United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
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Carlsbad, California 92011

In Reply Refer To:
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Memorandum

To: Field Manager, California Desert District Office, Bureau of Land Management
Moreno Valley, California

From: Field Supervisor, Carlsbad Fish and Wildlife Office
Carlsbad, California

Subject: Section 7 Biological Opinion on the McCoy Solar Power Project,
Riverside County, California

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the Bureau of Land Management's (BLM) proposed issuance of a right-of-way (ROW) grant that would authorize construction, operation, maintenance, and decommissioning of the proposed McCoy Solar Energy Project (Project or MSEP), located in Riverside County, California. This biological opinion analyzes the effects of the Project on the federally threatened Mojave desert tortoise (*Gopherus agassizii*, tortoise or desert tortoise) in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). We received a request for formal consultation, dated March 16, 2012, on March 18, 2012. We received additional information requested for the consultation on May 25, 2012, and November 19, 2012. Because the proposed Project is not in or adjacent to designated critical habitat for the tortoise, and the closest critical habitat is 2.5 miles west of the Project, critical habitat would not be affected.

This biological opinion is based on information provided in the following documents and communications: (1) BLM *Draft Environmental Impact Statement, McCoy Solar Power Project* (BLM 2012b); (2) BLM *Final Environmental Impact Statement, McCoy Solar Power Project* (BLM 2012c); (3) *McCoy Solar Power Project Biological Assessment* (Tetra Tech 2012b); (4) *McCoy Solar Energy Project Biological Resources Technical Report* (Tetra Tech EC, Inc. and Karl 2011); (5) supplemental information to the biological assessment (Tetra Tech 2012c); and (6) pertinent literature contained in our files. The project file for this consultation is located at the Carlsbad Fish and Wildlife Office.

CONSULTATION HISTORY

McCoy Solar, LLC, the ROW applicant, requested information on sensitive species and habitats in the Project Area and vicinity on October 5, 2007, and February 11, 2011. Between February

2011 and August 2012, the Service, BLM, California Department of Fish and Wildlife (CDFW), and/or the applicant participated in numerous meetings, and conference calls regarding survey methodology, the Project, and western boundary alignment. The Service coordinated early with BLM and CDFW on the development of measures in the draft Environmental Impact Statement (EIS) to avoid, minimize, and offset impacts to the desert tortoise, and we conducted several visits to the Project site with the applicant and these agencies, primarily focusing on the design of western boundary of the proposed Project.

In preparing this biological opinion, we provided a draft biological opinion to the BLM on January 24, 2012. We incorporated into this biological opinion, as appropriate, all comments received from BLM and the applicant.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is the BLM's proposed issuance of a ROW grant that would authorize construction, operation, maintenance, and decommissioning of an up to 750-megawatt photovoltaic (PV) solar energy generating facility. McCoy Solar, LLC has requested a 7,700-acre ROW grant from BLM for this Project. The proposed Project is located in a rural area of the Sonoran Desert in unincorporated Riverside County, California, approximately 13 miles northwest of the city of Blythe, California and approximately 6 miles north of Interstate (I) 10 (Figure 1). Project components generally include construction, operation, maintenance, and decommissioning of the Solar Plant Site and support facilities, an access road/utility corridor, and a generation-tie (gen-tie) transmission line (Figure 1). The proposed Project would disturb an estimated 4,609.5 acres of which 36.3 acres is already disturbed and approximately 4,532.9 acres is desert tortoise habitat (Table 1). The majority of the MSEP would be developed on public land administered by the BLM. Approximately 477 acres of privately owned land also is assumed to be included in the proposed Solar Plant Site boundary (Figure 2). If a ROW grant is approved for the MSEP, then a land use plan amendment also would be required to identify the site in the California Desert Conservation Area Plan of 1980, as amended (CDCA Plan) as an appropriate site for the proposed use.

Any expansion of construction, operation, or maintenance activities into areas outside of the areas considered in this biological opinion will require BLM approval and tortoise clearance surveys, and may require reinitiation of consultation with the Service.

To be consistent, our biological opinion uses the same terminology as defined in the biological assessment (Tetra Tech 2012b). Below is a list with definitions of the terms used in this document:

1. Project refers to the MSEP.

2. Project Area is the footprint of all Project components, which includes the Solar Plant Site and Linear Facilities.

3. Solar Plant Site is the 4,437-acre area that includes, Unit 1 and Unit 2 solar fields, two substations, evaporation ponds, access road, operations and maintenance (O&M) building, and other support facilities, water storage tanks, auxiliary systems, and open areas.

4. Linear Facilities includes the gen-tie line, access road, primary and secondary telecommunication lines, and distribution line. With the exception of the switchyard and a portion of the access road, the Linear Facilities would be mostly co-located inside the linear ROW. The switchyard would lie at the southern terminus of the linear ROW; a portion of the access road north of I-10 will be shared with Blythe Solar Power Project (BSPP) and other potential solar projects in the vicinity.

5. Linear Corridor is the area that was surveyed and within which all the Linear Facilities ultimately would be located. The Linear Corridor is substantially wider than what would ultimately become the linear ROW to accommodate flexibility in the micro siting of the Linear Facilities.

6. Primary Recipient Site, Secondary Recipient Site, or Recipient Site refers to the area to which tortoises would be translocated from the Solar Plant Site.

7. Project vicinity is intended to be a general term to describe the broader, surrounding area.

Table 1. Estimated Acres of Temporary and Permanent Disturbance.

Solar Plant Site	**Unit 1 Permanent (acres)[a]**	**Unit 2 Permanent (acres)[a]**
Solar Field (includes all acreage within the Solar Plant Site covered by the solar panels and trackers, the inverter pad areas, the maintenance roads between the solar arrays, any engineered drainage features and the gen-tie line area within the solar plant)	2,186.3	2,041.0
Interior Perimeter / Fence Maintenance Road (assumes 24 feet wide, approximately 8.5 miles for Unit 1 and 6.5 miles for Unit 2)	23.3	18.7
Fence Maintenance Road / Access Corridors (varies in width, approximately 13 miles outside Solar Plant Site fence)	33.3	19.5
Onsite Substations	2.8	2.8
Shared Water Treatment Area	3.0	0.0
Shared O&M Building (approximately 3,000 square feet) and Parking Area (approximately 10,000 square feet)	0.3	0.0
Main Access Road within Solar Plant Site boundary (assumes improved, 24 feet wide with 3 feet shoulders, approximately 2.6 miles)	10.0	0.0
Area in and around natural drainages that will remain ungraded but are currently within fence line	0.0	96.0
Subtotal for Solar Plant Site Disturbance Acreage	*2,259.0*	*2,178.0*
TOTAL SOLAR PLANT SITE PERMANENT DISTURBANCE ACREAGE (ALL CONSIDERED DESERT TORTOISE HABITAT)	**4,437.0**	

Linear Facilities Outside Solar Plant Site Boundary	**Permanent (acres)**	**Temporary (acres)**
Main Access Road outside of the Solar Plant Site boundary (assumes improved, 24 feet wide road with 3 feet shoulders, 50 feet wide temporary disturbance, approximately 4 miles, not including already disturbed access road)[b, e]	**14.5**	**9.7**
Gen-tie Support Poles (assumes 50 monopoles and 52 H-frame poles to be spaced about 800 feet apart, each foundation requiring 50 feet by 50 feet temporary disturbance and 12 feet by 12 feet permanent disturbance)[c]	0.5	8.3
Gen-tie line Maintenance Road (assumes 24 feet wide with 3 feet shoulders, 50 feet wide temporary disturbance, approximately 7.75 miles (approximately 4 miles access is provided by the Main Access Road), assumes the BSPP gen-tie line access road would be shared along the length of the MSEP gen-tie line that parallels the BSPP gen-tie line)[c, b]	28.2	18.8
Linear Facilities Outside Solar Plant Site Boundary	**Permanent (acres)**	**Temporary (acres)**
Gen-tie line Spur Roads (assumes 15 feet wide permanent disturbance, 50 feet wide temporary disturbance, 26 spur roads 220 feet long near airport, 24 spur roads 100 feet long near CRS, no spur roads assumed along main access road north of the BSPP gen-tie line crossing)	2.8	6.5
Gen-tie line Construction Laydown/Assembly Areas	0.0	3.0
String Pulling Sites (assumes 54 pulling sites 100 feet by 300 feet, not including pole disturbances listed previously)	0.0	34.5
Switchyard adjacent to CRS	2.0	0.0
Telecommunications Lines	0.0	0.0
Distribution Line Poles (assumes 135 poles to be spaced about 150 feet apart, each requiring 25 feet by 25 feet temporary disturbance and 3 feet by 3 feet permanent disturbance)	0.0	1.9
Distribution Line Spur Roads (assumes 135 spur roads corresponding to every pole, 12 feet wide and approximately 50 feet long)[c]	1.9	0.0
Distribution Line Maintenance Road (assumes 24 feet wide with 3 feet shoulders, 1.0 miles (approximately 3 miles access is provided by the Main Access Road)	3.6	0.0
Subtotals for Permanent and Temporary Linear Facility Disturbance	*53.5*	*82.7*
Total for Linear Facility Disturbance	136.2	
Total Linear Facility Disturbance of Desert Tortoise Habitat (excludes 38 acres of Stabilized and Partially Stabilized Sand Dunes and 2.3 acres of Agricultural)	**95.9**	
TOTAL MSEP DESERT TORTOISE HABITAT DISTURBANCE ACREAGE (UNITS 1 AND 2 PLUS LINEAR FACILITIES)	2,259 + 2,178 + 95.9 = 4,532.9	

Table from: Tetra Tech 2012c.

[a] These estimated acreage calculations are based on the best available Project plans. Actual acreage of disturbance will be based on pre- and post-construction aerial photographs.
[b] Disturbance may be accounted for in disturbance road acreage of other projects and may be adjusted at a later date if already mitigated for by other projects.
[c] The temporary disturbance for gen-tie and distribution line poles does not include the permanent disturbance or the portion of the spur road that is coincident with the pole construction area.
[d] The 96.0 acres in and around drainages within Unit 2-will remain undisturbed; however, because this area is currently shown between the fence of the Unit 2 Solar Plant Site boundary, it is considered permanently disturbed for purposes of determining impacts and calculating mitigation.
[e] The total Project disturbance, including 36.2 acres of land that is currently developed, is 4,609.5 acres.

Construction

The total site construction period would consist of approximately 46 total months. Construction of the Project would occur in two sequential stages. The following sections detail the components and describe construction.

Solar Plant Site and Support Facilities

The Project consists of two units with construction slated in several phases. Unit 1 would be located on the eastern side of the Solar Plant Site and is expected to have a 250-megawatt capacity; Unit 2 would be located west and would have an up to 500 megawatts capacity. The precise dividing line between Units 1 and 2 would be established during final design. Structures inside the Solar Plant Site would include the power blocks, Unit 1 and Unit 2 substations, up to eight acres of evaporation ponds (netted, as directed by the Service, BLM, and CDFW), access road, O&M building and other support facilities, water storage tanks, auxiliary systems, and open areas. Unit 1 would be located on the eastern side of the Solar Plant Site, and Unit 2 would be located west of Unit 1. Construction of Unit 2 would begin at the completed western boundary of Unit 1 and progress in the western direction. Advances in PV technology may preclude a full build out to the western border of Unit 2, as megawatt capacity may be met with less acreage than projected. Linear Facilities that would originate within and extend beyond the Solar Plant Site include the main access road, gen-tie line, telecommunication lines, and distribution line. Unit 1 would occupy approximately 2,259 acres and Unit 2 would occupy approximately 2,178 acres.

Solar energy technologies are continuing to advance at a rapid rate, and McCoy Solar is continuing to evaluate the evolving benefits of various options at this time. Solar arrays would be organized into two-megawatt-blocks, with some additional arrays configured in one megawatt or half-megawatt-blocks to maximize land use efficiency. The acreage of each block is dependent on the technology, spacing, mounting equipment, and other design criteria subject to change in detailed engineering, but each block would be up to 15 acres. Each block would consist of PV modules and a power conversion station that includes inverters and transformers to convert the direct current electricity to alternating current electricity for transmission across the grid.

Construction of the Solar Plant Site facilities would take place within the fenced Solar Plant Site, after the site is fenced with tortoise-proof fencing and cleared of tortoises. Temporary construction laydown and parking areas would be located within the Solar Plant Site. To limit soil and vegetation disturbance within the fenced area, parking and laydown areas would be (to the extent feasible) within a previously disturbed area on site. Grading activities would occur once all areas are appropriately staked, signed, and access to the Solar Plant Site has been established.

The majority of the site is nearly flat (i.e., the natural slope within the Solar Plant Site is approximately 1 percent or less), and localized grading would generally occur only where there are gullies or sections that are otherwise impassable by vehicles. Where necessary grading

would be minimal or use conventional farming disc and roll techniques within the solar field. Hardscape drainage control would not be used to manage offsite drainage. By using either tracker technology or a fixed tilt mount, the height of the support poles for PV modules can be adjusted to the topography precluding the need to level the grade of the site. This type of PV installation combined with limited onsite grading and disturbance would maintain onsite runoff and infiltration close to the existing conditions.

Water demands for Project construction and operation would be met by using groundwater from at least two, possibly three onsite wells that would be created for the Project. Groundwater in the MSEP area is approximately 250 feet below mean sea level and is contained within the Palo Verde Mesa Groundwater Basin of the Colorado River Hydrologic Region. The Project does not require water to generate electricity and water requirements are significantly lower than other solar energy technologies. Relatively low Project water requirements combined with the distance to groundwater indicate that ground water use will not indirectly impact vegetation used by tortoise for forage and cover in areas adjacent to or near the Project.

During construction, a BLM-approved dust suppressant would be applied to control dust. Water will also be used as a dust suppressant; the amount of water used depends on the type of suppressant used and the manufacturer's recommendations. The concentrate from a reverse osmosis treatment unit (if required for onsite water treatment) would be stored in lined ponds on site.

Evaporation Ponds

Onsite water treatment would discharge minimal wastewater (i.e., less than 1 gallon per minute). Depending on the water quality and the need for onsite regeneration of the water treatment system, two or three netted evaporation ponds totaling up to 8 acres could be required (as directed by the Service, BLM, and CDFW). If required, the evaporation ponds would be located near the water treatment system within the water treatment area. The analysis in this document assumes that the evaporation ponds would be constructed, operated, maintained and ultimately decommissioned as part of the Project.

