupied, or presumed occupied, by special-status wildlife species (e.g., DT and WBO) shall be mitigated at a ratio or other appropriate mitigation to be determined by the wildlife agencies (USFWS and CDFG). Mitigation for permanent effects to these species is

generally provided by acquiring and conserving in-kind habitat of equal value to the habitat impacted, or contributing funds to a third-party or through an in-lieu fee program toward the acquisition, restoration or preservation of in-kind habitat. Mitigation lands in the Colorado Desert recovery unit shall be prioritized in order to provide protection for displaced wildlife and to maintain land connectivity in the area. It is expected that mitigation required for all other special-status wildlife shall be coincident with mitigation for DT.

6.3.2.2 Desert Tortoise

BIO-25 USFWS assigns a single designation for biologists who can be approved to handle tortoises (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/): "Authorized Biologist" (AB). Such biologists have demonstrated to USFWS that they possess sufficient DT knowledge and experience to handle and move tortoises appropriately. The AB shall oversee compliance with the protection measures for DT and other species. The AB shall be on site during fencing activities. The AB shall have the right to halt all activities that are in violation of the DT protection measures. Work shall proceed only after hazards to DT are removed and the species is no longer at risk, or the individual has been moved from harm's way by the AB. The AB shall have in his/her possession a copy of all the compliance measures while work is being conducted on site. The AB is permitted to then approve monitors to conduct specific activities based on the monitor's demonstrated skills, knowledge, and qualifications. CDFG must also approve the AB, including individual approvals for monitors approved by the AB.

BIO-26 The proponent shall submit the names and statement of qualifications of all proposed ABs to CEC, BLM, USFWS, and CDFG for review and approval at least 30 days prior to initiation of any DT handling, clearance, and preactivity surveys. Project activities shall not begin until the AB is approved by the aforementioned agencies. Only ABs shall be allowed to handle and relocate DT when necessary. Biological monitors shall ensure compliance with the protection measures but shall not be allowed to survey for or handle DT. Workers shall notify the AB of all DT observations.

BIO-27 The AB shall be responsible for awareness trainings, surveys, compliance monitoring, and reporting related to DT.

BIO-21 Prior to the onset of construction, the boundary of the facility footprint shall be permanently fenced with an 8-foot-high chain link fence for security purposes. Permanent DT-proof fencing shall either be attached to the base of the security fence or installed immediately outside the security fence. To ensure that no DTs enter the central rerouted channel (the inlet and outlet to the central channel would not be fenced off as a result of the installed chain link security fence), a permanent DT-proof fence, or similar structure sufficient to exclude DTs, shall be installed across the inflow and outflow points of the central channel, perpendicular to the direction of water flow. Temporary DT-proof fencing shall be installed prior to clearance surveys around the initial construction startup/primary staging areas, in portions of linear utilities, and in any other areas outside permanent DT-proof fencing where ground disturbance will occur within the Project disturbance area. Temporary DT-proof fencing shall follow guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity. The fencing type shall be 1- by 2-inch vertical mesh galvanized fence material, extending at least 2 feet above the ground and buried at least 1 foot. Where burial is impossible, the mesh shall be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent DT from digging under the fence. DT-proof gates shall be established at all Project site entry points. All fence construction shall be monitored by the AB to verify that no DTs are harmed. Following installation, the fencing shall be inspected monthly and during all major rainfall events, or more often, as necessary. Damage to the fencing shall be repaired immediately.

BIO-22 A clearance for any DTs shall be conducted throughout the Project disturbance area. A minimum of two clearance passes shall be completed after DT-proof fencing is installed. Clearance surveys shall be conducted during periods that USFWS and CDFG approve. It is anticipated that no or very few DT will be found. Excavation of all potential DT burrows encountered shall occur as a part of clearance surveys. Any DT found shall be moved by an AB to a location outside of DT-proof fencing using the approach and techniques described in the DT Clearance and Relocation/Translocation Plan (AECOM 2010c) and that are approved by agency representatives. DT shall be moved out of harm's way the minimum distance possible within appropriate habitat to ensure its safety from death, injury, or collection, or to a specified translocation site approved by agency representatives. The DT Clearance and Relocation/Translocation plan includes an analysis to determine whether relocation or translocation is an appropriate action; the identification and prioritization of potentially suitable locations for translocation; DT handling and

transport considerations (including temperature); animal health considerations; a description of translocation scheduling, site preparation, and management; and specification of monitoring and reporting activities for evaluating success of translocation. Once the site is deemed free of DTs after two consecutive clearance passes, then heavy equipment shall be allowed to enter the site to perform construction activities.

BIO-23 DTs shall be monitored by an AB during construction activity to avoid direct effects to individuals, or DTs will be excluded from construction zones in accordance with an approved DT Clearance and Relocation/Translocation Plan (see BIO-22, above).

BIO-24 Following site clearance, a report shall be prepared by the AB to document the clearance surveys, the capture and release locations of all DT found, individual DT data, and other relevant data. Information for each individual would include, at minimum, the location and dates of observations; burrow data; animal gender, carapace length, mass, general conditions, and health; any apparent injuries and state of healing; and diagnostic markings (i.e., identification numbers). This report shall be submitted to agency representatives.

BIO-29 Personnel shall use established roadways (paved or unpaved) in traveling to and from the survey area and also shall use existing tracks on site whenever possible. Cross-country vehicle and equipment use outside of designated work areas shall be prohibited. To minimize the likelihood for vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel within the Project disturbance area outside areas cleared through DT clearance surveys (see BIO-22) and along off-highway access roads to the site.

BIO-30 To the greatest extent feasible, parking and storage shall occur within DT exclusion fencing. Any time a vehicle or construction equipment is parked in unfenced DT habitat, the ground under the vehicle shall be inspected for the presence of DT before the vehicle is moved. If a DT is observed, it shall be left to move on its own. If it does not move within 15 minutes, the AB shall remove and relocate the DT to a safe location.

BIO-31 All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB shall be informed of any hazardous spills

within 24 hours. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly disposed of at a licensed facility.

BIO-32 Intentional killing or collection of DT in the survey area and surrounding areas shall be prohibited. The AB shall be notified of any such occurrences immediately and agency representatives shall be notified of any such occurrences within 24 hours.

BIO-33 For emergency response situations, the AB shall notify the agency representatives immediately. As a part of this response, the agency representatives may require additional measures to protect DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, agency representatives may also require measures to recover damaged habitat.

BIO-34 Water shall be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. During the DT active season, an AB shall patrol these areas to ensure water does not puddle for long periods of time and attract DTs, common ravens, or other wildlife to the site.

BIO-35 Upon locating a dead or injured DT, the AB shall make initial notification to the agency representatives within 24 hours of its finding. The notification shall be made by telephone and in writing to the nearest USFWS Field Offices. The report shall 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. DT fatally injured as a result of Project-related activities shall be submitted for necropsy as outlined in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Berry 2003). DT with fewer major injuries shall be transported to a nearby qualified veterinarian for treatment at the expense of the proponent. If an injured DT recovers, the agency representatives shall be contacted for final disposition of the DT.

BIO-36 During construction activities, monthly and final compliance reports shall be provided by the AB to USFWS, CDFG, and other applicable resource agencies documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report shall also provide information on the overall biological-resources-related activities conducted, including the worker awareness

training, clearance/preactivity surveys, monitoring activities, and any observed DTs, including injuries and fatalities.

BIO-37 In addition to the measures discussed above, the Project Applicant shall compensate for effects to DT habitat in the Project disturbance area during construction activities. Direct permanent effects to 3,873.8 acres of suitable (moderate- and low-quality) DT habitat, including 184.1 acres of critical habitat, shall be mitigated at a ratio developed in consultation with the resource agencies. An additional 25.2 acres of moderate-quality DT critical habitat will be affected; however, that acreage is associated with the substation and is considered the responsibility of the utility (SCE) for associated mitigation. Compensatory mitigation would be achieved through a combination of offsite land acquisition, funding of offsite habitat preservation or enhancement through management, and funding programs that would promote the recovery of DT. A Preliminary Habitat Mitigation and Monitoring Plan (HMP) has been prepared for the PSPP (AECOM 2010d). The Preliminary HMP describes the proposed approach to compensatory mitigation planning and design, including proposed minimum compensation ratios and criteria for identifying mitigation lands; an implementation plan; monitoring, adaptive management, and contingency measures; and enhancement and long-term management of mitigation lands. The compensatory mitigation approach will be further developed and refined in the Conceptual HMP to be provided once mitigation lands and funding programs, as appropriate, are selected. The following summarizes the Preliminary HMP's approach to compensatory mitigation of effects to DT.

The proposed total acreage of compensatory mitigation would be based on the following proposed minimum overall ratios. These ratios are based on the quality of onsite habitats that would be affected by the Project and ratios that have been negotiated on similar projects. All onsite habitats were determined to be unoccupied following protocol surveys.