Access Roads/Utility Corridor

Access to the Solar Plant Site during construction and operation would be via Mesa Drive/Airport exit from I-10 and the existing access road built for the BSPP. Approximately 1.5 miles west of Mesa Drive along Black Rock Road, the Project and BSPP would share BSPP's access road from Black Rock Road north through the center of the BSPP to the entrance of the Solar Plant Site.

A new 30-foot wide paved access road will be constructed, operated, maintained, and decommissioned on BLM land from the BSPP access road to the Solar Plant Site. There is currently no paved access to the Project Area; however, there are currently several two-track dirt roads that provide access to the Project Area.

Access roads would be developed within the Solar Plant Site between the solar array rows to facilitate installation, maintenance, and cleaning of the solar panels. Within the Solar Plant Site, a 24-foot wide paved road would lead from the front gate to the temporary lay-down area, O&M building, Unit 1 Substation, and water treatment area. Another 24-foot wide paved road will occupy a 50-foot wide corridor between the Unit 1 and Unit 2 substation areas. An approximately 24-foot wide gravel perimeter road would be constructed within the perimeter fence line primarily for security inspections and fence maintenance. During decommissioning of the facility, it is anticipated that the same access roads would be used for removal of the facility components.

Gen-tie Transmission Line

The gen-tie line and access road route (Central Route as described in final EIS, BLM 2013) would be approximately 11.2 miles long (plus approximately 2 miles within the Solar Plant Site boundary) extending south from Unit 1, through the center of the BSPP site, and continuing toward the Colorado River Substation (CRS) south of I-10 (Figure 2). The gen-tie would be parallel to the proposed BSPP gen-tie for nearly half of the length, with the two pole lines approximately 50 to 100 feet apart. The gen-tie line north and immediately south of I-10 would be located where there currently are no poles or roads; the majority of the gen-tie and associated maintenance road south of I-10 would be adjacent to existing transmission lines. In each substation of each Unit, the voltage would be stepped up to 230 kilovolts (kV) to match the voltage of the gen-tie line that would interconnect Project generation output with the CRS. Transmission poles will use concrete or non-reflective steel, self-weathering monopoles and/or H-frames for the gen-tie line; structures will not be lattice design. The gen-tie line would use a single set of support towers and separate circuit for each Unit, resulting in a total of two transmission circuits from the Project to the CRS. The maintenance road and associated spur roads would parallel the gen-tie line within the ROW for the length of the route. The maintenance road for the Linear Facilities would be 24 feet wide with 3-foot shoulders and spur roads would be 15 feet wide.

An approximately 3-acre laydown area would be required for construction of the gen-tie line. An already disturbed area (e.g., gen-tie line maintenance or spur road) would be used for this purpose, the location of which would be determined at the onset of the gen-tie line construction. The laydown area also would contain construction worker parking, a staging area, and mobile/modular trailers or similar suitable facilities for construction contractor offices. For each transmission pole or tower site, a work area would be required for the tower footing location, structure assembly, and the necessary crane maneuvers. Each work area (i.e., one per pole) would be approximately 400 square feet (20 feet by 20 feet). Each area would be cleared of vegetation only to the extent necessary, and graded only to the extent necessary to facilitate the safe operation of heavy equipment, such as construction cranes.

Installation of new steel or concrete tower structures to support the 230-kV circuit would begin with the excavation of foundations approximately 6 feet in diameter and 20 feet in depth. A vehicle-mounted power auger or backhoe would be used to excavate the structure foundation.

The area of temporary disturbance for each tower by using an auger would be approximately 50 feet by 50 feet, while the permanent disturbance would be less than 12 feet by 12 feet, plus spur roads. Blasting could be necessary in some instances because of specific geologic conditions. In the unlikely event blasting is necessary, conventional or plastic explosives would be used. Industry standard safeguards, such as blasting mats, would be employed when adjacent areas require protection. If explosives are used, impacts will be limited to the permanent disturbance area to the maximum extent practicable. Once the foundation holes have been cleaned, the towers with preassembled insulators, hardware, and stringing sheaves would be lifted into position, inserted into the foundation holes, and gravel or concrete would be poured in to backfill the hole and create a foundation.

For gen-tie stringing, 54 pulling sites will be required to install conductors along the gen-tie route. These sites will be accessed from the access road or spur roads and will be located within the Linear Corridor. During wire installation, temporary crossing structures will be erected to prevent wire from these structures from falling and will be removed after installation is complete. Temporary crossing structures may not be required for small roads or other areas where suitable safety measures such as barriers, flagmen, or other traffic controls could be used.

Distribution Line

During construction, electricity demand would be necessary for lighting the construction trailers, air conditioning or space heating, water heating and small appliances, temporary site lighting, and machinery operation. Power during construction would be supplied by extending an existing Southern California Edison (SCE) distribution line that would be constructed, operated, maintained, and decommissioned by SCE. The distribution line would be directed from the east (Figure 2). The approximate 20,000-foot length distribution line would be strung on wooden poles approximately 50 feet high and approximately 150 feet apart, ending at a 12-kV metering pole at the Solar Plant Site boundary. There would be a total of 130 to 140 new poles along the route of the distribution line.

Existing roads would be used to the extent possible; no spur roads are anticipated to access each tower site. The distribution line would be located partially along an agricultural operation and partially in an area currently devoid of poles.

During operation and maintenance of the Project, this distribution power circuit also could provide a backup power supply for the low voltage tracker motors, various monitoring instruments, computer, access gates, and other low voltage equipment.

Telecommunications Line

New telecommunications lines would connect the Project substation with the electrical grid through SCE's proposed CRS. Two independent telecommunication lines are required for connection and interaction with the electrical grid. The primary telecommunication line would be hung at the top of the gen-tie support structures, and the secondary telecommunication line

would be located within the disturbance area of the access or maintenance roads. As an alternate, the Project may elect for supervisory control by SCE at the switchyard at the CRS for Unit 1, avoiding the need to run this telecommunication line to the Solar Plant Site. These lines would be installed as part of the gen-tie construction for Unit 1. Estimated construction time is 3 months.

Switchyard

The proposed Unit 1 transmission line circuit of the solar plant would tie into the CRS via a switchyard located adjacent to the CRS. The switchyard would allow for the Unit 1 gen-tie line to be merged with the Genesis Solar Energy Project (GSEP) gen-tie line so that the power from both the GSEP and MSEP Unit 1 could enter the CRS as a single circuit in accordance with the applicant's interconnection agreement with SCE. The line from the switchyard to connect to the CRS would be less than 100 feet long. The switchyard would occupy an approximately 2-acre fenced area with the southern fence line of the switchyard located approximately 25 feet from the northern fence line of the CRS.

Once operational, the switchyard would be accessible only to authorized personnel and contractors. It would contain parallel sets of internal power distribution systems, including buses and circuit breakers that would act as protective relays, disconnect switches, and main step-up transformers.

Operations and Maintenance

The Project will require routine inspections and maintenance to remain in operation. Existing facilities may be repaired, upgraded, or retrofitted to ensure peak performance. The majority of the maintenance is expected to take place within the permanently fenced Solar Plant Site and therefore would avoid potential impacts to desert tortoise. Within the fenced Solar Plant Site, routine O&M will include maintenance and repair of the perimeter and desert tortoise fencing, access gates, and solar array components; vegetation maintenance; and PV panel washing. The primary use of water during operation and maintenance-related activities would be for panel washing and dust control (the proposed PV technology requires no water for the generation of electricity).

Outside of the fenced Solar Plant Site, O&M activities will be conducted within the Linear Facilities ROW. Routine activities associated with the gen-tie line, distribution line, and access road will include repair or replacement of equipment damaged by wind, dust, or accident; access road grading and repairs to drainage structures to maintain a drivable surface; repair of the perimeter security fence; and desert tortoise exclusion fence. These activities are expected to occur throughout the year, as needed. O&M activities will be performed using existing Project roads.

Water demands for the Project construction and operation would be met by using groundwater from at least two, possibly three onsite wells that will be created for the Project. Water quality is

expected to be unsuitable for potable use without treatment. Consequently, the applicant is considering either options for treatment of groundwater or importation of trucked potable water to meet the Project's potable water requirements for operation and maintenance. If the groundwater option is selected, water would be treated with a conventional package water treatment system to assure that any drinking water meets potable standards. The water treatment system design has not been developed but could include either a trailer-mounted water treatment system or a freestanding facility. No wastewater discharge is expected.

To decrease the risk of fire during operation and maintenance of the Project, all vegetation underneath the panels would be managed via, either mechanical mowing/trimming or with a BLM-approved herbicide in accordance with guidance provided in the Solar Programmatic Environmental Impact Statement (PEIS); and vegetation treatments using herbicides on BLM lands in 17 western States and the final vegetation treatments PEIS (BLM 2007). A pre-emergent herbicide would be applied in the spring, and spot foliar applications may be used to manage invasive vegetation throughout the year.

Decommissioning

The planned operational life of the proposed Project is 30 years, but operation life of the facility may be longer or shorter depending on economic or other circumstances. If the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. In any case, BLM would require a Decommissioning Plan be prepared and put into effect when permanent closure occurs. The procedures provided in the Decommissioning Plan would be developed to ensure compliance with applicable laws and regulations, and to ensure public health and safety and protection of the environment. The Decommissioning Plan would be submitted to the BLM for review and approval prior to a planned closure. When the BLM begins to consider decommissioning, they would contact the Service to determine if additional consultation, pursuant to section 7(a)(2) of the Act, would be appropriate.

Conservation Measures

The proposed action includes conservation, minimization, and mitigation measures that will be implemented by the applicant to avoid, minimize, and offset potential adverse effects to the desert tortoise. The term mitigation here and throughout the document is used consistent with what BLM is requiring and we are considering these mitigation requirements as they relate to desert tortoise in our analysis. The conservation measures are part of the proposed action evaluated below in our effects analysis; as such, without prior agreement by the Service, any significant deviation from these measures during Project implementation would constitute grounds for reinitiation of formal consultation if the deviation causes an effect to listed species that was not considered in this biological opinion. In some cases we have modified the language of the conservation measures to improve clarity, but we have not changed the intent of the measures that the applicant and BLM have proposed.

Protective Measure (PM) 1: Environmental Compliance Personnel

A BLM Environmental Compliance Manager (ECM) will oversee the implementation of all desert tortoise protection measures and work directly with the Lead Authorized Biologist (also called Designated Biologist in the final EIS). The Lead Authorized Biologist will oversee all Authorized Biologists and Biological Monitors. The ECM will be responsible for facilitating implementation of the environmental conditions of the Project and for coordinating compliance with the Service.

Authorized Biologists are responsible for knowledge of the latest information on the Service protocols and guidelines for the desert tortoise. All Authorized Biologists must have thorough and current knowledge of desert tortoise behavior, natural history, ecology, and physiology, and demonstrate substantial field experience and training to safely and successfully conduct their required duties. Authorized Biologists are approved to monitor project activities within desert tortoise habitat and are responsible for locating desert tortoises and their sign (i.e., conduct clearance surveys). Authorize Biologists must ensure proper implementation of protective measures, and make certain that the effects of the project on the desert tortoise and its habitat are minimized. Authorized Biologists will meet or exceed the Service's most recent qualification requirements listed on our website: http://www.fws.gov/ventura/species_information/protocols_guidelines/. McCoy Solar will submit the names and qualifications of the proposed Authorized Biologists to the Service and BLM for review no less than 30 days prior to the beginning of any ground-disturbing activities. All replacement biologists will also require agency approval.

Authorized Biologists will document any incident occurring during Project activities that is in non-compliance with the protection measures stated in the biological opinion. The Lead Authorized Biologist and ECM will ensure that appropriate corrective action is taken. An Authorized Biologist or Biological Monitor will document all corrective actions. The following incidents will require immediate cessation of the Project activities causing the incident:

- Imminent threat of injury or death to a desert tortoise;
- Unauthorized handling of a desert tortoise, regardless of intent;
- Operation of construction equipment or vehicles outside of areas secured with desert tortoise fencing without a Biological Monitor present, except on designated roads; and
- Conducting any construction activity without an Authorized Biologist or Biological Monitor present where one is required.

Authority of the Authorized Biologist and Biological Monitors

An Authorized Biologist and/or Biological Monitors will be on site during all construction and ground disturbance activities. Along with the ECM, Authorized Biologists and Biological Monitors will have the authority to halt all site mobilization, ground disturbance, grading, boring, trenching and operation activities that are in violation of the protection measures, or if a desert tortoise wanders into a work site. Work will proceed only after hazards to the desert tortoise are removed, the species is no longer at risk, or the Authorized Biologist has moved the animal from harm's way. If an Authorized Biologist is unavailable for direct consultation, the Biological Monitor will act on behalf of the Authorized Biologist.

Identification and Duties of the Biological Monitors

The Lead Authorized Biologist will submit the resume, at least three references, and contact information of the proposed Biological Monitors to the BLM. The resume will demonstrate, to the satisfaction of the BLM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological Monitor(s) will have familiarity with the protective measures of the biological opinion, conservation measures for the Project, and Service guidelines on desert tortoise surveys and handling procedures. Biological Monitors will assist Authorized Biologists in conducting surveys and in monitoring site mobilization activities, construction related ground disturbance, grading, boring or trenching.

<u>PM2: Desert Tortoise Exclusion Fencing</u>

Prior to the onset of ground disturbing activities each Unit will be fenced with a permanent tortoise exclusion fence per current Service guidance (Service 2009a), to keep tortoises from entering the Unit during construction and operations phases. Tortoise-proof gates would be established at all site entry points. Fence construction may be completed during any time of the year (Service 2010d).

As an alternative to monitoring, Linear Facilities may be temporarily fenced to prevent tortoise entry into construction areas where temporary fencing would be more efficient than monitoring (e.g., where tortoise activity and construction activity is high, or a specific, persistent tortoise requires exclusion). Temporary fencing will essentially follow guidelines for permanent fencing with appropriate changes (e.g., depth of burial or staking materials) to accommodate the specific situations. An Authorized Biologist or Biological Monitors will monitor all fence construction to ensure that no desert tortoises are harmed.