- *Within DT critical habitat*. For acres of moderate-quality habitat impacted within DT critical habitat (1.2 acres), mitigation shall be at 5 acres compensation for each 1 acre impacted (i.e., 5:1 ratio). [note: an additional 25.2 acres of moderate-quality DT habitat within the substation disturbance area would be affected by the Project; however, as indicated above that acreage would be the responsibility of the utility (SCE)]. For acres of low-quality DT critical habitat impacted (182.9 acres), mitigation shall be at a 1:1 ratio. [note: an additional 0.2 acre of critical

habitat within the Project disturbance area are unsuitable for DT and would not constitute effects to DT as a result of the Project].

- *Outside DT critical habitat*. For acres of moderate-quality habitat impacted outside DT critical habitat (1 acre), mitigation shall be at a 1:1 ratio. For acres of low-quality habitat impacted (3,688.7 acres), mitigation shall be at a 0.5:1 ratio.

Because opportunities for onsite compensatory mitigation are limited, one or more of the following offsite mitigation options shall be implemented.

1. Land Acquisition, Enhancement, and Management

Of the total compensatory mitigation acreage required (based on the overall ratios previously proposed), acquisition of habitat shall be at a ratio of 0.5 acre acquisition for each 1 acre of DT habitat impacted (i.e., 0.5:1), regardless of the suitability of habitat impacted. The remaining mitigation acreage requirement would be met through other mitigation options as part of fee programs (see "Fee Programs," below). Land acquisition may occur through two primary mechanisms: 1) purchase of private lands or 2) payment of a fee to a third party for the purchase of lands. In either approach, the costs associated with land acquisition would include not only the cost of the land parcels to be acquired, but also fees for the initial enhancement and continued long-term management of those lands by a third party in perpetuity. The location of acquired lands would be determined based on consultation with the resource agencies. Priority lands for acquisition would be identified using one or more of the following criteria:

- *Species occurrences, and habitat quality*. Acquisition efforts shall focus on protecting habitat of adequate quality for special-status species impacted by the Project (see Species-specific Habitat Quality Criteria, below) that, at minimum, provides functions and values equal to that present on the Project site. Where possible, preservation of high-quality occupied habitat that satisfies the mitigation requirements for all special-status species will be given highest priority.

- *Location and landscape position*. Priorities for acquisition would include 1) lands within the same or adjacent watershed of the Project site that are within the Colorado Desert recovery unit, and that contribute to DT habitat connectivity; and

2) areas that include or build linkages between DT designated critical habitat, known populations of DT, and/or other preserve lands.

- *Maximize size*. Acquisition parcels shall be as large as possible to maximize ecosystem functions on site, population sizes of DT, and protection of species from adjacent land uses and edge effects. Also, larger preserves allow for greater efficiency and effectiveness in implementing large-scale enhancement or restoration actions, and preserve management.

- *Protect high-quality habitats*. Acquisition efforts shall focus on protecting occupied or high-quality DT habitat (e.g., critical habitat) and lands where PCEs are present.

- *Vegetation Community Composition.* Vegetation community composition on potential mitigation lands, including the presence of desert washes, should be representative of communities present on the Project site, if possible.

- *Enhancement opportunities*. Lands that are presently limited in habitat value for DT may be considered priorities for acquisition if they can be feasibly enhanced or restored to functional, high-quality DT habitat, and would contribute to regional connectivity of populations or important habitats.

- *Other property constraints.* Acquisition efforts would avoid lands with lease rights or other liens that would be contradictory to the purpose of using the property for special-status species protection (e.g., mineral leases, water rights, natural gas drilling easements) or with the presence of cultural or other resources on site that would limit potential options for special-status species protection. Additionally, invasive species that are likely to jeopardize habitat functions and values must not be present at a sufficient density to affect site quality as it pertains to use of the site for compensatory mitigation.

- *Long-term management feasibility*. Priority acquisition lands would occur under the purview of a reputable land management entity that is solvent, and with strict assurances that the property would be preserved in perpetuity (e.g., conservation easements).

- *Goals of the DRECP*. The State of California and the U.S. Department of Interior are cooperatively developing the DRECP. The DRECP will establish a science-based process for reviewing, approving, and permitting renewable energy applications in California. Once the plan is complete (anticipated in late 2010), it will present a regional road map that will provide certainty for renewable energy developers on how and where to site their projects. The DRECP will also create a government-organized habitat mitigation program that consolidates habitat purchases for compensatory mitigation. Land acquisition to mitigate for effects of the PSPP shall focus on parcels that would contribute to DRECP goal attainment.

The process for approval of offsite land acquisition would generally involve the following steps.

a. Identification of suitable offsite mitigation properties, based on the criteria identified above.

b. Due diligence of selected mitigation properties, including completion of biological resources assessments and other technical studies.

c. Consultation with resource agencies and mitigation plan approvals.

d. Resource agency final approvals, final transfers, and recordation of conservation easement.

Measures for the management and enhancement of DT habitat will be implemented, as appropriate, depending on the site conditions at the chosen mitigation areas. Such measures may include the following:

- control of raven populations to reduce predation of DT;
- control or elimination of grazing by domestic animals to prevent soil compaction, erosion, and the loss of DT forage plants;
- control of wild horse and burro populations within mitigation areas;
- control of off-road-vehicle (ORV) use and other human disturbance through fencing, signage, and patrolling;
- prohibition of any new road construction, paved or otherwise, within mitigation areas;

- installation of DT-friendly barrier fencing, culverts, and/or undercrossings at existing highways;
- prevention of poaching and illegal collection of DT;
- control of invasive species such as Saharan mustard (*Brassica tournefortii*), Mediterranean grass (*Schismus* sp.), and other exotic annual grasses and forbs;
- restoration of mitigation areas with native vegetation;
- development and implementation of a fire management plan for mitigation areas where DT habitat may be impacted by fire;
- prohibition of the release of captive DT into mitigation areas to prevent the spread of disease, genetic contamination, and competition with the resident population of DT (agency-authorized relocations may be permitted);
- control and cleanup of illegal dumping;
- removal and remediation of toxicants and unexploded ordnance; and
- control of unleashed and feral dogs that may cause mortality or disturbance to DT.

2. Fee Programs

In addition to, or as a substitute for, land acquisition, described above, the proposed compensatory mitigation approach for impacts to special-status species would include the payment of a fee on a per-acre basis equating to the value of the remaining compensatory mitigation acreage required. The fees resulting from the remaining mitigation requirement may be paid to an existing or planned (e.g., DRECP) in-lieu fee program (or possibly the proposed in-lieu fee program) or may be donated to a nongovernmental organization (NGO) (e.g., Desert Tortoise Preserve Committee, Inc., Desert Tortoise Council) and would be designated for specific activities that would promote the recovery of DT. These activities include, but are not limited to, the following:

- habitat enhancement of existing preserved lands (e.g., revegetation, invasive plant control),
- exclusion or reduction of key disturbance sources (e.g., livestock grazing, predators, ORVs),
- reduction of mortality sinks (e.g., roadways and linear barriers),

- research studies and monitoring,
- captive breeding and release programs, and
- public information and education programs.

Some potential specific opportunities for the PSPP identified to date are summarized below.

a. Provide funds to BLM to use for enhancement activities to improve habitat function and value of key lands.

b. Designate funds for a wildlife movement study along I-10 to identify mortality sinks and develop an implementation plan to minimize and avoid effects from vehicle collisions. The implementation plan would identify highway crossing locations, type of crossing, and associated features to facilitate their use (i.e., fencing). A study plan would be provided to the agencies for review/approval and would be carried out by any agency-approved qualified biologist.

c. Designate funds to facilitate and enhance raven monitoring, management, and control through the regional raven management program in development by USFWS and supporting agencies. This fee may be directed to USFWS to be applied as part of a new in-lieu fee program being developed. BLM may also be able to use funds to support raven management at recreational areas that attract ravens and could affect surrounding mitigation lands.

d. The revised draft Desert Tortoise Recovery Plan (USFWS 2008) identifies several recovery actions to facilitate the protection and recovery of the species; however, no firm source of funding has been identified for these actions. Recovery actions outlined in the recovery plan include the following:

    - increasing law enforcement,
    - closing roads that provide access to DT habitat through fencing,
    - excluding and eliminating burros and horses from DT habitat,
    - funding monitoring programs (i.e., establish a grant for monitoring), and

- funding applied research that contributes to the long-term viability and conservation of DT.

Funds from the fee-based portion of the proposed mitigation strategy could be used to establish or contribute to funding in perpetuity for any of the above actions. The funds would be earmarked for support of the Desert Tortoise Recovery Plan and specific recovery actions, and provided to a third party (e.g., USFWS, Desert Tortoise Council, Desert Tortoise Preserve Committee, or other NGO) for management as appropriate. Donating funds to a private organization must be individually approved by USFWS and CDFG and supported by a contract or agreement detailing the amount and specific purpose of the funds being donated.

6.3.2.3 Wildlife Movement

BIO-52 The Project shall prioritize and acquire land within the Colorado Desert recovery unit that maintains connectivity to open spaces and provides corridors between open spaces for wildlife species impacted.