Following installation, all permanent exclusion fencing will be inspected periodically by an Authorized Biologist and/or Biological Monitors. Permanent exclusion fencing will be inspected monthly and immediately after all major rainfall events; temporary fencing will be inspected at least weekly, or more often as necessary. Any damage to the fencing will be repaired immediately. All fencing erected during a tortoise activity period will be inspected at least three

times each day for a minimum of 2 weeks, to search for any tortoises that might be fence-walking; at least one daily search will occur immediately prior to lethal ambient temperatures. Any fence-walking will be reported to the Lead Authorized Biologist. Any new fencing erected during a tortoise non-activity period will be similarly monitored during the first activity period following the fencing.

PM3: Pre-Construction Clearance Surveys

Within 1 week prior to fence installation, an Authorized Biologist and/or approved Biological Monitors will survey the staked fence line location for all desert tortoise burrows and tortoises, covering a swath of at least 90 feet centered on the fence line, using 15-foot-wide transects. All potential desert tortoise burrows or pallets will be searched. Burrows along the fence line that must be disturbed will be excavated by Authorized Biologists or approved Biological Monitors using hand tools. Tortoise burrows will be mapped using Global Positioning System units, and the size and age identified. Where flagging will not attract poaching, burrows will also be flagged. All fence construction then will be monitored by Biological Monitors.

A clearance survey for tortoises will be conducted inside all fenced areas. A minimum of two consecutive clearance passes must be completed and these must coincide with heightened tortoise activity from April through May or September through October. Surveys conducted outside the recommended window will require agency concurrence prior to commencing. All clearance activities (i.e., capture, transport, release, etc.) will occur when ambient temperatures are below 95 degrees Fahrenheit (35 degrees Celsius) and not anticipated to rise above this temperature threshold before handling and processing desert tortoises are completed. A third survey will be required if desert tortoises are found on the second pass. Clearance transects will be a maximum of 15 feet apart per approved protocols (Service 2009a), except on broad patches of unvegetated, well-developed desert pavement, where the width may be increased to a maximum of 30 feet upon Service approval. Once the Solar Plant Site is free of tortoises, then heavy equipment will be allowed to enter the site to perform construction activities. It is anticipated that very few tortoises will be found during clearance or monitoring activities; if tortoises are observed, the biologists will implement the McCoy Desert Tortoise Translocation Plan.

An Authorized Biologist and Biological Monitors will also conduct clearance surveys of construction areas outside of the Solar Plant Site. Burrows will be avoided if at all possible (especially if this is temporary fencing). If a burrow must be destroyed for fencing to occur, then it will be visually and tactilely examined for occupancy by tortoises and other wildlife. If occupancy is negative or cannot be established, the burrow will be carefully excavated with hand tools, using standardized techniques approved by Service (2009) and the Desert Tortoise Council (1994), including disinfection techniques for all tools. No burrows that can be avoided will be collapsed during perimeter fence construction. Other tortoise burrows will be flagged judiciously to avoid attraction of tortoise predators or people to the burrow. All Biological Monitors, an Authorized Biologist, and relevant construction personnel will be informed of all potential tortoise activity adjacent to an unfenced construction area.

Following Project Area clearance, a report will be prepared by the Project Lead Authorized Biologist to document the clearance surveys, the capture and release locations of any desert tortoises found, post-release monitoring, individual tortoise data, and other relevant data, consistent with the McCoy Desert Tortoise Translocation Plan. This report will be submitted to the Service and BLM.

PM4: Desert Tortoise Translocation Plan

McCoy Solar has prepared a draft Desert Tortoise Translocation Plan that will be approved by the Service and BLM prior to any Project activity that could impact desert tortoise. The purpose of this translocation plan is to provide direction for removing tortoises from harm's way within the Project Area during all Project or Project-related activities and to provide a framework for translocation. The plan incorporates revised draft guidelines (Service 2011c) and the 2010 guidelines (Service 2010d) where not superseded by the draft guidelines. Future Service guidance may be incorporated into translocation activities if it is relevant and practical and is acceptable to McCoy Solar.

Service translocation guidance is based on several criteria, including the number of tortoises that will be translocated and the distance translocated. Based on the actual number of tortoises found during pre-Project surveys (rather than the upper confidence level range), the proposed translocation plan was developed under the assumption that pre-clearance surveys will locate fewer than five adult tortoises. However, the plan has some contingencies if more than five tortoises are found, such as delineating the exact boundaries of the potential control site, and developing an effectiveness-monitoring program (Service 2011c).

All tortoises found during Solar Plant Site clearance, including juveniles will be marked with a transmitter and will receive post-release monitoring. For juveniles a small transmitter, appropriate for the tortoise's mass and size, will be affixed. Transmitter will be attached and tortoises will be monitored according to the methodology within the Desert Tortoise Translocation Plan. For fence and Linear Facilities construction, translocation and monitoring will follow guidelines in the approved Desert Tortoise Translocation Plan, with the exception that juveniles will not be transmittered.

Regardless of the number of tortoises found on site, health assessments, including tissue sampling, will be completed on all translocated tortoises and in the recipient population. A disposition plan, describing the translocation prescription for each tortoise (i.e., if it should be translocated, results, how far it will be translocated, the proposed release site, and post-translocation monitoring) must be submitted to the Service a minimum of 2 weeks prior to translocation. The Service must review and approve the disposition plan before any tortoise can be translocated. The disposition plan is part of a larger translocation review package that delineates health assessment results, tortoise density and tortoise locations on the Recipient Site, and includes all health assessment data (Recipient Site and Project Area), a map of all Project tortoises, and other Project-specific information that clarifies or supports translocation decisions. All tortoises located on the Project site must be transmittered and monitored *in situ* until they can

be translocated, or held in approved quarantine pens. If health assessments at the Primary Recipient Site indicate high disease prevalence then a Secondary Recipient Site will be selected. A full survey will be conducted to identify tortoise density and distribution, and the exact boundaries of the Secondary Recipient Site will be finalized.

The translocation plan addresses nests and juveniles that may be found during fence construction, clearance surveys and operation. Any nests found between April 15 and October 31 will be moved according to the methodology within the Translocation Plan. Eggs will be inspected to determine if they are viable, and if so, will be moved to an identical microsite (e.g., cover, plant species, soil type, substrate, and aspect) on the Primary Recipient Site using standard techniques (Service 2009a). Juveniles found will receive immediate post-release monitoring, until it is determined that the tortoises are behaving safely (e.g., seeking shade or a burrow) and have adequate cover.

During operations, any juvenile tortoise observed on the Solar Plant Site will be processed, numbered, and evaluated visually for health condition, prior to removing it to the designated Release Sites identified in the translocation plan. Juvenile tortoises will be released into a pre-dug coversite in the early morning to minimize depredation by nocturnal predators and monitored until it finds suitable conditions. For tortoises that may be found along linear features (i.e., fencing, gen-tie line, and access roads), the goal is to avoid impacts through construction monitoring, allowing the tortoise to leave the work area, moving it out of harm's way if required and as permitted by the biological opinion, and avoiding disturbance to tortoise burrows through re-siting work sites and structures. The final Desert Tortoise Translocation Plan will be reviewed and approved by the Service and BLM prior to implementation.

Depending on the Project construction schedules, an initial, pre-clearance pass may be conducted in each unfenced Unit to find and assess all tortoises. The pre-clearance pass will help confirm that no more than five tortoises are likely to be found on the Solar Plant Site. Tortoises found on Unit 1 will be marked with a semi-permanent mark, such as an epoxy tag, and receive a transmitter. If more than five tortoises are found after the Unit 1 final clearance survey, then a long-term monitoring study will be developed and the exact boundaries of the control site will be delineated. Depending on evaluation of the construction timelime and agency approval of final translocation plan, the cumulative number of tortoises from both units may be used for the total and if that number exceeds five, then a long-term study will be implemented and control site will be delineated.

PM5: Construction Monitoring

No construction or ground disturbance will occur in unfenced areas or on the Linear Facilities without a Biological Monitor present. An adequate number of trained and experienced Biological Monitors must be present during all construction activities in unfenced areas, depending on the various construction tasks, locations, and season.

PM6: Dead, Injured, and Sick Desert Tortoises

The Project Lead Authorized Biologist will notify the Service and BLM immediately if a dead or injured desert tortoise is observed. Written notification must be made within 2 days of the date of the finding or incident (if known) and must include: location of the tortoise, photographs, cause of death (if known), and other pertinent information. The Lead Authorized Biologist will ensure that all tortoises injured by Project activities receive prompt veterinary care at the expense of McCoy Solar. If an injured animal is recovered, McCoy Solar will contact the Service and BLM to determine final disposition of the animal. If efforts to keep the injured animal separate from other tortoises and turtles are successful during the tortoise's treatment, the Service generally recommends that it be released at or near its capture point to continue to contribute to the persistence of the local tortoise population.

Tortoises killed from Project-related activities will be submitted for necropsy as outlined in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Gopherus agassizii)* (Berry 2001) at the expense of McCoy Solar. Care will be taken by the Lead Authorized Biologist in handling dead specimens to preserve biological material in the best possible state.

PM7: Conservation Measure and Monitoring Plan

The Conservation Measure and Monitoring Plan will outline steps to implement all protection measures, document their implementation, and monitor their effectiveness. This plan will be submitted to the Service and BLM for approval prior to the start of ground disturbance.

PM8: Reporting

As part of implementing protection measures, regular reports will be submitted to the Service and BLM to document the Project activities including the effectiveness of the conservation measures and provide recommendations as needed. A schedule of reporting will be specific to individual plans. However, the Lead Authorized Biologist will submit monthly reports to the ECM during construction, annual comprehensive reports, and special-incident reports. The Lead Authorized Biologist will be responsible for reviewing and signing reports prior to submittal to the agencies.

In addition to a regular reporting schedule, all encounters with desert tortoises will be reported to the Lead Authorized Biologist, who will report the following information in Monthly and Annual Reports:

- Location (narrative and maps) and dates of observations;
- General condition and health, including injuries and state of healing;

- Diagnostic markings, including identification numbers or markers; and
- Disposition (if moved).

PM9: Worker Environmental Training

McCoy Solar will prepare and implement a site-specific Worker Environmental Awareness Program (WEAP) training to inform Project personnel about the biological constraints of the Project. The training will be included in the Biological Resources Technical Management Plan and will be developed and presented in person or via video by a qualified biologist (i.e., a biologist that has the appropriate education and/or experience to accomplish this task; resumes will be submitted to BLM for prior approval) prior to the commencement of construction activity. All Project personnel must attend the training. The training will include information regarding the sensitive biological resources, restrictions, protection measures, and individual responsibilities associated with the Project. Special emphasis will be placed on protection measures developed for the desert tortoise and the consequences of non-compliance. Written material and photos will be provided to employees at orientation and participants will sign an attendance sheet documenting their participation.

PM10: Construction-related Activities

Existing roads will be used wherever possible to avoid unnecessary disturbance. New and existing roads that are planned for either construction or widening will not extend beyond the planned impact area and will minimize surface disturbance in native habitats. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Along the Linear Facilities, the anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, will be delineated with stakes and/or flagging prior to construction to avoid impacts to natural resources. Outside the Project boundaries, personnel will use established roadways (i.e., paved or unpaved) for traveling to and from the Project Area, including for transmission line construction. No work in unfenced and uncleared habitat will occur except under the direct supervision of a Biological Monitor. Cross-country vehicle and equipment use outside designated work areas will be prohibited.

Best Management Practices will be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). All detected erosion will be remedied within 2 days of discovery. Additionally, fueling of equipment will take place within existing paved roads and not within or adjacent to drainages or native desert habitats. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. All vehicles and equipment will be in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. An Authorized Biologist and Biological Monitor will be informed of any hazardous spills within 24 hours. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility.

Employees and contractors will look under vehicles and equipment for the presence of desert tortoises prior to movement. If a tortoise is present, no equipment will be moved until the animal has left voluntarily or an Authorized Biologist moves it out of harm's way, in accordance with the approved Desert Tortoise Translocation Plan.

PM11: Construction Speed Limits

To minimize the likelihood for vehicle strikes of tortoises and other species during construction, a speed limit of 25 miles per hour (mph) will be established for travel on all dirt Project access roads. Signs will be posted at appropriate locations (e.g., at Arizona crossings of drainages) to remind drivers to be aware of the potential for desert tortoise and other wildlife occurring on the roadways.

PM12: Ground Excavations

McCoy Solar will ensure that Project features located outside the permanently fenced sites, such as open trenches, pits, bores and other excavations that might trap, entangle, or constitute as pitfalls to desert tortoises and other wildlife, be filled in, fenced, covered, or otherwise modified at the end of each work day so they are no longer a hazard to desert tortoises and other wildlife. All excavations in tortoise habitat outside the permanently fenced sites will be inspected for trapped desert tortoises at the beginning, middle, and end of the work day, at a minimum, but will also be continuously monitored by Biological Monitors as part of monitoring construction outside of fenced areas. Should a tortoise become entrapped, an Authorized Biologist will remove it immediately. These Project features will not need to be inspected if they are located within the permanently fenced Solar Plant Site after the clearance surveys have been completed. However, any such Project features inside temporarily fenced locations that have been cleared of tortoises will be inspected daily for other wildlife.

PM13: Construction Material Storage

McCoy Solar will ensure that any construction pipe, culvert, or similar structure stored less than eight inches above the ground, stored for one or more nights, and within desert tortoise habitat outside the permanently fenced sites, will be inspected for tortoises before the material is moved, buried or capped. As an alternative, all such structures may be capped before being stored on the construction site or placed on pipe racks. These materials will not need to be inspected or capped if they are stored within the permanently fenced Solar Plant Site or inside temporarily fenced locations after the clearance surveys have been completed.

PM14: Hazardous Materials

McCoy Solar will ensure all vehicles and equipment are in proper working condition to minimize the potential for fugitive emissions of motor oil, fuel, antifreeze, hydraulic fluid, grease, or other hazardous materials. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. Fueling of equipment will take place within existing paved roads, where

possible, and not within or adjacent to drainages. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility. The ECM, Lead Authorized Biologist, and BLM will be informed of any significant hazardous spills within 24 hours.

PM15: Trash Abatement

Trash and food items will be contained in secure, closed lid (raven- and coyote-proof) containers to reduce the attractiveness of the site to opportunistic tortoise predators such as common ravens (*Corvus corax*) and coyotes (*Canis latrans*). During construction, all trash will be removed at least once a week, or more often as needed, if it attracts wildlife. Securing trash will also reduce the possibility of animals ingesting or becoming entangled in foreign matter.