BIO-53 The Project shall either restore degraded habitat, or contribute funds towards the restoration of degraded habitat, within the Colorado Desert recovery unit that may have formerly served as a wildlife corridor for impacted species and would provide ecological value for overall connectivity. Areas for implementation of these measures shall be prioritized based on impacted populations. Areas for implementation of these measures shall also be considered for quality of habitat and likelihood of use by species impacted.

BIO-54 The Project shall either restore disrupted connectivity, or contribute funds towards the restoration of disrupted connectivity, within the Colorado Desert recovery unit that may have formerly served as a wildlife corridor for impacted species by creating wildlife crossings under or over current barriers such as local roads and highways. Areas for implementation of these measures shall be prioritized based on impacted populations. Areas for implementation of these measures shall also be considered for quality of surrounding habitat and likelihood of use by species impacted.

BIO-55 Measures may be taken to contribute to the general knowledge of wildlife movement, edge effects, and the role of dispersal in metapopulation dynamics. Measures may include, but are not limited to, contributing financing for research on species-specific movement through telemetry studies and population gene flow as it relates to species

dispersal in the region, as well as specific studies on edge effects. Measures to contribute to the general knowledge shall require approval by State and Federal wildlife agencies.

6.3.3 General Avoidance and Minimization Measures during Operation

General avoidance and minimization measures from the AFC that are applicable to Project operation and the DT are presented below.

BIO-56 All vehicles passing or turning around shall do so within the planned impact area (i.e., Project disturbance area).

BIO-57 PDFs shall be employed as detailed in the Common Raven Monitoring, Management, and Control Plan (AECOM 2010b) to prevent raven occurrence on site. PDFs shall include, but are not limited to, the following:

a. potential use of perch-deterrent devices and locations of their installation,

b. measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage, no standing water on site, removal of unoccupied raven nests), and

c. adaptive management measures (e.g., hazing, lethal removal) if raven monitoring suggests current PDFs are ineffective.

BIO-58 Fueling of equipment shall take place within existing paved roads and not within 300 feet or adjacent to drainages or native desert habitats. Maintenance equipment shall be checked for leaks prior to operation and repaired as necessary.

BIO-59 An SWPPP and a DESCP shall be prepared to comply with RWQCB and CEC requirements; a preliminary combined SWPPP and DESCP (equivalent to an SWPPP but covering both construction and operation phases) is provided as Appendix F of the AFC. The Project shall employ a comprehensive system of management controls, including site-specific BMPs, to minimize erosion and storm water contact with contaminants and thereby reduce exposure of wildlife and plants to pollutants in the storm water. These management controls include erosion and sediment control BMPs; an employee training program; good housekeeping and preventive maintenance programs; structural BMPs, including temporary containment during maintenance activities and permanent secondary containment structures at chemical

storage and process areas; materials, equipment, and vehicle management practices; spill prevention and response programs; and inspection programs.

BIO-60 The Project's lighting system shall provide the minimum illumination required to meet safety and security objectives and shall be oriented to minimize additional illumination in areas not pertinent to the facility. If lighting is adjacent to sensitive habitat, it shall be directed or shielded away from the habitat. No permanent lights are proposed to be installed within sensitive habitat. Light glare shields shall also be used to reduce the extent of illumination into adjoining areas.

BIO-61 During Project operation, the facility footprint shall be maintained free from nonnative invasive species. This can be accomplished through physical or chemical removal and prevention. Application of an approved herbicide (not toxic to wildlife) shall be applied or directly supervised by a State-licensed applicator following the label instructions, including application rates and protective equipment. Herbicide shall be applied only when wind speeds are less than 5 miles per hour.

BIO-62 Decommissioning of the facility shall include the removal of all improvements within the Project disturbance area. All surface improvements shall be removed, and all ground-level penetrations and subsurface storage tanks (if any) shall be removed and filled/capped to prevent the access and entrapment of wildlife. The channel realignments may remain in place or be filled and restored to preexisting hydrology. Funding for long-term maintenance or filling and restoration of the realigned channels, whether it is needed at the anticipated facility closure date or it is needed earlier due to untimely closure (i.e., bankruptcy), shall be pursued once a comprehensive decommissioning plan is established. A draft Conceptual Decommissioning Plan (AECOM 2010a) has been developed to describe how the Project and its component structures will be properly removed, if necessary, at the end of the Project's useful lifespan, and that the Project site is reclaimed in accordance with the requirements of the BLM, the land owner. BLM currently is developing reclamation requirements for utility-scale solar projects. The Conceptual Decommissioning Plan provides an initial approach to reclamation that will be modified to ensure compliance with those reclamation requirements once BLM adopts them.

BIO-63 To minimize the likelihood for vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel along off-highway access roads to the site. Access roads shall be posted with DT awareness signs. DT-proof gates that roll open and close behind vehicles shall be installed at the entrance of the perimeter fence.

BIO-65 All DT-proof fencing, or other similar structures intended to exclude DT (e.g., around the facility, at the inflow and outflow points of the central rerouted channel) shall be inspected monthly and during all major rainfall events, or more often, as necessary. Damage to the fencing, or similar structure, shall be repaired immediately (same day) and a clearance survey for any DTs that may have entered the excluded area shall be conducted in all areas by the AB within 24 hours of the time the fence is damaged. A minimum of two clearance passes shall be completed by the AB after the fencing, or similar structure, is repaired to ensure that no DTs that may have entered the excluded area become trapped inside. Any DTs found will be moved by the AB to a location immediately outside of the DT-proof fencing, or similar structure, using agency-approved techniques.

7.0 ACTION AREA

The action area, or "Project action area," is defined as all areas to be affected directly or indirectly by full implementation of the Federal action (i.e., the Project) evaluated in this BA and not merely the immediate area involved in the action (50 CFR Section 402.02). The action area (Figure 2) is composed of the Project disturbance area (i.e., area of anticipated ground disturbance associated with the Project, including the 25.2-acre substation), totaling 3,899.2 acres, and a buffer area (1-mile buffer of non-linear project elements [e.g., solar fields, power block] and a 1,000-foot buffer of linear project elements [i.e., transmission line]). The action area is the equivalent of the BRSA for the Project, as shown in Figure 1 of the revised Project Supplemental Biological Resources Technical Report (BRTR) (AECOM 2009a).

7.1 General Description of the Action Area

The action area is located on Federal land managed by BLM and that has a BLM "Moderate" land use designation. The Chuckwalla Wilderness Area and the Palen-McCoy Wilderness Area are located to the north and south of the action area, respectively.

Topography in the action area is generally flat with elevations ranging from approximately 425 to 650 feet. Palen Dry Lake occurs in the northern portion of the action area, outside the Project

disturbance area. The Chuckwalla Mountains are located to the south and the Palen Mountains to the northeast of the action area. I-10 crosses the action area from east to west in the south, and numerous palm farms border the Project disturbance area to the northwest.

7.2 Vegetation Communities and Land Cover in the Action Area

Vegetation mapping was conducted within the action area between February 11 and April 21, 2009, and on October 8, 2009, by Project botanists Kristen Asmus, Joseph Betzler, Richard Dwerlkotte, Shirley Innecken, Fred Sproul, and Lance Woolley (EDAW AECOM 2009a; AECOM 2009a). Vegetation communities within the action area were classified based on Holland (1986). Sawyer and Keeler-Wolf (1995) and CDFG (2003) classifications were used to provide additional detail when needed. Project botanists used 200-foot scale orthotopographic maps for vegetation mapping. The minimum vegetation mapping unit, per CEC guidelines, was 0.01 acre for riparian areas and 1 acre for all other cover types within the Project disturbance area. Within the buffer area, the minimum mapping unit for all land cover types was 1 acre. Vegetation mapping was conducted by a combination of walking transects ranging from 10 to 100 feet apart and, in some cases, selecting key vantage points from existing dirt access roads. Vegetation communities were characterized based on the dominant plant species, according to the 50/20 dominance rule (USACE 2008).

Nine vegetation communities and other land cover types were identified within the action area during Project surveys (Figure 3) and are described in detail below. The acreages of each vegetation community and cover type within the Project disturbance area (including the substation), surrounding buffer, and the entire action area are provided in Table 1. Ephemeral plant production in the vicinity of the action area was noted to be higher and longer lasting both within the drainages and at higher elevations during surveys in spring 2009, consistent with the general pattern in this region that water is more available in association with mountain washes and as elevation increases.

Table 1
Vegetation Communities and Cover Types (in Acres)[1]

Vegetation Communities and Other Cover Types	Project Disturbance Area	Buffer	Action Area
Riparian			
Desert Dry Wash Woodland	141.0	458.3	*599.3*
Unvegetated Ephemeral Dry Wash	161.8	34.5[2]	*196.2*
Subtotal Riparian	*302.8*	*492.8*	*795.5*
Upland			
Active Desert Dunes	0.0	684.3	*684.3*
Desert Sink Scrub	0.0	9.4	*9.4*

Vegetation Communities and Other Cover Types	Project Disturbance Area	Buffer	Action Area
Dry Lake Bed	0.0	270.1	*291.0*
Sonoran Creosote Bush Scrub	3,311.5	6,834.4	*10,145.9*
Stabilized and Partially Stabilized Desert Dunes	284.7	625.5	*910.3*
Subtotal Upland	*3,596.2*	*8,423.7*	*12,020.0*
Other Cover Types			
Agricultural Fields	0.0	750.2	*750.2*
Developed	0.2	149.1	*149.4*
Subtotal Other Cover Types	*0.2*	*899.3*	*899.6*
Total Acres	*3,899.2*	*9,815.8*	*13,715.0*

[1] Acreages are based on the most recent Project design, as reported in the revised Project Supplemental Biological Resources Technical Report (November 2009; AECOM 2009a), as shown in Figure 2, and includes the area associated with the substation. Acreages reported in this table may not sum exactly to subtotals or totals due to rounding.

[2] Unvegetated channels are potentially jurisdictional aquatic features and were not mapped within the buffer because these surveys were conducted at a minimum mapping unit of 1 acre, as opposed to 0.01 acre for riparian vegetation communities within the Project disturbance area. This approach is consistent with the AECOM Jurisdictional Delineation methodology and is pursuant to Appendix B, Section (g), Subsection (13), Paragraph (B), Clause (iii) of the CEC Siting Regulations, which does not require detailed mapping of aquatic features beyond 250 feet of the disturbance limits (CEC 2007). However, due to disturbance area alterations, there are now 34.5 acres of mapped unvegetated ephemeral dry wash within the buffer.

7.2.1 Desert Dry Wash Woodland

Desert dry wash woodland is designated by Holland (1986) as Code 62200. It also approximates the Sawyer and Keeler-Wolf's (1995) Catclaw Acacia Series 129. This vegetation community consists of open, drought-deciduous, riparian scrub woodland and is made up of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Sonoran desert creosote bush scrub. Dominant and indicator plants of this community within the action area include ironwood (*Olneya tesota*), blue palo verde (*Parkinsonia florida*), cheesebush (*Hymenoclea salsola*), desert lavender (*Hyptis emoryi*), catclaw (*Acacia greggii*), dye bush (*Psorothamnus emoryi*), smoke tree (*Psorothamnus spinosus*), and sweetbush (*Bebbia juncea* var. *aspera*). Tamarisk species, which are invasive, are also interspersed throughout this community. Overall, the cover of wash-dependent vegetation within the desert dry wash woodland is less than 5 percent. The woodland occurs in and among dry washes that traverse the southwestern and western portions of the action area, passing under I-10 at two bridges. A representative photograph of this vegetation community within the action area is shown in Appendix F of the PSPP AFC (AECOM 2009c).

7.2.2 Unvegetated Ephemeral Dry Wash

This community consists of unvegetated washes dominated by sandy substrate and little to no vegetation. Unvegetated ephemeral dry wash (which approximates nonvegetated channel, (Holland [1986] Code 64200) occurs within the transition zone between the desert dry wash woodland, as the washes are transitioning to sheet flow as they drain to the northeast. There were no dominant plant species observed in association with nonvegetated channel, as these areas are primarily devoid of vegetation. A representative photograph of this vegetation community within the action area is shown in Appendix F of the PSPP AFC (AECOM 2009c).

7.2.3 Active Desert Dunes

Active desert dunes are designated by Holland (1986) as 22100, Sawyer and Keeler-Wolf (1995) as the Desert Sand-Verbena Series 51, and by CDFG (2003) as 22.010.02. This community is characterized by mostly unvegetated drifted sand dunes and sand fields of 5 feet or less in height. Dominant and indicator plants within the action area for this community include desert twinbugs (*Dicoria canescens*), creosote bush (*Larrea tridentate*), birdcage evening primrose (*Oenothera deltoids*), and Russian thistle (*Salsola tragus*). The active desert dunes are in the northeastern portion of the action area, northeast of Palen Dry Lake. The quality of habitat in this area is good, in spite of the presence of Russian thistle, as there was little sign of human activity in the low-lying dunes. A representative photograph of this vegetation community within the action area is shown in Appendix F of the PSPP AFC (AECOM 2009c).

7.2.4 Desert Sink Scrub

Desert sink scrub is designated by Holland (1986) as 36120 and approximates Sawyer and Keeler-Wolf's (1995) Desert Holly Series 149. This community occupies the salty clay pan and sandy areas around Palen Dry Lake in the northeastern portion of the action area. Dominant and indicator plants of this community include fourwing saltbrush (*Atriplex canescens*), allscale saltbush (*Atriplex polycarpa*), bush seepweed (*Suaeda moquinii*), Arizona honeysweet (*Tidestromia oblongifolia*), western sea-purslane (*Sesuvium ventricosum*), and Russian thistle. This plant community is in the northeastern action area and is found around Palen Dry Lake. A representative photograph of this vegetation community within the action area is shown in Appendix F of the PSPP AFC (AECOM 2009c).

7.2.5 Dry Lake Bed

This cover type consists of unvegetated clay pan with an encrusted surface layer of salt at the southern end of Palen Dry Lake. There is no associated Holland or Sawyer and Keeler-Wolf classification for this community because it is unvegetated. A representative photograph of this vegetation community within the action area is shown in Appendix F of the PSPP AFC (AECOM 2009c).

7.2.6 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub is designated by Holland (1986) as Code 33100 and Sawyer and Keeler-Wolf (1995) as the Ocotillo Series 182. This community is characterized by sandy soils with shallow clay pan on a broad, gentle, northeast-trending slope terminating in Palen Dry Lake. Dominant plants within the action area for this community include creosote bush, burro-weed (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), cheesebush, desert sunflower (*Geraea canescens*), desert lily (*Hesperocalus undulata*), and ocotillo (*Fouqueria splendens*). This is the most common plant community within the action area, dominating the alluvial soil deposits. This plant community intergrades into most of the action area plant communities. On the alluvial deposits that are bisected by I-10, this community is declining. Water that used to flow from the mountains in the south to Palen Dry Lake has been channelized into several concrete-lined culverts such that the shallow incised washes flow only from the freeway northward toward Palen Dry Lake, forming much smaller localized watersheds. In addition, three invasive plant species, Russian thistle, Mediterranean grass (*Schismus* sp.), and Saharan mustard (*Brassica tournefortii*), are prevalent throughout the Sonoran creosote bush scrub, especially across the southern half of the action area. Previous agricultural land use is evident in the form of furrows within reestablishing Sonoran creosote bush scrub near the currently established agriculture areas in the northwestern portion of the action area. A representative photograph of this vegetation community within the action area is shown in Appendix F of the PSPP AFC (AECOM 2009c).

7.2.7 Stabilized and Partially Stabilized Desert Dunes

Stabilized and partially stabilized desert dunes are designated by Holland (1986) as 22200 and by Sawyer and Keeler-Wolf (1995) as the Mesquite Series 274. It occupies the margins of Palen Dry Lake and is supported by a relatively shallow water table and stabilized sand dunes. Dominant plants within the action area for this community include honey mesquite (*Prosopis glandulosa*) and dye bush (*Psorothamnus emoryi*). Many plants from the Sonoran creosote bush scrub are common in this community as well. In addition, the annual desert milkvetch

(*Astragalus aridus*) and Harwood's milkvetch (*A. insularis* var. *harwoodii*), a sensitive species, occur within this plant community.

7.2.8 Agricultural Land

The majority of the lands used for agriculture within the action area are for palm tree cultivation. There is no associated Holland or Sawyer and Keeler-Wolf classification for this land cover type. It includes lands that are currently under cultivation and those that are abandoned (e.g., fallow). The fallow agricultural lands contain short, widely placed shrubs commonly found in the Sonoran creosote bush scrub that are growing back since the agricultural use has stopped. In the soils around these patches of native vegetation, furrows and other ground disturbance indicative of past agricultural use were observed.

7.2.9 Developed Areas

Developed areas consist of roadways (I-10 and Corn Springs Road) and cleared land in the southern portion of the action area. The majority of the developed area is related to the freeway. There may be plants growing along the boundary, but these areas are highly managed and are not revegetated.

8.0 STATUS OF DESERT TORTOISE IN THE ACTION AREA

This section summarizes the distribution, biological requirements, and population status of federally listed species evaluated in this BA.

8.1 Species Background

The DT is federally listed as threatened under the ESA (USFWS 1989 and 1990), with critical habitat designated by USFWS (USFWS 1994a). This listing status applies to the entire population of DT, except in Arizona south and east of the Colorado River, and in Mexico. An approved recovery plan has been published by USFWS (1994b). However, USFWS formed the Desert Tortoise Recovery Office and published a draft revision of the recovery plan (USFWS 2008). DT was also listed as threatened under the California Endangered Species Act (CESA) on June 22, 1989 (California Fish and Game Commission 1989). The species is also covered under the NECO (BLM 2002).