PM16: Road Kill Removal

To preclude providing food to scavengers, including potential tortoise predators, such as ravens and coyotes, all road kills (with the exception of special-status species) on construction entry roads will be collected, bagged, and put in a secure trash bin daily. All personnel will be required to report road kills to a Biological Monitor or Authorized Biologist daily, to ensure timely removal. Road-killed special-status species will be removed and reported according to their specific protocols.

PM17: Minimize Lighting Impacts

Facility lighting will be designed, installed, and maintained to prevent side casting of light towards wildlife habitat.

PM18: Pets and Firearms

McCoy Solar will prohibit workers from bringing pets or firearms to the Project.

PM 19: Plant and Wildlife Collection

McCoy Solar will prohibit the intentional killing or collection of all native plant or native wildlife species, including, but not limited to desert tortoise. Workers will not disturb, capture, handle, or move desert tortoise, other animals, or their nests/burrows. Violations will be immediately reported to the Lead Authorized Biologist and included in the monthly and annual reports.

PM 20: Raven Management

McCoy Solar will provide funds to the Services' rangewide raven monitoring and control program to support the more comprehensive goals of that program. Per the comprehensive program guidance (Service 2010b) the amount paid by McCoy Solar will be a one-time payment per phase based on $105 per acre for each construction phase (i.e., Unit 1, Unit 2, and the Linear

Facilities) prior to the disturbance. McCoy Solar will provide documentation to the Service and BLM that this fee has been deposited into the sub-account of the Renewable Energy Action Team (REAT) Account held by the National Fish and Wildlife Foundation (NFWF). The payment provided by this project will support Program activities within the Colorado Desert Recovery Unit.

In addition, the Project's Raven Management and Control Plan identifies the conditions of concern specific to the Project that may attract ravens to the Project, defines how the Project will monitor raven activity, and specifies management and control measures. This plan will be approved by the Service prior to any Project activity that could impact desert tortoise. Some of the proposed activities include:

1. Monitoring perching and roosting sites during construction. If ravens increase in the Project Area, then either visual or physical bird deterrents may be installed.

2. Minimizing food sources during construction by limiting soil disturbance during construction and stabilizing disturbed areas.

3. Conducting breeding season nest surveys (i.e., at least half coinciding with active tortoise season).

4. Removing offending ravens at the cost of the applicant.

5. Removing unoccupied raven nests prior to nesting season if ravens are observed nesting in Project structures for two consecutive breeding seasons.

As directed by the Service, BLM, and CDFW, based on current data and measures in the Bird and Bat Conservation Strategy (BBCS) formerly named Avian and Bat Protection Plan (Tetra Tech 2012a), evaporation ponds may be netted with small diameter mesh (e.g., 1.5-inch mesh or a functional equivalent) designed to exclude ravens drinking from or landing near the ponds. Ponds will be designed to ensure that pond water is less available to ravens and monitored to determine raven use. If netting is used, the pond will be monitored to verify that the netting is functional and does not pose an entanglement threat to birds or other wildlife, in accordance with the BBCS.

If the Project-specific measures of the Raven Management and Control Plan are not effective in accomplishing goals (i.e., ravens numbers are increasing beyond baseline condition or results from monitoring detect congregations of more than five birds regularly roosting or perching on Project structures) then it will be revised in consultation with the Service and BLM. The Raven Management and Control Plan is intended to provide qualitative and quantitative data to ensure that ravens do not pose a threat to desert tortoises from the Project.

PM21: Weed Management Plan

McCoy Solar will prepare and implement a BLM-approved Weed Management Plan to prevent the spread of existing weeds and the introduction of new weeds to the Project Area and to native areas surrounding the Project Area.

PM22: Water Application for Dust Control

McCoy Solar will ensure water is applied to the construction area, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. A Biological Monitor will patrol these areas to ensure water does not pool and potentially attract desert tortoises, common ravens, and other wildlife.

PM23: Cleanup and Restoration, and Revegetation Plan

McCoy Solar will ensure that all unused material and equipment will be removed upon completion of construction activities or maintenance activities conducted outside the permanently fenced sites (this includes non-emergency and emergency repairs). Upon completion, all construction equipment and refuse, including, but not limited to wrapping material, cables, cords, wire, boxes, rope, broken equipment parts, twine, strapping, buckets, metal or plastic containers will be removed from the site and disposed of properly. Any unused or leftover hazardous products will be properly disposed of at an appropriate offsite facility.

McCoy Solar will prepare and implement a BLM-approved Revegetation Plan to restore temporarily disturbed areas.

PM24: O&M Conservation Measures Activities

Road, transmission line, and pipeline maintenance activities are expected to occur during the life of the Project. To the extent possible, major road surface maintenance activities outside the Solar Plant Site will be scheduled for the season with the least desert tortoise activity (typically November 1 through February 28), unless accompanied by an Authorized Biologist.

During operation, all personnel who encounter a desert tortoise will immediately report the encounter to the ECM or Authorized Biologist on site. During the operation phase, desert tortoise may only be moved by an Authorized Biologist or moved out of harm's way by an Authorized Biologist if the tortoise is outside the fenced solar facility, but only if necessary. Tortoises observed during maintenance activities outside the Project Area fence or along the main access road by personnel leaving or entering the Project site will not be disturbed or handled and will be allowed to move away of their own accord. Any maintenance or emergency/unexpected repairs outside the fence that require new surface disturbance or heavy equipment will require the same protection measures described for construction of Linear Facilities. In order to prevent road kills, any tortoise observed on the Project access road will be watched until it is safely off the road before the personnel can continue.

If a desert tortoise is found inside the fenced Solar Plant Site, an Authorized Biologist will be contacted immediately to translocate the desert tortoise from the Solar Plant Site; in the interim, before the Authorized Biologist reaches the site, if the tortoise is in danger or harm's way, the Authorized Biologist will direct onsite personnel to capture the tortoise, enclose it in a clean cardboard box with a lid, and hold it in a climate controlled situation, in accordance with details described in the approved Desert Tortoise Translocation Plan. Any large tortoise found on site during operations will be assumed to have entered the site through a breach in the fence or gate and the tortoise will be processed, numbered, and evaluated visually for health condition, as described in the draft Desert Tortoise Translocation Plan, prior to removing it to outside of the Project Area. Juvenile tortoises will be released in the early morning to minimize depredation by nocturnal predators. If a breach is suspected, the perimeter fence and site entry will be inspected and any damage repaired immediately.

All released tortoises will be monitored visually after release, to determine that they are not fence-walking or otherwise compromising their survival (e.g., if they do not find a suitable cover site during hot conditions). In the event that surface temperatures are in excess of translocation temperatures, an Authorized Biologist will secure the individual in a sterilized box and place it in a quiet, climate-controlled environment (e.g., the onsite Project office). Under supervision of an Authorized Biologist, the tortoise will be released in the late afternoon/early evening of the same day, when ambient temperatures subside. Any juvenile tortoises will be released at dawn. The tortoise will be monitored until it finds suitable conditions. If the Authorized Biologist believes that the tortoise is in danger of dying from heat exposure, then the tortoise will be re-collected, held in a climate-controlled environment and the process repeated that evening in a different area. Because tortoises use many burrows, it is anticipated that the tortoise will locate a suitable burrow quickly.

It will be highly unlikely for a tortoise to be discovered wintered in a burrow on the Solar Plant Site during operations. However, if such an inactive tortoise is found, it will be handled and removed from the site as specified for wintering tortoises according to the Desert Tortoise Translocation Plan.

For all desert tortoises observed during O&M activities, the ECM or Lead Authorized Biologist will document the location where the tortoise was discovered through both a narrative and map, date of observation, general condition and health (if known), including injuries and state of healing; diagnostic markings, including identification numbers or markers; and disposition, and include this information in the annual report.

Speed limits on the paved main access road will be 35 mph during desert tortoise active season and 45 mph outside desert tortoise active season during and operations. Speed limits will be posted. Signs will be posted along the road to remind drivers to be aware of the potential for desert tortoise and other wildlife occurring on the roadways.

PM25: Desert Tortoise Habitat Acquisition

McCoy Solar will provide mitigation at a 1:1 ratio for impacts to all Category 3 desert tortoise habitat in accordance with the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO). Approximately 4,532.9 acres of Category 3 habitat will be disturbed (see Table 2 for mitigation ratios and habitat types impacted). This excludes 38 acres of sand dunes, agricultural areas, and areas that are currently developed or disturbed along the access road. Acreage of disturbance is based on the best available Project plans and will be adjusted, based on pre- and post-construction aerial photography, to reflect the final Project disturbance footprint.

Table 2. Impacts to Vegetation Communities and other Cover Types in the Project Area.

Vegetation Community/Land Cover	**Unit 1**	**Unit 2**	**Proposed Mitigation Ratio**	**Mitigation Acres**		
	Permanent Impacts (acres)			**Unit 1**	**Unit 2**	**Total**
Ephemeral "Riparian" Drainages						
Desert Dry Wash Woodland (Blue Palo Verde-Ironwood Woodland Alliance)	0	1.5	3:1	0	4.5	4.5
Mesquite Bosque	0	0	3:1	0	0	0
Vegetated Ephemeral Channels (Wash-dependent Vegetation with Sparsely Scattered Trees)	2.8	38.1	1.5:1	4.2	57.2	61.4
Vegetated Ephemeral Channels (Vegetated with No Trees)	47.3	50.4	1:1	47.3	50.4	97.7
Unvegetated (approximately less than or equal to 5% cover)	10.2	15.1	1:1	10.2	15.1	25.3
Subtotal Ephemeral "Riparian" Drainages	**60.3**	**105.1**	-	**61.7**	**127.2**	**188.9**
Upland Vegetation						
Sonoran Creosote Bush Scrub	2198.7	2072.9	1:1	2198.7	2072.9	4271.6
Stabilized and Partially Stabilized Desert Dunes (Sand Sheets and Dunes: Creosote Bush-White Burr Sage-Galleta Grass)	0	0	3:1	0	0	0
Subtotal Upland Vegetation	**2198.7**	**2072.9**		**2198.7**	**2072.9**	**4271.6**
Other Cover Types						
Agricultural Land (Crops, Ruderal Vegetation, or Bare Ground)1	0	0	0	0	0	0
Developed (No Vegetation)	0	0	0	0	0	0
Subtotal Other Cover Types	**0**	**0**	-	0	0	0
Subtotals Solar Plant Site	**2,259**	**2,178**	-	**2260.4**	**2200.1**	**4460.5**
	4,437					

Linear Facilities						
Vegetation Community/Land Cover	**Gen-tie and Access Rd Impacts[1] (acres)**		**Distribution Line Impacts (acres)**		**Proposed Mitigation Ratio**	**Mitigation Acres**
	Temporary	**Permanent**	**Temporary**	**Permanent**		
Ephemeral "Riparian" Drainages						
Desert Dry Wash Woodland (Blue Palo Verde-Ironwood Woodland Alliance)	0.5	0.7	0.1	0.8	3:1	6.3
Mesquite Bosque	0.2	0.2	0	0	3:1	1.2
Vegetated Ephemeral Channels (Wash-dependent Vegetation with Sparsely Scattered Trees)	0.0	0.0	0	0	1.5:1	0
Vegetated Ephemeral Channels (Vegetated with No Trees)	0.1	0.1	0	0	1:1	0.2
Unvegetated (approximately less than or equal to 5% cover)	0.2	0.1	0	0	1:1	0.3
Upland Vegetation						
Sonoran Creosote Bush Scrub	9.8	15.0	1.5	2.6	1:1	28.9
Stabilized and Partially Stabilized Desert Dunes (Sand Sheets and Dunes: Creosote Bush-White Burr Sage-Galleta Grass)	19.0	19.0	0	0	3:1	114
Other Cover Types						
Agricultural Land (Crops, Ruderal Vegetation, or Bare Ground)	0	0	0.3	2	0	0
Developed (No Vegetation)	14.5	21.8	0	0	0	0
Subtotal for Linear Facilities	**44.3**	**56.9**	**1.9**	**5.4**	**-**	**150.9**
Grand Total (Solar Plant Site and Linear Facilities)	**4545.5**				**-**	**4611.4**
Grand Total without Developed Area[2]	**4509.2**				**-**	**4575.1**

Table from: Tetra Tech 2012c.

[1] Includes impacts associated with poles, spur roads, gen-tie maintenance road, pull sites, laydown yard, and the main access road.

Because the construction of Unit 1, Unit 2, and the Linear Facilities will be phased, mitigation (e.g., security deposits and the actual funding or acquisition of desert tortoise habitat) may be apportioned by phase, as each phase is constructed. A full description of the mitigation measure is included in WIL-4 in the *McCoy Solar Energy Project Proposed Plan Amendment and Final Environmental Impact Statement for the Project* (BLM 2012c).

The responsibility for acquisition of mitigation lands may be delegated to the NFWF or to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation. Such delegation will be subject to approval by BLM prior to land acquisition, initial protection or maintenance and management activities. Acquisition of mitigation lands will be completed no more than 18 months after the start of Project ground-disturbing activities on each phase, provided security has been posted.

The following qualitative criteria will be used to select desert tortoise habitat:

1. Parcels should be part of a larger block of lands that are either already protected or planned for protection, or feasibly could be protected by a public resource agency or a private third party organization supportive of desert habitat conservation.

2. Parcels should provide habitat that is of the same or higher quality for desert tortoise than the habitat being impacted by the Project. Preferably, the lands will comprise sufficiently good habitat such that they are currently occupied or could be occupied by the desert tortoise once they are protected from anthropogenic impacts and/or otherwise enhanced.

3. Parcels should not be subject to such intensive recreational, grazing, or other uses that recovery is rendered unlikely or lengthy. Nor should those invasive species that are likely to jeopardize habitat recovery (e.g., Sahara mustard) be present in uncontrollable numbers, either on or immediately adjacent to the parcels under consideration.

4. The parcels should be connected to occupied desert tortoise habitat or in sufficiently close proximity to known occupied tortoise habitat such that an unencumbered genetic flow is possible. Preferably, the existing populations of desert tortoise on these lands will represent populations that are stable, recovering, or likely to recover.

5. The parcels should be consistent with the goals, objectives, and recovery actions described in the Service's revised recovery plan for the desert tortoise, if possible.