DTs are widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Suitable

landscapes for DT are generally defined as alluvial fans and plains and rocky slopes at elevations of 1,969 to 3,937 feet above sea level; but DT are known to range from below sea level to 7,300 feet in elevation (USFWS 2008). In the vicinity of the action area, DTs are more likely to be associated with mountainous areas and drainages that flow from the mountains because more water is available for vegetation and DTs in these areas than in the valleys. Presence of ephemeral plant species is an indicator of habitat suitability for DT because these species are the primary components of the tortoise diet (Esque 1994; Jennings 1997; Avery 1998). Generally, DTs prefer creosote bush scrub habitat with a high diversity and cover of perennial plant species and high productivity of ephemeral plants. Within the Colorado Desert biome, where the Project action area occurs, DTs may also use blue paloverde (*Parkinsonia florida*)-ironwood (*Olneya tesota*)-smoke tree (*Psorothamnus spinosus*) communities where present (USFWS 2008). Less commonly, DT will occur in blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), and juniper (*Juniperus* sp.*)* at higher elevations, and saltbush (*Atriplex* sp.) at lower elevations (Nussear et al. 2009). DTs require soils that are firm enough to support burrows but also friable enough to allow for burrow excavation (Anderson et al. 2000). In some cases, DTs take advantage of existing natural shelters such as rock formations or exposed calcic soil horizons (Nussear et al. 2009).

DTs are most active when plants are available for forage or when pooled water is available for drinking; they are usually most active in early March through early June and again between September and early November. They typically have home ranges from under 25 to 200 acres (USFWS 2008). Individuals commonly traverse 1,500 to 2,600 feet per day within their home range, and males have been recorded to travel 0.6 mile within their home range (Berry 1986). DTs are also known to disperse extended distances such as 2.0 miles in 16 days and 4.5 miles in 15 months (Berry 1986). Mojave DTs require 13 to 20 years to reach sexual maturity and have low reproductive rates (USFWS 2008); individuals can live 50 to 100 years and have a long period of reproductive potential.

This once widespread and common species is rapidly declining in numbers due to various factors, including the spread of a fatal respiratory disease; increases in raven populations that prey on juvenile tortoises; mortality associated with roads and off-highway-vehicle use; and habitat destruction, degradation, and fragmentation. Populations have declined precipitously in some parts of the range, including areas within the Colorado Desert recovery unit such as the Chuckwalla Bench within the Chuckwalla DWMA (BLM 2002).

8.2 Desert Tortoise Habitat and Occurrence in the Action Area

The action area occurs within the southern portion of the Colorado Desert recovery unit (USFWS 2008). The southern portion of this recovery unit, previously delineated as the Eastern Colorado Desert recovery unit (USFWS 1994b), has been characterized as remote, receiving little use, having extensive but little multiple uses of public lands, and being in a state that is not urbanizing or developing (USFWS 2005). The highest DT densities within this recovery unit occur in Chemehuevi and Ward valleys (approximately 30-60 miles north-northeast of the PSPP), on the Chuckwalla Bench within the Chuckwalla DWMA (approx. 20 miles south of the PSPP), and in Joshua Tree National Park (northwest of the PSPP).

A portion of the action area occurs within DT critical habitat; 209.5 acres of the Project disturbance area overlap with the Chuckwalla critical habitat unit (25.2 acres of which are associated with the substation south of I-10). As described above in Section 3.0 (Critical Habitat), critical habitat within the Project disturbance area north of I-10 is unsuitable (0.2 acre) or of low quality (182.9 acres) for DT, and south of I-10 is of moderate quality for DT (26.4 acres) based on occurrence of the six primary constituent elements of DT critical habitat, as defined in the *Determination of Critical Habitat for the Mojave Population of the Desert Tortoise; Final Rule* (USFWS 1994a). See Section 3.0, Critical Habitat, for a more complete discussion on this topic. Critical habitat within the Colorado Desert recovery unit has generally been described as being in excellent condition; disturbance was estimated at less than 1.3 percent throughout (USFWS 2005).

Historic occurrences of DT occur in the vicinity of the action area; the CNDDB reports DT occurrences surrounding (but not within) the action area (Figure 4). The nearest documented population of DT based on CNDDB records (from 1987) occurs approximately 3.5 miles to the south of the action area near the Chuckwalla Mountains (CDFG 2009). Other known occurrences are 7 miles to the northwest and 10 miles to the west of the BRSA (CDFG 2009). CNDDB record data are largely incomplete and may not provide an accurate depiction of the actual population size and distribution within the area. However, these data can provide some insight into the distribution of DT here. Additional DT observations exist approximately 27 miles east of the action area within and adjacent to the proposed Blythe Solar Power Project site, and incidental observations were made to the west of the action area on an existing dirt road near Desert Center, California.

As a result of all Project-related DT surveys conducted during spring and fall 2009 (see a more detailed discussion below; AECOM 2009b), two DTs were detected in the southwestern corner

of the action area during fall 2009 surveys (Figure 4; AECOM 2009b). DT sign was observed scattered throughout the action area; however, fresh/recent DT sign was only found in the action area south of I-10. A habitat assessment concluded that 3,899 acres of suitable habitat for DT occur within the Project disturbance area, including that associated with the 25.2-acre substation; habitat occurring north of I-10 (majority of the Project disturbance area) was characterized as low quality for DT (3,871.6 acres), and habitat south of I-10 was characterized as moderate quality for DT (27.4 acres). The majority of DT habitat occurring within the Project disturbance area south of I-10 is associated with development of the substation site (25.2 acres).

A DT habitat assessment was conducted for the entire action area on March 10 and 11, 2009, and October 8, 2009, by Project biologists Arthur Davenport, Shelly Dayman, Katie Hall, and Gregg Lukasek (AECOM 2009b). It was determined that the majority of the action area (i.e., Project disturbance area and surrounding buffer) contains suitable habitat for DT, with the exception of developed land and agricultural land (Table 1, Figures 3 and 5). A total of 3,899 acres of the Project disturbance area are suitable for DT. Overall habitat is of low quality for DT north of I-10 and is of moderate quality south of I-10, where water availability is much greater and vegetation quality and quantity are more favorable for DT. However, some areas of slightly higher quality DT habitat do occur north of I-10; they are associated with dry desert wash woodlands in the central and southeastern portion of the action area, and areas in the northeast portion of the buffer that are closer to the Palen Mountains. Flows entering the action area from the Chuckwalla Mountains in the south and the Palen mountains in the northeast are likely responsible for supporting these areas of higher quality DT habitat within the action area. South of I-10, the habitat quality for DT increases rapidly and substantially as proximity to the Chuckwalla Mountains increases. Of the 3,899 acres of suitable DT habitat in the Project disturbance area (north and south of I-10), only 27.4 acres (south of I-10) are considered moderate quality for DT; the remaining 3,871.6 acres are of low quality.

Protocol surveys to determine DT presence/absence in the action area were conducted between March 17 and May 22, and on October 24 and 25, 2009, by Project biologists Phil Brylski, Scott Cameron, Arthur Davenport, Shelly Dayman, Kim Duncan, Andrew Forde, Michael Gallagher, Charles German, Katie Hall, James Hueslman, James Jennings, Gregg Lukasek, Milo Rivera, Rob Wolfson, and Erik LaCoste, with assistance from the biologists Rocky Brown, Robert Conohan, Andrew Fisher, Matt Kedziora, and James McMorran (AECOM 2009b). DT protocol surveys (100 percent coverage surveys) were conducted throughout the entire Project disturbance area, including the proposed transmission line corridor and substation (Figure 5). DT protocol surveys were conducted according to the 1992 USFWS protocol with the exception of the ZOI

surveys.[1] The 1992 protocol requires surveys to be conducted from March 25 to May 31; however, the protocol was revised in 2009 (USFWS 2009), and the period of September through October was added to the protocol survey period. Therefore, Project-related surveys that were conducted on October 24 and 25 met the USFWS protocol standards and were approved by the resource agencies. The DT protocol survey area extends slightly beyond the boundaries of the current Project disturbance area (Figure 5) as a result of changes in Project design after surveys were completed. In addition, to comply with the recommendations of the CEC Draft Guidelines for Large Solar Projects (dated May 8, 2007), transects at 3,960 feet (0.75 mile) and 5,280 feet (1 mile) out from and parallel to non-linear elements of the Project disturbance area (e.g., solar units), and 1,000 feet out from and parallel to Project linear elements (transmission line), were surveyed for presence/absence of DT concurrently with DT protocol surveys described above. Adult DT abundance was not estimated within the Project disturbance area as requested by CEC and resource agencies because the number of DT detections was too low for valid estimation according to the methodology described in the 2009 DT protocol (USFWS 2009).

Two DTs were observed within the action area (along the 1-mile buffer to the southwest of the substation) during Project surveys in 2009, both inside the same occupied caliche burrow (Figure 4). No DTs were observed within the Project disturbance area. An additional adult DT was observed in the vicinity of, but outside, the action area during other non-DT Project surveys during 2009 (Figure 4); this detection occurred within a dry desert wash approximately 0.5 mile south of the action area in spring 2009 by Project archaeologist Pat Malony. The limited number of live DT observations within the action area is probably a result of the PSPP's location on the valley floor where water availability is more limited than in the surrounding mountains. Water availability on the PSPP site is not likely sufficient to support the long-lived annual plant population necessary to support a large DT population. A denser population of DTs is more likely to occur within the neighboring mountains and the drainages associated with the mountains than within the action area.

Additional DT sign was observed scattered throughout the action area during protocol surveys for DT. Sign was observed somewhat more frequently in the central and southern portion of the action area; recent DT sign (e.g., fresh scat, active burrows) was only observed in the southwest portion of the action area (Figure 4). Several confirmed or potential DT burrows (21) were observed during surveys, including two active DT burrows (with sign of recent use) and an

[1] Protocol surveys for presence/absence of DT were conducted according to the 1992 USFWS protocol (USFWS 1992) with the following exception: no surveys were conducted of the five ZOI transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet. This modification to the survey protocol was agreed upon prior to survey initiation by USFWS, CDFG, and BLM (See "Consultation to Date" section in this document).

additional occupied caliche burrow containing the two DTs mentioned above. All three active/occupied burrows were detected in the southwest corner of the action area, south of I-10 and outside of the Project disturbance area (Figure 4). Sixteen potential DT pallets were observed in the action area, none of which showed signs of recent use (i.e., active). Additionally, a few observations of DT tracks (two) and DT scat (four, including three of fresh scat) occurred in the southwest portion of the action area, in the vicinity of the active/occupied burrows. A total of 31 observations of tortoise shell remains (primarily bone fragments) were made within the action area (Figure 4). Of all observations of shell remains, 13 were mineralized bone fragments but are still considered modern by paleontological standards (i.e., within the past 100 years), and 14 were non-mineralized. Nineteen of the shell remains mapped were within the Project disturbance area. DT shell remains observed are probably from carcasses that washed down (north) into the action area over time from adjacent higher elevations to the south where DTs are more likely to occur.

It was not possible to calculate a DT abundance or density estimate per the 2009 USFWS protocol *Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassazii)* (USFWS 2009) within the action area, because so few DTs were observed during surveys (only two DTs were observed within the action area). A minimum of 20 DTs must be observed for an estimated abundance calculation to be valid according to the 2009 USFWS protocol. Because no DTs were detected within the action area north of I-10 during protocol surveys, DTs most likely occur at a very low abundance and density within this area. Only two DT were detected in the action area south of I-10; however, because a majority of the action area south of I-10 is composed of buffer areas that were surveyed at very low intensity relative to other areas within the action area (e.g., the Project disturbance area), DT densities south of I-10 are likely to be much greater than was represented by the survey results. It is possible that DT densities south of I-10 could be more similar to those found at the Chuckwalla Bench approximately 20 miles south of Palen. DT densities at the Chuckwalla Bench in 1992 were estimated between 22 and 49 adults per square kilometer (approximately 57 to 127 adults per square mile), but have shown declining trends (Tracy et al. 2004; Berry 1997).

Despite limited observations of DT use of the action area (most notably north of I-10), the action area may be important for DT movement between higher quality habitats in the vicinity of the Project site. Higher quality DT habitat exists in the Palen Mountains to the northeast and the Chuckwalla Mountains to the south, and the Project action area connects these areas. DTs are known to use low-quality intermountain habitat, such as that present across most of the action area, as dispersal routes over time, providing connectivity between high-quality habitat areas in the surrounding mountains (Averill-Murray and Averill-Murray 2005). Currently, three large

culverts under I-10, occurring along the existing washes in the action area (Figure 3), provide DT and other wildlife a safe passage under I-10 in a north-south direction across the action area.

9.0 EFFECTS

This section describes the potential direct and indirect effects of the Project proposed action on DT as a result of Project construction, operation, and maintenance. Direct effects are any effects (adverse or beneficial) to a species or its habitat that are caused by the proposed action and that occur at the time of the proposed action. Indirect effects are those effects of the proposed action that occur later in time than the proposed action and are reasonably certain to occur.

9.1 Construction Effects:

9.1.1 Direct Effects

Direct permanent effects to DT could potentially occur as a result of the installation of Project facilities, which would affect 3,871.6 acres of low-quality DT habitat, and 27.4 acres of moderate-quality DT habitat in the action area. As stated previously (refer to discussion in Section 3.0, Critical Habitat, above), DT critical habitat present in the Project disturbance area (209.5 acres) is composed of 26.4 acres of moderate-quality DT habitat south of I-10, in which all six PCEs of DT critical habitat occur, and 183.1 acres of unsuitable (0.2 acre) and low-quality (182.9 acres) DT habitat north of I-10. The 183.1 acres of critical habitat north of I-10 do not meet three of the six criteria (i.e., PCEs) that define critical habitat. A total of 25.2 acres of the 26.4 acres of moderate-quality DT critical habitat affected by the Project are attributable to the substation alone.

Construction of the PSPP would directly and permanently affect low- and moderate-quality critical habitat present in the Project disturbance area via effects to PCEs. Direct effects to DT could occur from mortality of individuals by crushing or vehicle collisions in areas outside DT-exclusionary fencing during construction and operation activities. The addition of access roads could also increase off-road-vehicle activity, especially south of I-10. This would reduce the possibility to ensure the critical habitat remaining is “habitat protected from disturbance and human-caused mortality,” an element already considered missing from critical habitat north of I-10 (refer to Section 3.0, Critical Habitat). Indirect effects from construction-related introduction of invasive plants that outcompete native plants and reduce foraging habitat for DT could further preclude vegetation of “sufficient quantity and quality of forage species” in the

critical habitat remaining in the vicinity of the Project disturbance area, another element already considered missing in critical habitat north of I-10.

Overall, the Project would directly and permanently affect PCEs through loss of critical habitat both north and south of I-10 and would indirectly affect two of the six PCEs (mostly south of I-10). However, these effects would not significantly affect the CHU as a whole because the effects would occur primarily to low-quality (or unsuitable) DT habitat at the edge of this CHU and would not be substantial enough (0.021 percent of the CHU) to affect the function of the PCEs in the CHU. The affected CHU would be expected to maintain its current value to DT recovery.

The presence of three active (including one occupied) burrows in the southwest corner of the action area (outside the Project disturbance area) indicates that DTs are using the action area; however, it is unknown if these burrows are used by resident or transient DT. Dispersing juvenile and/or transient DT may use burrows while searching for an area to establish a home range. Higher quality DT habitat exists in the Palen Mountains to the northeast and the Chuckwalla Mountains to the south, and the Project action area connects these areas. DTs are known to use low-quality intermountain habitat such as that present across the majority of the action area as a dispersal route over time, providing connectivity between high-quality habitat areas in the surrounding mountains (Averill-Murray and Averill-Murray 2005).

The Project may adversely affect local movement and reduce habitat connectivity of the State and federally listed DT. The drainages that currently flow through the action area are proposed to be rerouted in channels around and through the action area. While rerouted channels would have remained accessible to DT from adjacent areas (channels would either be constructed outside the facilities' perimeter fence or DT would not be completely excluded by the chain link fence) in the absence of measure BIO-21 (see Section 6.3, Avoidance and Minimization Measures), these channels are not expected to retain suitable habitat features for DT, and, in the case of the central channel, could create a movement trap for DT. Minimal vegetation cover is anticipated within rerouted channels as a result of Project construction and channel maintenance needs (see Section 6.2, Project Description). The lack of suitable vegetative cover for DT and increased human presence on site would limit DT from inhabiting or using rerouted channels for successful movement or dispersal through the middle of the Project site over the course of several generations. Additionally, DTs could potentially get trapped and/or lost in the central channel and die because of the lack of resources (vegetation) within the channel and the long distance needed to travel along the channel to pass through the Project site. However, to ensure that no DTs perish in the central channel as a result of the above-mentioned effects, a permanent

DT-proof fence, or similar structure sufficient to exclude DTs from the central channel, would be installed across the inflow and outflow points of the central channel to prevent DT from entering (see Section 6.3, Avoidance and Minimization Measures).

The highway underpasses (culverts) would remain open and DT could still cross under I-10 when making north to south movements. However, some individuals traveling around the Project disturbance area from the north may attempt to cross I-10 at-grade rather than use underpasses (i.e., culverts) as a result of proposed DT-proof fencing along the perimeter of the solar fields (see Section 6.3, Avoidance and Minimization Measures), which may increase the potential for road-related DT mortality. For example, fencing on the west side of the Project disturbance area could guide DTs directly onto I-10 (Figure 2). This potentially could disrupt DT population dispersal from the Chuckwalla Mountains to the southwest connecting to the Palen Mountains in the northeast and vice versa. Although DT is not a migratory species, opportunities for local movements within its home range and dispersal are important for maintaining viable populations. Effects to DT in the context of impacting regional population dispersal would be adverse because it is a resident species that generally only moves within its home range, with the exception of juvenile dispersal. Construction of the PSPP may increase the number of DT generations it takes for individuals to be exchanged between populations.