McCoy Solar may elect to fund the acquisition and initial improvement of the mitigation lands through NFWF by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as any security required and may be provided in lieu of security. If this option is used for the acquisition and initial improvement of the land acquired, McCoy Solar will make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the mitigation land purchase once land is identified and the actual costs are known.

McCoy Solar also may elect to satisfy its land acquisition obligation by paying an in-lieu fee pursuant to any applicable in-lieu fee provision approved by BLM and the Service. The in-lieu fee may be used to acquire desert tortoise habitat that the Service and BLM determine will offset impacts to tortoise per the NECO plan.

PM26: Project Decommissioning

The planned operating life of the Project is 30 years. In the event the Project permanently shuts down, and no other project will occupy the same industrial space, McCoy Solar will prepare and implement a Decommissioning Plan to ensure that the environment is protected during the decommissioning phase. Prior to decommissioning, a plan will be finalized and approved by the BLM.

McCoy Solar will retain an Authorized Biologist for the decommissioning phase of the Project to ensure that all environmental protection measures are implemented. McCoy Solar will submit the names and qualifications of all proposed biologists to the Service and BLM for review and approval at least 45 days prior to decommissioning activities and prior to initiation of any tortoise handling. Decommissioning activities will not begin until the Authorized Biologists have been approved.

Action Area

The implementing regulations to section 7(a)(2) of the Act describe the action area to be all areas affected directly or indirectly by the Federal action and not merely the immediate area affected by the proposed Project (50 CFR § 402.02). The action area is the area of potential direct or indirect effects of the proposed action and any interrelated or interdependent human activities; the direct and indirect effects of these activities include associated physical, chemical, and/or biological effects of considerable likelihood (Service and NMFS 1998). Indirect effects are those that are caused by the proposed action and are later in time but are still reasonably certain to occur (50 CFR § 402.02; Service and NMFS 1986). Analyses of the environmental baseline, effects of the action on the species and designated critical habitat, cumulative effects, and the levels of incidental take, are based upon the action area as determined by the Service (Service and NMFS 1998).

The action area for this Project includes: (1) the Project Area, defined as the 4,609.5 acres Project footprint, includes the Solar Plant Site and associated Linear Facilities (i.e., access roads, utility corridor, gen-tie transmission line, and construction distribution power line), plus a 1-mile buffer around the Solar Plant Site and a 1,640-foot buffer on each side of the centerline of the gen-tie line to account for the area within which tortoises may be moved out of harm's way during construction of linear Project components and any indirect effects of the proposed action; (2) all desert tortoise habitat adjacent to the McCoy Mountains Primary Recipient Site; (3) the Secondary Recipient Site in the Upper McCoy Wash; (4) the proposed control site in the McCoy Wash; and (5) future conservation areas. The buffer area was included to address adverse effects to desert tortoises whose home ranges overlap the proposed solar facility. Based on the

assumption that the average male home range is approximately 0.77 mile^2 (Duda et al. 1999; Harless et al. 2009; O'Conner et al. 1994), the buffer around the Project site is likely to capture a tortoise's home range that may overlap the proposed facility. However, we recognize that the size of desert tortoise home ranges varies with respect to location and year (Berry 1986) and the size serves as an indicator of resource availability, opportunity for reproduction, and social interactions (O'Connor et al. 1994). Over the course of their life time, tortoises may use more than 1.5 mile^2 of habitat and make forays of several miles at a time (Service 2010c). The environmental baseline of each of these components of the action area is described in the *Species Abundance and Habitat Characteristics within the Action Area* section below.

STATUS OF THE SPECIES RANGEWIDE

The following section summarizes information about the desert tortoise on the legal/listing status, distribution and population trends, current threats, and status of critical habitat as discussed in the Service's revised recovery plan (Service 2011b), the current 5-year review (Service 2010a), and the biological opinion on Desert Sunlight Solar Farm (Service 2011a). Please see these documents for additional detailed information about these topics and the species' description, life history, and habitat affinities.

Legal/Listing Status

The Mojave population of desert tortoise was proposed for listing by the Service on October 13, 1989, and listed as a threatened species on April 2, 1990 (Service 1989, 1990). The tortoise is also listed as a threatened species under the California Endangered Species Act. The Service designated about 6.5 million acres of critical habitat for the Mojave desert tortoise in portions of California, Nevada, Arizona, and Utah on February 8, 1994 (Service 1994b). The recovery plan was approved in 1994 (Service 1994a) and the revised recovery plan was published in 2011 (Service 2011b).

Since listing the desert tortoise has been split into two species, *Gopherus agassizii* and *G. morafkai*. The newly defined *G. agassizii*, or Mojave desert tortoise, is analogous to the listed entity, and thus the taxonomic revision does not affect its listing status. For more information on the revision and the listed species, please see Murphy et al. (2011), and Averill-Murray (2011).

Distribution and Population Trends

Typical desert tortoise habitat is characterized as creosote bush scrub below 5,500 feet in which precipitation ranges from 2 to 8 inches, where a diversity of perennial plants is relatively high, and production of annual plants is high. In the Colorado Desert Recovery Unit, desert tortoises are found in the valleys, on bajadas, desert pavements, rocky slopes, and in the broad, well-developed washes (especially to the south). The Mojave desert tortoise range is north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran/Colorado Desert of California.

Since 2001, line distance sampling has been used as part of a long-term monitoring strategy to detect population trends. Density estimates of adult tortoises vary among recovery units and years. Detecting population trends is expected to be a gradual process and surveys conducted over short periods of time, such as the time since program initiation, will only be expected to reveal catastrophic declines or significant changes. In general, over the first 6 years of rangewide monitoring (2001-2005, 2007), tortoises were least abundant in the Northeast Mojave Desert Recovery Unit, the highest reported densities occurred in the Upper Virgin River Recovery Unit, and considerable decreases in density were reported in 2003 in the Eastern Colorado and Western Mojave recovery units (Service 2011b). The Chuckwalla Desert Wildlife Management Area (DWMA) has one of the highest densities of tortoises range wide (Service 2009b).

The proposed Project is within the former Eastern Colorado Recovery Unit (Service 1994a), which was consolidated with the Northern Colorado Unit to form the Colorado Desert Recovery Unit in the revised recovery plan (Service 2011b). Based on long-term monitoring strata from 2001-2007, density within the former Eastern Colorado Recovery Unit is estimated to be between 13.0 and 26.2 subadult and adult tortoises per mile^2. Density within the Colorado Desert Recovery Unit is estimated at 13.8 tortoises per mile^2 which is derived from 2005-2007 mean densities within the DWMAs and other conservation areas (Service 2011c). However, this estimate is across the entire recovery unit, which has patches of varying densities (Service 2011b).

Current Threats

The majority of threats to the tortoise and its habitat are associated with human land use changes. Threats include urbanization, upper respiratory tract disease and possibly other diseases, predation by common ravens (*Corvus corax*) and domestic and feral dogs, unauthorized off-highway vehicle (OHV) activity, authorized vehicular activity, illegal collecting, mortality on paved roads, vandalism, drought, livestock grazing, feral burros, nonnative plants, changes to natural fire regimes, and environmental contaminants. For further discussion of individual threats, please see the revised recovery plan (Service 2011b), and the most recent 5-year review (Service 2010a). Since release of the 5-year review, utility-scale renewable energy development has become a greater threat to the desert tortoise. These threats include habitat loss and fragmentation, raven predation and transmission line construction, risk of collision with vehicles using new roads, and disturbance associated with renewable energy development. For a detailed discussion of current energy projects and impacts to tortoise habitat, populations, and connectivity in the Colorado Desert Recovery Unit, please see the Desert Sunlight biological opinion (Service 2011a).

ENVIRONMENTAL BASELINE OF THE SPECIES

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all

proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of State and private actions which are contemporaneous with the consultation in progress.

Past Consultations in the Action Area

The Service has issued the following biological opinions for actions that have occurred or will occur within the action area for this consultation. In all cases, the Service determined that the proposed actions were not likely to jeopardize the continued existence of the desert tortoise or destroy or adversely modify its critical habitat.

Solar Energy Development Programmatic Environmental Impact Statement

The Service issued a programmatic biological opinion to BLM on July 20, 2012, regarding the landscape level effects of designating Solar Energy Zones (SEZs) and amending land use plans in six southwestern States (i.e., Arizona, California, Colorado, Nevada, New Mexico, and Utah) (FWS-AES-DCHRS-052135). The amendments would exclude certain areas from availability for utility-scale solar energy development, identify SEZs within which utility-scale solar energy development would be a priority use, and establish design features that would be applicable to all future utility-scale solar energy development on BLM-administered lands. Seventeen SEZs were proposed comprising about 285,000 acres.

The Riverside East SEZ is the largest of the proposed SEZs in the six-State action area**,** with a total developable area of 147,910 acres. The Riverside East SEZ occurs in the Colorado Desert Recovery Unit for the desert tortoise and is immediately adjacent to Joshua Tree National Park/and the Chuckwalla DWMA. Solar projects within the SEZ include: Desert Harvest McCoy, BSPP, and Palen Solar, LLC. The SEZ is known to support occupied and suitable desert tortoise habitats.

This programmatic biological opinion was prepared in accordance with the July 16, 2003, guidance for programmatic-level consultations (Service 2003). The Solar PEIS will guide the processing of all new utility-scale solar energy applications on BLM-administered lands. The BLM defines “new” applications as any applications filed within proposed SEZs after June 30, 2009, and any applications filed within proposed variance and/or exclusion areas after the October 28, 2011, publication of the supplement to the draft Solar PEIS. Several projects will be grandfathered into the SEZ: BSPP, MSEP, Desert Harvest, and Palen. Projects within the SEZ are subject to the consultation requirements of section 7 and will be examined for effects to listed species and critical habitat, as appropriate.

Blythe Solar Power Project

The Service issued a biological opinion on October 8, 2010, to the BLM for a proposed ROW to construct, operate, and maintain the proposed BSPP (FWS-ERIV-09B0186-10F088). The solar project would occur on approximately 9,400 acres of BLM-managed lands. The proposed project is located in Riverside County, California, approximately 8 miles northwest of Blythe

and approximately 2 miles north of the I-10 corridor. Project components generally include construction, operation, and maintenance of the solar power plant site and support facilities, an access road/utility corridor, and a gen-tie transmission line. The project includes construction of a 1,000- megawatt commercial solar thermal power-generating facility that will use solar parabolic trough technology to generate electricity. The proposed project will disturb an estimated total of 7,025 acres of which approximately 6,958 acres is desert tortoise habitat.

Access to the plant site will be on a new 5-mile paved road heading north from the existing Black Rock Road. The new access road will also be used as a utility corridor that will include buried lines (telecommunications and natural gas) and a portion of the proposed power transmission line. The new gas pipeline will connect to an existing Southern California Gas Company main pipeline south of I-10. Voice and data communications would be provided by a new telecommunications cable.

A new approximately 11-mile 230-kV double-circuit, monopole transmission line will also be constructed as part of the project. A new unpaved access road will be constructed for the portion of the line that lies west of the access road/utility corridor. The transmission line will extend south from the plant site primarily along the access road/utility corridor to a point south of I-10, and then turn west to connect to the Colorado River Switchyard substation.

The Service estimated that up to 20 subadult and adult tortoises, up to 10 juveniles, and an unquantifiable number of eggs could occur in the project footprint. We anticipated that construction of the proposed project will result in the incidental take of two individuals and that O&M activities will result in incidental take of two individuals per year. We also exempted take in the form of trapping, capture, or collection of up to 60 subadult and adult tortoises for the purposes of blood draw to assess disease prevalence.

In April 2012, Solar Trust of America, LLC (the parent company of the BSPP ROW grant holder) filed for bankruptcy and NextEra Blythe Solar Energy Center, LLC (NextEra Blythe Solar) subsequently acquired the BLM-approved ROW grant for that project. NextEra Blythe Solar is in the process of evaluating development plans for that project. NextEra is revising the plan of development and intents to submit a project plan to BLM sometime in the spring 2013.

Transmission Lines within the Action Area

The Service issued a biological opinion for the Devers to Palo Verde Transmission Line and CRS (DPV2) on January, 11, 2011 (FWS-07B0060-10F0884), for BLM's issuance of a ROW grant that will authorize SCE to construct, operate, and maintain the new 153-mile 500-kV DPV2 transmission line project. The DPV2 project will be composed of two lines in Riverside County, California: (1) the Devers-Valley line will extend 42 miles from SCE's existing Devers Substation near the city of Palm Springs, east to SCE's existing Valley Substation near the city of Hemet, and (2) the Colorado River Switchyard-Devers line will extend 110 miles from a new substation, the CRS, located 10 miles southwest of the city of Blythe, east to SCE's existing Devers Substation. The Devers-Valley segment crosses approximately 4.5 miles of Federal lands and 37 miles of private lands, and the Colorado River Switchyard-Devers segment crosses

approximately 52 miles of Federal lands, 0.5 miles of State lands, and 57 miles of private lands. The eastern portion of the Colorado River Switchyard-Devers segment is within the Eastern Colorado Desert Recovery Unit as identified in the desert tortoise recovery plan (Service 1994a) and BLM's NECO plan area. In the species' revised recovery plan, both the eastern portion of the Devers-Valley segment and the entire Colorado River Switchyard-Devers segment are in the Colorado Desert Recovery Unit (Service 2011b).

DPV2 started construction in the summer of 2011, SCE is targeting for substantial completion of the Switchyard-Devers segment line by spring 2013 to allow the renewable generators to transmit electrical power by summer 2013.

The transmission line project allows for additional take of desert tortoises and degradation of habitat within the action area, and the biological opinion includes avoidance and minimization, measures intended to ensure the environmental baseline of the species is maintained. The Service estimated that up to 12 tortoises could be present in the project footprint. Based on the low habitat quality and the relatively small number of individuals found in the project footprint during surveys, we anticipated that the proposed project will result in the incidental take for accidental injury or death for six subadults or adults. We also exempted take in the form of trapping, capture, or collection for the purposes of relocation for all eggs, juveniles, or subadult and adult tortoises found during clearance surveys, monitoring activities, or other incidental observations, subject to the reasonable and prudent measures and terms of the biological opinion. The Service determined that this project would not adversely modify critical habitat – approximately 265 acres of the 1,020,600 acres, or less than 0.03 percent, of designated critical habitat in the Chuckwalla critical habitat unit would be permanently and temporarily impacted.