Temporary direct effects to DTs using the action area could result from an increase in vehicle traffic while the Project is under construction. The increased vehicular traffic volumes could lead to an increase in vehicular strikes while tortoises attempt to cross roads near the action area, especially that portion of the action area south of I-10. To limit direct mortality to individual DTs as a result of construction, the Project disturbance area would be fenced with DT exclusionary fencing, and pre-construction DT clearance would occur (see Section 6.3, Avoidance and Minimization Measures).

9.1.2 Indirect Effects

Indirect effects to DT could occur from increased common raven (*Corvus corax*) presence associated with the construction of new elevated perching sites (e.g., new transmission line towers, perimeter fencing). Common ravens were rarely observed within the action area during surveys in 2009. Also, there would be no standing water on site as a result of Project construction, which would reduce the potential for raven occurrence. Therefore, the potential for indirect effects to DT as a result of common raven occurrence may be reduced. During Project surveys in 2009, only one pair of common ravens (with young) was observed in the action area; the nest was located in a desert ironwood tree (*Olneya tesota*) in the north central portion of the

Project disturbance area (EDAW and Bloom Biological 2009). However, development of new elevated perching sites as a result of Project construction could increase raven numbers locally, including the probability that young ravens remain in the area after maturing, which, in turn, could result in increased predation on DT in the vicinity of the Project disturbance area. The potential for these effects would be reduced through development of a Common Raven Monitoring, Management, and Control Plan (AECOM 2010b). Additionally, garbage from increased human presence associated with the PSPP would attract common ravens. However, daily trash removal and potential use of perch-deterrent devices would occur as a result of proposed biological resource protection measures (see Section 6.3, Avoidance and Minimization Measures, above), and would reduce the potential for these indirect effects to occur. These potential effects would be expected to be greater in areas of higher quality DT habitat, such as the northeastern and southwestern portion of the action area (e.g., two adult DTs were observed in the southwestern portion of the action area during Project surveys), and along the perimeter of the Project site where perching opportunities on the proposed fence would border adjacent suitable habitat.

Indirect effects could also result from construction-related introduction of invasive plants that outcompete native plants, or from increased incidence of accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed as part of the Project), both of which could reduce adjacent habitat quality for DT. This would also affect the critical habitat PCE of "sufficient quantity and quality of forage species." Potential deposition of sediment loads as a result of construction-related sediment mobilization during heavy rain events and flooding downstream would affect existing DT burrows outside of the Project disturbance area. Additionally, increased road use near the action area during Project construction may increase the potential of vehicles crushing DT in areas outside of where DT-proof fencing is installed around Project facilities (see Section 6.3, Avoidance and Minimization Measures).

Construction of the PSPP may have permanent indirect effects on DT movement. DT movement may be altered due to edge effects associated with development. Behavioral avoidance of human-made structures and associated edges can decrease movement and deter connectivity. In addition, the Project may indirectly affect movement through DT avoidance of artificial light and increased noise, or they may change daily activities in response to human presence.

9.2 Operation and Maintenance Effects

9.2.1 Direct Effects

Direct effects to DT during operation and maintenance activities of the Project could occur from mortality of individuals by crushing or vehicle collisions in areas outside DT exclusionary fencing. Operation and maintenance of the Project would not result in any additional direct effects to DT movement already described in "Construction Effects" above.

9.2.2 Indirect Effects

Operation and maintenance of the Project may also result in permanent, indirect effects to DT, including edge effects, where the operation of Project facilities would lead to increased lighting and increased potential for exotic plant and wildlife invasion, and could contribute to reduced quality of critical habitat occurring adjacent to the Project site. Nighttime lighting could disrupt DT movement and/or cause increased predation rates adjacent to the Project disturbance area. Wildfires caused by downed transmission lines are rare but may occur and would damage adjacent habitat and could harm individuals inhabiting adjacent areas. Indirect effects from operation-related introduction of invasive plants that outcompete native plants and reduce foraging habitat for DT could further preclude vegetation of "sufficient quantity and quality of forage species" in the critical habitat remaining north of I-10, an element already considered missing north of I-10. Operation of the Project would not result in any additional indirect effects to DT movement already described in Section 9.1, Construction Effects, above.

10.0 CUMULATIVE EFFECTS

This section addresses the potential additive effects of implementing the PSPP in combination with other future State, Tribal, local, and private activities (i.e., non-Federal activities) that are reasonably certain to occur within the Project action area. The PSPP involves the development of land that is currently owned and managed by BLM. Currently, no other projects unrelated to the proposed action are reasonably certain to occur within the Project action area. Therefore, no cumulative effects of the PSPP in combination with other non-Federal projects in the action area are anticipated.

Although there are no anticipated cumulative effects as defined under the ESA, a number of solar, wind, and transmission line projects have been proposed on Federal lands in the vicinity of the PSPP. These projects are not evaluated in this BA because they will be subject to separate

ESA consultation. Solar and wind development projects are currently proposed on more than 1 million acres of BLM lands in California and Nevada according to the BLM website as of June 2009, including an estimated 100,000 acres of solar development on desert lands along the I-10 corridor expected to occur between 2010 and roughly 2014 (AECOM 2009c). These Federal projects also include a number of east-west transmission line projects proposed on Federal lands managed by BLM along I-10. The West-Wide Energy Corridor Programmatic Environmental Impact Statement (PEIS) has delineated energy corridors running through the region, including the east-west corridor along I-10 mentioned previously (to which the Project would interconnect), and two north-south energy corridors meeting I-10, one near Desert Center west of the PSPP and a second approximately 40 miles east of the Project near Blythe.

Several solar and non-renewable energy projects are proposed on private lands in the vicinity of the PSPP. As of July 2009, four solar thermal project applications covering approximately 4,600 acres of private land with proposed capacity of 977-MW on non-BLM lands under CEC jurisdiction were proposed. Several of these solar projects are proposed in the southeastern desert of the State, but none are in the I-10 corridor. There are also solar photovoltaic (PV) projects on private lands that are not under the jurisdiction of either CEC or BLM. There are a number of proposed non-renewable or hybrid combined-cycle, solar thermal power plants on private land that come under CEC jurisdiction, including the Victorville 2 and Palmdale Hybrid Power Projects and a combined-cycle power plant in Blythe.

The various projects identified above will undergo their own separate environmental review processes and each project will be required to mitigate its own impacts on DT as identified in the review process. As noted above, other projects also will be subject to separate ESA consultation However, the stress on species such as DT whose habitats are shrinking due to development activities will continue. Further, the numerous large project sites will cumulatively affect DT dispersal.

11.0 CONCLUSION AND DETERMINATION

Based on the analysis of the proposed action, this BA concludes that the Project is likely to adversely affect DT. However, direct and indirect effects would not adversely affect the conservation or ultimate recovery of the species following implementation of Project avoidance and minimization measures (see Section 6.3, Avoidance and Minimization Measures).

Additionally, the proposed action is likely to adversely affect 209.5 acres of critical habitat for DT, representing 0.021 percent of the Chuckwalla CHU. However, these effects are not expected

to have an adverse affect on the overall function and value of this CHU because the impacted area is located at the edge of the CHU boundary where some PCEs are not present (e.g., 183.1 acres are of low quality for DT and lack three of the six critical habitat PCEs), the acreage impacted would be small relative to the CHU (0.021 percent), and habitat compensation, potentially within the affected CHU, would occur as a result of implementation of Project avoidance and minimization measures.

These conclusions are based on the anticipated successful implementation of the various avoidance and minimization measures (including compensatory mitigation) described herein (see Section 6.3, Avoidance and Minimization Measures). These measures would reduce effects of the proposed action on DT based on the following rationale:

- Direct effects to DT would generally be minimized by:
  - Requiring compliance monitoring by a qualified biologist to ensure DT protection measures are being implemented effectively, and
  - Limiting ground-disturbing activities to within the defined Project disturbance area boundaries.
- Direct injury and mortality of DT would be minimized as a result of:
  - Pre-construction surveys and subsequent installation, monitoring, and maintenance of permanent tortoise-proof fencing to enclose the Project disturbance area that would remove DT from harm's way prior to and during Project construction, operations, and maintenance; and
  - Requiring vehicle speed limits and routine tortoise inspections beneath parked vehicles when accessing the Project site outside of tortoise exclusionary fencing to reduce the potential for vehicle strikes.
- Indirect effects to DT and their habitat would be reduced by:
  - The implementation of standard construction BMPs, and establishing equipment operations standards that would minimize the likelihood of offsite sedimentation and hazardous fluid spills that could otherwise degrade or destroy adjacent habitat;
  - Requiring Project lighting to be directed away from adjacent sensitive habitat that could cause decreased DT activity or increased predation in neighboring habitats;

- Requiring fire-safe and weed-prevention practices to reduce the potential for invasive weed introductions and increased incidence of wildfire that could degrade or destroy adjacent habitat; and
- Requiring trash management, minimal standing water on site, and implementation of a raven monitoring and management plan to reduce the potential for the Project to attract opportunistic predators that prey on DT.

- Compensation for the loss of suitable habitat for DT, including low- and moderate-quality habitat for DT, would occur through implementation of one or more offsite mitigation options. Compensatory mitigation would be achieved through a combination of offsite land acquisition, offsite habitat enhancement, and funding programs that would promote the recovery of DT. Priorities for habitat acquisition would include lands in the Colorado Desert recovery unit and that contribute to DT habitat connectivity, and high-suitability areas, or lands that could feasibly be enhanced and managed as such, that build linkages between DT designated critical habitat, known populations of DT, and/or other preserve lands.
- The Project would not adversely affect attainment of the goals and objectives of the DT Recovery Plan (USFWS 2008).
- With the possible exception of proposed compensatory mitigation ratios for effects within low-quality DT habitat outside of critical habitat, the Project is consistent with the NECO, acknowledged by USFWS in the associated Biological Opinion (USFWS 2005) as a plan that ensures that authorized actions "are not likely to reduce appreciably, either directly or indirectly, the likelihood of both the survival and recovery of the desert tortoise in the wild by reducing its reproduction, numbers, or distribution."

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ATTACHMENT 1

FIGURES

Palen Solar Power Project
Biological Assessment

Figure 1
Regional Map

Source: ESRI; AECOM 2009

AECOM

Date: March 2010

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Palen Dry Lake

Map Location

Legend

- Action Area
- Project Disturbance Area
- Chuckwalla Critical Habitat Unit
- Chuckwalla DWMA (NECO)
- Multi-species WHMA (NECO)
- Paved Roads
- I-10 Culverts

Proposed Project Elements

- Rerouted Drainages
- Perimeter Security Fence
- Solar Unit
- Power Block
- Substation
- Transmission Line

Source: NAIP 2005; USFWS; AECOM 2009

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1 inch = 3,500 feet

0 3,500 7,000 Feet

Palen Solar Power Project
Biological Assessment

Figure 2
Proposed Project Elements and Action Area

AECOM

Date: March 2010

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Map Location

Legend

- Action Area
- Project Disturbance Area

Vegetation Communities

Riparian
- Desert Dry Wash Woodland
- Unvegetated Ephemeral Dry Wash

Upland
- Active Desert Dunes
- Desert Sink Scrub
- Dry Lake Bed
- Sonoran Creosote Bush Scrub
- Stabilized and Partially Stabilized Desert Dunes

Other
- Agriculture
- Developed

Source: NAIP 2005; AECOM 2009

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1 inch = 3,500 feet

0 3,500 7,000 Feet

Palen Solar Power Project
Biological Assessment

Figure 3
Vegetation Communities within the Action Area

AECOM

Date: March 2010

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Desert Tortoise Observations
(Spring and Fall 2009)

- Tortoise
- Tortoise Burrow - Occupied
- Tortoise Burrow (Active) - Class 1
- Tortoise Burrow - Class 3
- Tortoise Burrow - Class 4 or 5
- Tortoise Scat - Class 2
- Tortoise Scat - Class 3
- Tortoise Carcass - Class 3
- Tortoise Carcass - Class 4
- Tortoise Pallet - Class 4 or 5
- Tortoise Tracks
- Tortoise Bone Fragments - Mineralized
- Tortoise Bone Fragments - Not Mineralized

Map Location

Legend

- Action Area
- Project Disturbance Area

CNDDB Species Inventory

- Desert Tortoise (not present in map area)
- Coachella Milk vetch (not present in map area)

Source: NAIP 2005; AECOM 2009

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1 inch = 3,500 feet

0 3,500 7,000 Feet

Palen Solar Power Project
Biological Assessment

Figure 4
Recorded Occurrences of Federal Listed Species Near the Action Area

AECOM

Date: March 2010

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Map Location

Legend

- Action Area
- Project Disturbance Area
- Desert Tortoise Suitable Habitat

Desert Tortoise Survey Area

- 100% Coverage Survey Area

CEC Buffer Transects

- 1-mile Transect
- 0.75-mile Transect
- 1,000-foot Transect

Source: NAIP 2005; AECOM 2009

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1 inch = 3,500 feet

0 3,500 7,000 Feet

Palen Solar Power Project
Biological Assessment

Figure 5
Desert Tortoise Surveys and Suitable Habitat within the Action Area

AECOM

Date: March 2010

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ATTACHMENT 2

U.S. FISH AND WILDLIFE SERVICE CORRESPONDENCE REGARDING SPECIES TO BE EVALUATED FOR THE PALEN SOLAR POWER PROJECT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-ERIV-09B0187-09SL0578

MAR 19 2009

Erin Riley
EDAW Inc.
1420 Kettner Boulevard, Suite 500
San Diego, California 92101

Subject: Request for Information on Endangered and Threatened Species in the Vicinity of the Proposed Solar Millennium Palen Project, Riverside County, California

Dear Ms. Riley:

This letter responds to your March 2, 2009, letter (received March 4, 2009) requesting information on species of concern, including federally-listed or proposed species, or designated or proposed critical habitats that may occur in and around the Solar Millennium Blythe project solar thermal power generating facility being proposed on Bureau of Land Management (BLM) lands.

Section 7 of the Endangered Species Act of 1973 (Act), as amended, requires Federal agencies to consult with the U.S. Fish and Wildlife Service (Service) should it be determined that their actions may affect federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (*e.g.*, harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under sections 7 (Federal consultations) and 10 (habitat conservation plans) of the Act.

If a proposed project is authorized, funded, or carried out by a Federal agency and may affect a listed species, then the Federal agency must consult with us on behalf of the applicant, pursuant to section 7 of the Act. During the section 7 process, measures to avoid and minimize project impacts to listed species and their habitat will be identified and incorporated into a biological opinion that includes an incidental take statement that exempts incidental take by the Federal agency and applicant.

At this time, no candidate species occur within the vicinity of the proposed project. However, it appears that the federally-threatened desert tortoise (*Gopherus agassizii*) may occur on and/or in the vicinity of the proposed project. While we do not have site-specific species information for the proposed project area, federally-designated critical habitat for the desert tortoise (Chuckwalla Unit) is located south of the proposed project. Therefore, we recommend that you seek assistance from a biologist familiar with the habitat conditions and associated species, particularly desert tortoise, in and around the project site to assess the potential for direct, indirect and cumulative impacts likely to result from the proposed activity.

We also recommend that, for the 2009 field season, you conduct desert tortoise surveys following the Service's 1992 *Field Survey Protocol For Any Non-Federal Action That May Occur Within The Range Of The Desert Tortoise* and that all potentially suitable tortoise habitat in the action area associated with the proposed project be surveyed. The "action area" is defined by regulation as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). This analysis is not limited to the "footprint" of the action nor is it limited by the Federal agency's authority. Rather, it is a biological determination of the reach of the proposed action on listed species. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

Please also note that there may be BLM and State sensitive species concerns in this area. Therefore, we recommend that you contact the BLM and the California Department of Fish and Game to obtain lists of sensitive species that may occur in the vicinity of the proposed project and to determine which species may require surveys pursuant to the National Environmental Policy Act and California Environmental Quality Act.

Should you have any questions regarding this letter, survey protocols for federally-listed species, or your responsibilities under the Act, please call Tannika Engelhard of my staff at (760) 431-9440.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor

Enclosure

cc:
Kim Nicol, California Department of Fish and Game, Bermuda Dunes Field Office
Mark Massar, Bureau of Land Management, North Palm Springs Field Office

Federally Listed Species
Which Occur or May Occur on or Near the Proposed Solar Millennium Palen Project, Riverside County, California

Common Name	Scientific Name	Status
REPTILES		
desert tortoise	*Gopherus agassizii*	T, CH

E: endangered
T: threatened
CH: critical habitat

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of: **APPLICATION FOR CERTIFICATION** **for the *PALEN SOLAR POWER PROJECT***	**Docket No. 09-AFC-7** **PROOF OF SERVICE** ***(Revised 12/28/2009)***

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DECLARATION OF SERVICE

I, Carl Lindner, declare that on, March 8, 2010, I served and filed copies of the attached Palen Solar Power Project Data Response materials:

Draft Biological Assessment – Palen Solar Power Project
Technical Areas: Biological Resources

The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[http://www.energy.ca.gov/sitingcases/solar_millennium_palen]

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)
For service to all other parties:

_____ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by overnight delivery service or depositing in the United States mail at Camarillo, California with postage or fees thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

__X__ sending an original paper copy and one electronic copy, mailed to the address below (preferred method);

OR

_____ depositing in the mail an original and 12 paper copies, along with 13 CDs, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-7
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Carl E. Lindner