The DPV2 transmission line includes a monitoring requirement to address subsidies provided by the project for common raven or other avian predators. There are numerous electrical towers and lines allowable with the BLM designated utility corridor that give hunting perches and nesting substrate for several species of avian predators of desert tortoises (primarily raptors and common ravens), which have the potential to reduce desert tortoise population densities within hunting range of these structures. The contribution and impact of this mortality mechanism, along with that of highway-related impacts along I-10, to declines in desert tortoise densities or changes in population demographics remain unknown.

NECO Coordinated Management Plan Amendment

To provide for management of recreational use, and to resolve other resource and public land use conflicts, section 602(d) of Federal Land Policy and Management Act of 1976 directed the Secretary of the Interior to "prepare and implement a comprehensive, long-range plan for management use, development, and protection of the public lands within the CDCA." The CDCA Plan is an over-arching or programmatic plan from which activity-level or more site-specific plans are tiered. The NECO Plan is an amendment to the 1980 CDCA Plan.

The Service issued a programmatic biological opinion evaluating the effects of BLM's CDCA Plan Amendment for BLM's NECO Plan (BLM 2002) on desert tortoise and its critical

habitat on June 17, 2002 (1-8-01-F-16), and as amended, on March 31, 2005, and November 30, 2007 (1-8-04-F-43R). We found the BLM's plan guidance was not likely to jeopardize the continued existence of desert tortoise or adversely modify critical habitat. The programmatic biological opinion exempted take of desert tortoise for casual uses (e.g., recreation, mining, and OHV use), livestock grazing, and burro removal that BLM authorizes through approval of the CDCA Plan. Projects outside of these activity categories require separate consultation.

In sum, the biological opinions listed above have authorized a relatively small amount of take within the large areas that they cover. Implementation of conservation measures similar to those included in this biological opinion minimizes the associated adverse effects and impacts of the taking of desert tortoise and impacts to critical habitat. Because the action areas defined for these projects narrowly intersect that which is analyzed for the proposed Project in this biological opinion, only a relatively small portion of the total take associated with these projects would coincide geographically with the proposed Project. However, the collective effect of these various project approvals has likely reduced desert tortoise population levels in portions of the action area, which reduces the extent of population connectivity to an unknown degree.

Consequently, we conclude that the environmental baseline against which the effects of the proposed Project are analyzed include habitat areas that have been degraded by existing land uses and will experience additional reductions once projects that have been approved are constructed.

Species Abundance and Habitat Characteristics within the Action Area

Project Area

The Project Area is in the Eastern Colorado Desert Recovery Unit described in the desert tortoise recovery plan (Service 1994a), which was consolidated with the Northern Colorado Desert Recovery Unit in the revised recovery plan (Service 2011b) and referred to simply as the Colorado Desert Recovery Unit. Specifically, the Project Area is located largely on BLM-managed lands in the McCoy Valley, between the McCoy Mountains to the west and McCoy Wash to the east. The Project Area lies on the bajada, with elevations ranging from 390 to 735 feet above mean sea level. Several deep drainages occur along the western boundary of the Project Area adjacent to the McCoy Mountains.

The Project Area is primarily undeveloped but has several pending BLM ROW applications for solar projects to the north, south and east of McCoy Wash. The Project Area also contains several BLM-designated routes of travel (i.e., unmaintained roads). The I-10 freeway crosses the southern portion of the Project Area, where the gen-tie transmission line and buried gas line are proposed south of I-10. During World War II, the McCoy Valley was part of the General

George S. Patton Desert Training Center, officially the California-Arizona Maneuver Area, a simulated theater of operations heavily used by tanks and other military vehicles. The nearby Blythe Airport, then known as Bishop Army Field, was used as a training field by the 46th Bomb Group, and later by the 34th Bomb Group, for flying training missions in a variety of military aircraft.

Despite these past military uses, vegetation in the McCoy Valley and in the Project Area, has been recovering through natural recruitment and today appears relatively undisturbed. The Project Area is dominated by creosote bush scrub and several other vegetation communities and land cover types, including desert dry wash woodland, Sonoran creosote bush scrub, stabilized and partially stabilized desert dunes with creosote bush-white burr sage-galleta grass, agriculture, and disturbed habitat (see Table 2 for acreages of each vegetation/land cover type occurring in the Project Area). Two invasive nonnative plants, Russian thistle (*Salsola tragus*) and Saharan mustard (*Brassica tournefortii*), occur in sandy and disturbed areas, especially near roads and fallow or active agricultural areas. Another nonnative plant, Mediterranean grass (*Schismus barbatus*), is prevalent throughout the creosote bush scrub.

A total of five adult desert tortoises were observed during spring 2011 pre-Project surveys, of which one tortoise was found within, in the northwestern corner of the Solar Plant Site, one tortoise was found in the utility corridor north of I-10, and three were found in the survey west of the Project site within the Primary Recipient Site (Tetra Tech 2012b). For the Solar Plant Site most of the recent sign was concentrated on the northwestern corner within Unit 2, including fresh scat and Class 1 Burrows. There was limited sign found in Unit 1, including two Class 3 burrows, one Class 4 burrow, and one recent scat.[1] The Linear Facilities route that runs through the BSPP was not covered during the Project's spring 2011 surveys but was surveyed in 2010 by Architecture, Engineering, Consulting, Operations and Maintenance (AECOM) for the BSPP (AECOM 2010). AECOM's results included several tortoise bone fragments and 1 tortoise pallet within the Linear Facilities route, and 12 scat, several burrows and bone fragments within 1,970 feet of the Central Route (see Table 3).

The entire Project site is desert tortoise habitat, however, the habitat quality varies with the western portion near the McCoy Mountains generally having higher quality habitat for tortoises with incised drainages that offer forage and cover (Tetra Tech 2012b). The concentration of tortoise sign in the western portion of the Project footprint and adjoining area is consistent with the assessment from the BSPP surveys in 2009 and 2010 (AECOM 2010). The reduced amount of tortoise sign on the eastern side of the Project footprint and along the transmission line corridor south of I-10 is consistent with the assessment of lower-quality habitat in these areas.

[1] Desert Tortoise Burrow Condition Class (Service 2009a):
1.Currently active, with desert tortoise or recent desert tortoise sign.
2.Good condition, definitely desert tortoise; no evidence of recent use.
3.Deteriorated condition; this includes collapsed burrows; definitely desert tortoise.
4.Good condition; possibly desert tortoise.
5.Deteriorated condition; this includes collapsed burrows; possibly desert tortoise

Table 3. Tortoise Survey Results for McCoy Project.

Tortoise Sign Type	Number of Observations				
	Solar Plant Site		Within 600 Meters of Solar Plant Site and Linear Corridor[2]		Total
Individual	1	1	0	3	5
Burrow	2	2	0	19	23
Potential Burrow	4	0	1	15	20
Scat (not associated with burrow)[1]	3	0	0	18	21
Carcass < 4 years old	1	0	1	8	10
Carcass > 4 years old	21	0	0	19	40
Shell Fragment < 4 years old	2	0	1	1	4
Shell Fragment > 4 years old	162	0	12	17	191
Permineralized Shell Fragment	35	1	13	1	50
AECOM Survey Data[1]					
Individual	0	0	1	0	1
Burrow	0	0	6	0	6
Potential Burrow	0	0	23	0	23
Pallet	0	1	1	0	1
Scat	0	0	12	0	12
Carcass	0	0	6	0	6
Bone Fragments	0	8	130	0	138
Tortoise Bone Fragments Mineralized	0	2	52	0	54

[1] AECOM 2010

This habitat quality gradation is consistent with the recent U.S. Geological Survey (USGS) tortoise habitat model, a quantitative habitat model for the range of the Mojave desert tortoise, which includes portions of the Sonoran Desert in California (Nussear et al. 2009). Based on field collected presence data, the model provides a measure of the statistical probability of habitat potential for desert tortoise. To date, the USGS model is viewed as the best available data for predicting desert tortoise habitat on a landscape scale; however, it does not account for site-specific and anthropogenic conditions across the landscape that affect habitat potential at a local scale. Also, monitoring efforts and collection of presence data have focused mainly within critical habitat units, DWMAs, and other lands allocated for conservation. The model ranks habitat quality (1 kilometers^2 block square scale) from 0-1, with 1 representing highest quality habitat. Habitat values in the Solar Plant Site, range from 0.5 to 0.4 (along the westernmost edge of Unit 2), to 0.3 and below for most of Unit 1. The Primary Recipient Site ranked the highest quality habitat with values ranging from 0.3 near the base of the alluvial fan to 0.7 for portions of the dissected fans along the toe of slope of the McCoy Mountains.

To estimate the number of subadult and adult tortoises in the Solar Plant Site, we applied the method for estimating tortoises described in the 2010 survey protocol (Service 2010b). This method uses the acres of the Solar Plant Site, the number of live tortoises (larger than 6.3 inches)

found during surveys, number of transects walked and the total length of transects to estimate the number of tortoises. It also accounts for the probability that a tortoise is above ground based on previous winter rainfall and the probability the observer would detect a tortoise if it is above ground during a survey (see Service 2010b). The Service's method for estimating tortoise numbers also allows us to calculate upper and lower 95 percent confidence intervals used to indicate the reliability of the data. Using this formula, we estimate that 1.8 subadult and adult tortoises may occupy the Solar Plant Site, with a lower 95-percent confidence interval of 0.3 and an upper 95-percent confidence interval of 9.9. Pre-Project surveys represent a point in time and desert tortoises may have moved onto the Project site from surrounding areas after the Project surveys were conducted. Though the upper confidence interval may be an overestimate, using 10 tortoises or the density of 1.4 tortoises per mile^2 for the Solar Plant Site would provide a biologically conservative approach using the best available data to establish a baseline for analyzing the potential impacts of the proposed Project.

In addition to subadult and adult tortoises, the Project footprint is likely to contain juvenile tortoises. Estimating densities of hatchling and juvenile tortoises is difficult because they are extremely difficult to detect due to their small size and cryptic nature. However, based on a 4-year study of their population ecology, Turner et al. (1987) determined that juveniles accounted for 31 to 51 percent of the overall population. Using this range and the estimated number of subadult and adult tortoises that could be found in the Project footprint, we estimate that the Project footprint may support from three to five juveniles. We recognize that the survey data used for these estimates come from a limited number of studies and that population levels are constantly changing. We also recognize that since our estimate of the number of subadult and adult tortoises in the Project footprint is likely an overestimate (as discussed above), this estimate of juveniles in the Project footprint is likely an overestimate as well, but provides the best available data to establish a baseline for analysis.

We also expect the proposed Project footprint contains tortoise eggs. Estimating the number of tortoise eggs is also extremely difficult given that the eggs are buried beneath the soil surface. To estimate the number of eggs that could be present, we used the mean clutch size eggs per clutch (i.e., 5.8 eggs per female per year, see Service 1994a). Assuming a 1:1 sex ratio, 5 of the 10 tortoises estimated in the Project footprint may be reproductive females that together could produce approximately 29 eggs per year. However, it is difficult to estimate the number of females or eggs within the Project footprint based on the low number of tortoises found during the pre-Project surveys. Given the number of assumptions and extrapolations used to estimate the number of eggs (i.e., that 10 tortoises may occur on site and that 5 may be female and equally reproductive as the tortoises in the Turner et al. (1984) study area), we determined that the estimate of 29 eggs on the Project site has an unknown but high level of uncertainty, and therefore does not provide a useful measure for analyzing the effects of the proposed Project. Therefore, we cannot calculate a reliable estimate for the number of eggs that may be impacted by the proposed Project.

Estimating tortoise density using methods described above may not be particularly meaningful for a linear corridor. A linear facility is narrow, travels a long distance through a variety of

habitat types, and may pass through several home ranges. Limited tortoise sign was observed on the Linear Corridor, an adult tortoise and several burrows were found in a small grouping off the southern end of the McCoy Mountains. One of the burrows was clearly active and had evidence of digging and fresh tracks. According to habitat assessments, the remainder of the Linear Corridor has habitat similar to that in the eastern section of the Solar Plant Site. To establish a baseline for the analysis, we estimated the number of subadult and adult tortoises by doubling the number of live tortoises (one) and active burrows (two) observed within the linear components and survey buffer. We recognize that six may be an overestimate, but believe that this is a conservative approach in establishing a baseline for analysis.

Despite the lower-quality habitat in the eastern portion of the Project site and the Linear Corridor, any portion of the Project footprint may be used by tortoises for dispersal from surrounding habitat or transient use (Tetra Tech 2012b). Desert tortoises are known to use lower-quality intermountain habitat, such as on eastern parts of the Project footprint, as dispersal routes, providing passage between high-quality habitat areas in the surrounding mountains (Averill-Murray and Averill-Murray 2005). Historically, tortoise populations in the Sonoran Desert have exchanged individuals at a rate of one migrant per generation (Averill-Murray and Averill-Murray 2005).

Proposed Translocation Recipient Sites

Recipient Sites must be sufficiently large to accommodate and maintain the resident (if present) and translocated desert tortoises, as well as be free of disease (Service 2010d). In addition, identification of alternative Recipient Sites is necessary in case resident tortoises at the primary site are determined to be infectious. Tortoises translocated from the Solar Plant Site will be translocated to the McCoy Mountains (primary site) or Upper McCoy Wash (secondary site) Recipient Sites. If infectious tortoises are found and those numbers are higher than recommended thresholds at the Primary Recipient Site, tortoises from the Project site will be translocated to the Secondary Recipient Site, after resident tortoises at that site have been determined below the recommended disease threshold (Service 2011c). The exact boundaries of the Secondary Recipient Site will be delineated if health assessments indicate that the Primary Recipient Site is unsuitable for translocation (see “Conservation Measures” section above). No designated critical habitat occurs in or near the McCoy Mountains or Upper McCoy Wash Recipient Sites; therefore, none will be affected.

The McCoy Mountains Recipient Site will be in the McCoy Valley on BLM-managed lands and adjacent to the McCoy Mountains Bighorn Sheep Wildlife Habitat Management Area. Habitat value for desert tortoises in this area is similar to the higher quality habitat on the western portion of the Project Area and therefore is expected to fulfill the feeding, breeding, and sheltering requirements of translocated tortoises. No ROW or utility corridors currently exist, and future demand is not anticipated in this Recipient Site. Though two BLM-designated routes of travel (i.e., unmaintained roads) traverse the Recipient Site; the proposed Project will block access to the Recipient Site from these routes. The McCoy Valley area historically has received lower levels of recreational use, and such use is not anticipated to increase substantially in the future.

The Upper McCoy Wash Secondary Recipient Site will be on BLM-managed lands in the Upper McCoy Wash area, approximately 10 to 20 miles north of the Project Area, and adjacent to designated wilderness protected from future development. This site was identified as a secondary site for the BSPP and the GSEP (Tetra Tech 2012a). The Upper McCoy Wash area historically has received lower levels of recreational use, and such use is not anticipated to increase substantially in the future. Habitat value for desert tortoises in this area overall is similar to the higher quality habitat on the western portion of the Project Area and therefore is expected to fulfill the feeding, breeding, and sheltering requirements of translocated tortoises. The proposed Secondary Recipient Site is near a protected 640-acre private parcel, provided as mitigation for another solar project. Incidental surveys for the mitigation parcel documented tortoises in the area. The Upper McCoy Wash area is outside the Riverside East SEZ delineated within the Solar Energy Development PEIS. If health-assessment sampling indicates that the McCoy Mountains Primary Recipient Site should not be selected, then the exact boundaries of the Secondary Recipient Site will be delineated in accordance with the Service's recipient-site selection criteria (Service 2011c), which include avoiding existing ROW or utility corridors or designated routes of travel.

The McCoy Mountain Primary Recipient Site was surveyed in spring 2011 to determine tortoise habitat and density and to evaluate the suitability of this area for translocation. Surveys were conducted at 30-foot intervals throughout the Primary Recipient Site, except in densely vegetated washes, where they narrowed. In the marginal habitat along the talus slopes at the Primary Recipient Site's outer, western edge, the most likely habitats (drainages and rock outcrops) were all searched for tortoise sign, and the surrounding area was sampled.

Three adult tortoises, eight fresh and five recent (less than a year old) burrows, and nine scat were found in the McCoy Mountain Primary Recipient Site (Table 3). Although sign was found throughout the area, the greatest amount was in the northern half. The southern area and base of the mountains is dominated by a boulder field. All three tortoises and most of the sign were observed in the area north of the boulder field in an area approximately 2.8 mile^2 however the Primary Recipient Site is about 4.0 mile^2. Using the Service's calculation for the entire area of the McCoy Mountain Primary Recipient Site, we estimate that 8.5 adult and subadult tortoises may be on site with a confidence interval range of 2.6 -27.7. Using the upper confidence interval range translates to a site density of 6.9 adult tortoises per mile^2 or 28 adult or subadult tortoises at the McCoy Mountain Primary Recipient Site.

In the absence of site-specific information for the Upper McCoy Wash area, we applied the same density from the McCoy Mountain Primary Recipient Site to estimate tortoise density for this site. We anticipate that the site will be at least 2,200 acres, roughly the same size as the western side of the Solar Plant Site. We expect that some tortoises may utilize the eastern side of the Project footprint, but we anticipate that the majority of the tortoises if found on site will be located on the western side. We based this assumption on pre-Project survey results and the presence of higher quality habitat near the base of the McCoy Mountains. We determined that a Recipient Site of roughly the same size as Unit 2 should provide adequate area for feeding, breeding, and sheltering for any translocated tortoises. Additionally, the acreage for the

Secondary Recipient Site is comparable to the proposed Primary Recipient Site. Applying this density yields an estimate of 24 adult or subadult tortoises at the Upper McCoy Wash Recipient Site (i.e., 6.9 tortoises per mile^2 multiplied by 3.4 mile^2). However, as discussed above, we acknowledge that this estimate is likely an overestimate but provides a biologically conservative approach based on the best data available to establish a baseline for analysis of the potential impacts of the proposed Project.

Proposed Control Site

The control site is a location separate from and unaffected by the Project or the proposed Recipient Sites and tortoises. The location is selected for comparative monitoring purposes to the translocated and resident tortoises. The same number of translocated tortoises monitored will also be monitored at a control site. The exact location of the control site will be identified in the Desert Tortoise Translocation Plan that will be approved by the Service (see "Conservation Measures" section above). The control site will be within the Upper McCoy Wash area described above. Per the Service's translocation guidance (Service 2011c), the control site will (1) be similar in habitat type/quality and tortoise population size/structure, and disease status as its respective Recipient Site; (2) not have previously received translocated tortoises; and (3) be at least 6 miles from an unfenced Recipient Site or anthropogenic or natural barriers to prevent the interaction of control, resident, and translocated tortoises. Once the exact location is identified, tortoise density at the control site will be estimated prior to the initiation of translocation activities to ensure that the control site contains the appropriate number of tortoises for monitoring purposes. The control site will be used to monitor resident tortoises only; no tortoises from the Project footprint will be translocated to the control site. No designated critical habitat occurs in the Upper McCoy Wash where the control site is anticipated to be located; therefore, none would be affected.

Future Conservation Lands

Habitat acquisition is proposed to offset impacts to tortoise habitat resulting from the proposed Project. As part of the proposed Project, conservation lands will be acquired within the Colorado Desert Recovery Unit as described in the desert tortoise revised recovery plan (Service 2011b). While the location of these lands has not yet been determined, the lands will be either occupied desert tortoise habitat or in sufficiently close proximity to known occupied tortoise habitat such that an unencumbered genetic flow is possible, thus protecting population connectivity. These future conservation lands will be protected and managed in perpetuity for tortoises. Using available data on landownership, the Service has determined that a sufficient amount of privately owned desert tortoise habitat exists within the Colorado Desert Recovery Unit that may be available for acquisition. The timing of the habitat acquisition will correspond with the timing of the site disturbance activities or if a land acquisition security is posted, then no more than 18 months after the start of Project ground-disturbing activities.

The abundance of tortoises in future conservation areas is unknown since the specific areas have not yet been identified and private lands typically have not been surveyed. However, because

acquisition will focus on areas connected to lands with tortoise habitat equal to or better quality than the Project footprint (PM25), we anticipate that these future conservation lands will contain suitable habitat that is currently occupied or likely to be occupied in the future.

Factors Affecting the Species Environment within the Action Area

Project Area

Due to the lack of development, tortoises in the majority of the Project Area (particularly the portion north of I-10) do not suffer from extensive habitat loss or degradation. However, the tortoises are impacted to some extent by several unmaintained roads, invasive nonnative plants, and potentially by predation from common ravens foraging, nesting, and roosting along existing transmission lines south of the action area (south of I-10) and from common ravens nesting elsewhere in the vicinity.

The southern portion of the Project Area includes the gen-tie transmission line that crosses I-10 and then runs along an existing utility corridor that contains several existing and authorized but unconstructed transmission lines, including the Blythe, Desert Southwest, and Devers to Palo Verde 1 and 2 transmission lines, and the CRS. All are in various phases of construction. The BSPP has been permitted and to remove up to 7,025 acres of habitat south of the proposed Project.

Proposed Translocation Recipient Sites

The general areas supporting both recipient sites are undeveloped and therefore not impacted by extensive habitat loss or degradation. The McCoy Mountain Primary Recipient Site is connected to the BSPP Recipient Site. Both proposed sites may be impacted to some extent by invasive nonnative plants, and the McCoy Mountains Primary Recipient Site may be impacted by predation from common ravens foraging, nesting, and roosting adjacent to the site and from common ravens nesting elsewhere in the Project vicinity.

Future Conservation Areas

While the location of these lands has not yet been determined, privately owned lands will be acquired to benefit tortoise population connectivity by connecting occupied tortoise habitat within and between tortoise critical habitat units, and/or other preserve lands in the Colorado Desert Recovery Unit in the BLM's NECO plan area. These future conservation lands will be conserved and managed in perpetuity for the benefit of tortoises.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat that would be added to the environmental baseline, along with the effects of other activities that are interrelated or interdependent with that action. Interrelated actions are those

that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur. In contrast to direct effects, indirect effects can often be more subtle, and may affect species and habitat quality over an extended period of time, long after project activities have been completed. Indirect effects are of particular concern for long-lived species such as the tortoise, because project-related effects may not become evident in individuals or populations until years later.

A total of approximately 4,532.9 acres of tortoise habitat would be directly impacted by construction and O&M activities associated with the proposed Project (Table 1). As discussed in the "Description of the Proposed Action" section above, we do not anticipate additional impacts to habitat during O&M activities outside of what would be impacted during construction. The conservation measures included as part of the Project description would help avoid, minimize, and offset impacts to tortoises resulting from construction and O&M activities.

Direct Effects

Direct effects associated with the construction and O&M of the proposed Project may result in death or injury to desert tortoises. Direct effects associated with the Project include (1) direct mortality from project equipment and construction activities; (2) direct mortality due to increased traffic and road access; (3) translocation of tortoises from the Project Area; and (4) loss of habitat used to support life history requirements. Included in our direct effects analysis is a discussion of Project decommissioning.

<u>Construction and O&M</u>

Death and injury of desert tortoises could result from collisions with or crushing by vehicles or heavy equipment, including individuals that take shelter under parked vehicles and are killed or injured when vehicles are moved. Desert tortoises could also be injured or killed during vegetation removal and clearing, trenching activities, and entrapment in open trenches and pipes. Individual tortoises or their eggs could be crushed or buried in burrows during construction and O&M-related activities. Because of increased human presence in the area, desert tortoises may be killed or injured due to collection or vandalism associated with increased encounters with workers, visitors, and unauthorized pets. Desert tortoises may also be attracted to the construction area by application of water to control dust, placing them at higher risk of death or injury.

To minimize incidental death and injury of desert tortoises residing in or entering the construction or O&M disturbance areas (e.g., Project site, Linear Facilities, and access roads), the applicant would implement the general and species-specific actions specified in the "Conservation Measures" section as part of the proposed action. This section outlines specific measures and their component parts that are summarized below with representative examples of how the applicant would minimize adverse effects to the desert tortoise. The take of tortoises

would be minimized by employing a Lead Authorized Biologist other Authorized Biologist(s) and Biological Monitor(s), as necessary (PM1). These biologists would be present during all ground-disturbing construction activities and present on the linear or other unfenced sections that have not been cleared of tortoises (PM1, PM22). All Authorized Biologists will have authority to halt all activities in any area where there would be an unauthorized adverse impact. All Authorized Biologists must meet the Service's Authorized Biologist qualifications and be approved by the Service and BLM prior to the initiation of ground-disturbing construction activities (PM1).

To keep tortoises from entering the Solar Plant Site during construction phases and O&M, the applicant will fence the site with permanent tortoise exclusion fencing. An Authorized Biologist and/or Biological Monitors will survey the fenceline prior to installation to identify burrows or tortoises to ensure that they are avoided during fence installation (PM3). This measure also addresses any burrows that cannot be avoided, by either examining for tortoise occupancy or excavating with hand tool, to ensure that tortoises are not trapped within burrows during fence construction. Within the Solar Plant Site each phase would be cleared of all desert tortoises prior to any ground disturbance. After clearance surveys, any desert tortoises located would be either moved out of harm's way or translocated to the approved Recipient Site as outlined in the Service-approved Desert Tortoise Translocation Plan (PM3, PM4). By delineating the limits of construction with flagging or orange fencing and confining all disturbances, vehicles, and equipment to fenced/flagged areas, death or injury to desert tortoises would be further minimized. No work in unfenced and uncleared habitat will occur except under the direct supervision of a Biological Monitor as verified by an Authorized Biologist (PM10).

Any desert tortoises undetected during the initial clearance surveys may be located during construction activities by routine site inspections by an Authorized Biologist or incidental observations by construction workers. The WEAP would be administered to all onsite personnel and be repeated annually for all permanent personnel and within a week of arrival to any new construction personnel (PM9). This training would enhance the effectiveness of onsite personnel to improve detection and avoidance of desert tortoises, and ensure proper translocation procedures are adhered to during construction and O&M activities. Additional actions to avoid and minimize incidental death and injury of desert tortoises include filling any open trenches, pits or excavated areas outside the fenced areas to prevent entrapment (PM12), storing construction materials and piping inside the perimeter security fence, and minimizing the amount of water used for dust abatement to avoid ponding, which acts as an attractant to desert tortoises and their predators (PM20).

Overall, we expect that death and injury of most subadult and adult tortoises would be avoided during construction and O&M activities through compliance with the conservation measures. Although we estimate up to six tortoises may occur within the Linear Corridor, we anticipate if necessary all tortoises encountered may be moved out of harm's way (PM25). We also anticipate that an unknown number of juveniles and eggs would be taken, based on the difficulty of detecting juveniles and tortoise eggs. Based on the calculations performed for the "Environmental Baseline" section, we estimate that as many as five juvenile desert tortoises may

occur within the proposed Project site. We also estimate at least five reproductive females on the proposed Project site and an unquantifiable, but extremely small, number of eggs. Given the uncertainty associated with trying to quantify the number of eggs that may be present, we cannot predict how many eggs would be present on site during construction activities for any given phase, and therefore, cannot estimate how many eggs would be destroyed by construction and O&M activities. We do not expect the loss of eggs or juveniles in the Project footprint would affect the species' local population level because the number of juveniles and eggs that may be taken is extremely small and the early life stages naturally suffer higher mortality rates and are not as important to the long-term conservation of the species as are breeding adults.

Desert Tortoise Translocation

Capture and translocation of desert tortoises may result in accidental death and injury from stress or disease transmission associated with handling tortoises; stress associated with moving individuals outside of their established home range; stress associated with artificially increasing the density of tortoises in an area and thereby increasing competition for resources; and disease transmission between and among translocated and resident desert tortoises. Capture and handling of translocated and resident desert tortoises for the purposes of attaching transmitters, conducting health assessments, which include visual inspection relative to body condition, clinical signs of disease, and collection of biological samples for ELISA, could also result in accidental death or injury.

Capturing, handling, and moving tortoises for the purposes of translocating them out of the Project Area or moving them out of harm's way may result in accidental death or injury if these methods are performed improperly, such as during extreme temperatures, or if individuals void their bladders and are not rehydrated. Averill-Murray (2002) determined desert tortoises that voided their bladders during handling had lower overall survival rates (0.81 to 0.88) than those that did not void (0.96). If multiple desert tortoises are handled by biologists without the use of appropriate protective measures and procedures, such as reused latex gloves, pathogens may be spread among individuals. To address these potential effects, the Desert Tortoise Translocation Plan has been drafted in accordance with the most recent Service guidance (Service 2011c). The Translocation Plan would continue to be adaptively managed over time to facilitate a successful translocation effort. Because the applicant would adhere to the most recent Service guidance in addition to implementing the conservation measures outlined in the proposed action, we anticipate any mortality or injury to desert tortoises from activities associated with removing individuals from the proposed Project site is unlikely.

We anticipate that the applicant will capture and move all subadult and adult desert tortoises from the fenced Solar Plant Site and, if necessary, will capture and move subadult and adult desert tortoises from any other portion of the action area where individuals may be in harm's way of Project activities. Tortoises in northeastern Riverside County, and in other areas of the Sonoran Desert, are more abundant in the upper alluvial fans that are bisected by deeply incised washes, especially washes with an abundance of caves and other shelter sites. The biological surveys for both solar projects in the area have confirmed this, with tortoises and tortoise sign

being more abundant in the upper alluvial dissected fans (e.g., the western portions of the Solar Plant Site and BSPP) and less abundant or absent in the broad, low elevation valleys between the mountains (e.g., Palen or Nextera Genesis). Based on this information, we expect that most of the tortoises will be found on Unit 2. We acknowledge that desert tortoise abundance within the Project Area can change and we cannot predict exactly how many individuals will be removed from each Unit. Depending on the time of year, the applicant may conduct pre-clearance surveys prior to the fence installation to determine the actual number tortoises within the Solar Plant Site. Transmitters will be affixed to any tortoises found in burrows and health assessments will be conducted.

We anticipate that if any tortoises are located are on Unit 1 of the Solar Plant Site, the tortoises will likely be within 1,640 feet of the perimeter fence of Unit 1. Depending on construction timeline of Unit 2 and agency concurrence, tortoises found in Unit 1 may be moved to the Primary Recipient Site or to Unit 2. All tortoises found on Unit 1 will be will be marked with a semi-permanent mark, such as an epoxy tag, and receive a transmitter. Pre-project surveys found only deteriorated burrows located on the eastern portion of the site, which are within 1,640 feet of the proposed fenceline. In the event that a tortoise is found greater than 1,640 feet from the perimeter fence, it then will be moved to an approved Recipient Site (PM4). Any tortoise moved from Unit 2 will be moved to the Primary Recipient Site. If juveniles or eggs are located, they will be handled as described in the Desert Tortoise Translocation Plan. Based on the survey results for the proposed Project site, we estimate that up to 10 subadult and adult desert tortoises may be translocated to the McCoy Mountain Recipient Site; we have estimated that the Project site may support 5 juvenile desert tortoises and reproductive females may produce an unquantifiable, but extremely small, number of eggs.

Following the Service's translocation guidance (Service 2011c), health assessments would be conducted on all tortoises prior to being translocated. For tortoises found within 1,640 feet of the perimeter fence or Project boundary, visual health assessments (without blood draw for ELISA testing) would be conducted. For tortoises that would be moved greater than 1,640 feet to the Recipient Site, visual health assessments and blood draw for ELISA testing would be conducted. Health assessments are required of all potential translocatees and a sufficient sample in the recipient population to detect disease prevalence. For the Recipient Site, most tortoises in the health assessment radius (~4 mile) will need to be assessed to detect the level of disease prevalence. If results from the Primary Recipient Site health assessments indicate a high disease prevalence excluding this site as a viable recipient location, then health assessments will be conducted for most of the tortoises in the Secondary Recipient Site to confirm disease prevalence.

While we cannot reasonably predict if an increase in disease prevalence within the resident population may occur due to translocation of up to 10 individuals, our analysis considers the following mitigating circumstances that are likely to reduce the magnitude of this risk:

1. The applicant would use experienced biologists and approved handling techniques that are unlikely to result in substantially elevated stress levels in translocated animals.

2. Density-dependent stresses are unlikely to occur for reasons stated below.

3. Any animal that has clinical signs of disease or ELISA-positive blood test would not be tranlocated.

4. Long-term monitoring, if required, of translocated individuals would be implemented to determine the prevalence of disease transmission.

Because ELISA testing can result in false-positive results (i.e., an animal may test positive even though it is not a carrier of the disease), the potential exists for removal of healthy individuals from the translocated population due to concern over disease. These individuals would not be released into the wild and would no longer contribute to the environmental baseline for the action area. Because the applicant would coordinate with the Service and perform follow-up testing of ELISA-positive individuals, the potential for removing false-positive individuals from the translocated population is low. Consequently, we conclude that few, if any, desert tortoises would be incorrectly removed from the population due to false positive results. Similarly, some of the animals that test positive may have survived past disease infections and are healthy. Though our understanding of disease ecology is not complete and removal of these individuals from the wild population could eliminate individuals with superior fitness and genetic adaptations for surviving disease from the gene pool, the low numbers of tortoises involved likely would not be large enough to affect population genetics in the wild.

Apart from disease, translocation may also affect resident desert tortoises within the Recipient Site due to local increases in population densities. Desert tortoises from the Project site would be moved to areas now supporting a resident population, which may result in increased inter-specific encounters, and thereby, an increased potential for spread of disease, potentially reducing the health of the overall population; increased competition for shelter sites and other limited resources; increased competition for forage, especially during drought years; or increased incidence of aggressive interactions between individuals (Saethre et al. 2003). To minimize potential density-dependent effects, recipient sites must be sufficiently large to accommodate and maintain the resident and translocated desert tortoises (Service 2010d).

Based on our estimate of the resident population at the Recipient Sites as discussed in the "Environmental Baseline" section, we calculated the maximum allowable final density[2] and abundance (i.e., residents plus translocatees) at the Recipient Sites. Based on this calculation, the number for each site should not exceed 77 individuals[3] for the McCoy Mountains Recipient Site or 66 individuals[4] for the Upper McCoy Wash Recipient Site. Since we estimate that no more than 10 subadult and adult tortoises will be found in the Project footprint, translocation of

[2] Projected density after translocation at the Recipient Sites (residents plus translocated adult individuals [at least 180 millimeters carapace length] should not exceed the 68 percent confidence interval of the mean density (this is an asymmetrical interval based on one standard deviation to each side of the mean) in the respective desert tortoise recovery unit. Mean density in the Colorado Recovery Unit is estimated to be 13.8 tortoises per mile^2 (Service 2011c); therefore, maximum allowable density equals 19.3 tortoises per mile^2.
[3] Calculated as the square miles of the Primary Recipient Site (4.0) multiplied by 19.3 desert tortoises per mile^2.
[4] Calculated as the square miles of the Secondary Recipient Site (3.4) multiplied by 19.3 desert tortoises per mile^2.

individuals from the Solar Plant Site to either Recipient Site is not likely to impact the current density of the Recipient Sites.

Should the density of resident desert tortoises at the Recipient Sites be higher than estimated, the size of the Recipient Sites may need to be expanded to ensure the final density. By virtue of its size, the McCoy Mountain Recipient Site is likely to support all of the desert tortoises needing translocation. We anticipate that density-dependent effects on resident desert tortoise populations are likely to be minor for the following reasons:

1. Health assessments will be performed on all desert tortoises prior to translocation thus decreasing the potential for introduction of infectious diseases to the Recipient Site.

2. A threshold density has been calculated for the Recipient Sites so as not to exceed the maximum mean density for the recovery unit. This threshold is significantly lower than that which adverse effects were observed in previous post-translocation studies (Saethre et al. 2003).

3. Translocation will be implemented such that individuals are distributed throughout the Recipient Site.

4. The Recipient Sites are contiguous with suitable desert tortoise habitats, which will facilitate dispersal into other areas.

5. Long-term monitoring, if required, will provide opportunities to implement adaptive management to address any observed unanticipated effects.

The proposed Desert Tortoise Translocation Plan and the best available information regarding density estimates and thresholds and methods for determining disease prevalence indicate that all of the desert tortoises expected to be translocated from the Project Area can be accommodated at each of the Recipient Sites. However, if disease prevalence or density thresholds prevent the use of all selected Recipient Sites, the applicant will need to identify alternative suitable areas for translocation. Such alternative translocation areas would constitute a change in the Project description that likely would necessitate a reinitiation of consultation.

Following release, desert tortoises are expected to disperse, but we cannot predict the movement patterns of all translocated individuals. Dispersal distances following translocation appear to be influenced by the distance they are moved from their home range and the availability of resources in the area to which they are moved. Desert tortoises translocated relatively short distances from their home ranges tend to move shorter distances from their release points than desert tortoises translocated more than 1,640 feet. Nussear (2004) reported that for adult desert tortoises translocated greater than 1,640 feet, the mean straight-line dispersal distance for both males and females ranged from 0.6 to 3.7 miles. Walde et al. (2008) reported that the mean straight-line dispersal distances for adult desert tortoises using two experimental treatments was approximately 1.6 miles and 2.6 miles for males and 0.9 mile and 1.4 miles for females.

Maximum straight-line dispersal distances for translocated adult males ranged from 3.9 miles (Field et al. 2007) to 7.8 miles in the first year following translocation (Walde et al. 2008).

The degree to which translocated desert tortoises expand the area they use depends on whether tortoises are released into typical or atypical habitat; that is, if the recipient area supports habitat that is similar to that of the source area, desert tortoises are likely to move less (Nussear 2004). Translocated desert tortoises appear to reduce movement distances following their first post-translocation hibernation to a level that is not significantly different from resident populations (Field et al. 2007, Nussear 2004). As time increases from the date of translocation, most desert tortoises alter their movement patterns from dispersed, random patterns to more constrained patterns, which may indicate establishment of a new home range (Nussear 2004).

Just as we cannot predict the distances translocated desert tortoises will move, we also cannot predict the direction these individuals are likely to move. Berry (1986) observed that translocated desert tortoises have exhibited a tendency to orient toward the location of their capture and attempt to move in that direction, but other research showed no discernible homing tendency in translocated individuals (Field et al. 2007). Data specific to short-distance translocations indicate that at least some individuals will attempt to return to their former home ranges after release (Rakestraw 1997, Stitt et al. 2003,).

Based on previous translocation studies, straight-line dispersal distances from release points generally vary during the first year following translocation. While the mean straight-line distances reported for several studies are close to or less than 1.6 miles, some translocated desert tortoises move much farther (Drake et al. 2009, Field et al. 2007, Nussear 2004). Based on our analysis of the available data, we expect the movements of most tortoises translocated more than 1,640 feet to remain within 4 miles of their release points. This distance was derived by examining the upper limits of the 95 percent confidence intervals for available data. However, as mentioned above, translocated individuals can also significantly expand the area they occupy in the first year following translocation (e.g., 3.9 to 6.9 per mile^2 at a Nevada site and from 0.2 to 10.3 per mile^2 at a Utah site) (Drake et al. 2009, Field et al. 2007, Nussear 2004). Based on movement of tortoises after translocation, the Service (2011c) recommends that a proposed translocation site is at least 6 miles from major unfenced roads or highways.

In one study, the majority of dispersal movement away from the release site occurred during the first 2 weeks after translocation (Field et al. 2007). During this time and over the period prior to establishment of a new home range, translocated desert tortoises may experience higher potential for mortality because they are moving through unfamiliar habitats and are less likely to have established cover sites that provide protection. Studies have documented various sources of mortality for translocated individuals, including predation, exposure, fire, disease, and flooding (Berry 1986; Field et al. 2007; Nussear 2004; U.S. Army 2009, 2010). Of these, predation appeared to be the primary mortality mechanism in most translocation studies (Field et al. 2007; Nussear 2004; U.S. Army 2009, 2010). These studies indicate that desert tortoise mortality is most likely to occur during the first year after release. After the first year, translocated individuals are likely to establish new home ranges and mortality is likely to decrease.

Various studies have documented mortality rates of translocated desert tortoises ranging from 0 to 21.4 percent (Field et al. 2007, Nussear 2004). Nussear (2004) found that mortality rates among translocated desert tortoises were not statistically different from that observed in resident populations. However, this study did not compare mortality rates in resident populations to those in control groups; therefore, we cannot determine if the translocation caused increased mortality rates in the resident population. Recent studies in support of the Fort Irwin expansion (U.S. Army 2009, 2010) compared mortality rates associated with resident and translocated desert tortoise populations with that of control populations; preliminary results indicated translocation did not increase mortality above natural levels (Esque et al. 2010).

Juvenile desert tortoises will comprise a portion of the overall mortality predicted within resident and translocated populations. In general, this life stage experiences higher mortality rates than subadult and adults under natural circumstances and are more susceptible to predation. We estimate up to five juveniles may occur on the Project site, therefore, we do not anticipate a large amount of juvenile mortality associated with translocation. Because of the difficulty in locating juvenile desert tortoises, individuals that are not translocated are likely to die during construction. However, as stated above for direct effects from construction and O&M, based on the estimated number of desert tortoises expected to occur within the action area and the conservation measures that have been identified for each Project component, we conclude that death and injury resulting from translocation of juvenile desert tortoises or other construction and O&M activities will not appreciably reduce the desert tortoise population or reproductive success within the Colorado Desert Recovery Unit.

Based on the available data on translocation and consistent with the findings in Esque et al. (2010), we conclude that mortality rates in the resident and translocated populations are unlikely to be elevated above levels that these populations would experience in the absence of translocation. Therefore, we anticipate that death or injury of few, if any, subadults, adults, juveniles, or eggs will be the direct result of translocation. If more than five desert tortoises (subadults or adults) are translocated, then the long-term monitoring of the translocated, resident, and control populations will assist us in determining if this conclusion is accurate.

Based on the pre-Project survey data, we have estimated that few, if any, desert tortoises are likely to be moved during construction of the Linear Corridor. Because disturbance areas for this Project component are relatively small, moving desert tortoises immediately outside of the work area is not likely to displace them from their current home ranges. Consequently, any desert tortoises moved from the Linear Corridor will continue to occupy familiar territory and use known shelter sites and are unlikely to suffer post-translocation mortality associated with temporary removal from the disturbance areas. Furthermore, subsequent to completion of the gen-tie construction, desert tortoises will be able to return to these areas. In conclusion, we do not anticipate that moving desert tortoises out of harm’s way of construction of linear features would result in death or injury because these individuals would remain near or within their existing home range, which is not likely to result in significant social or competitive impacts to resident desert tortoises in the area.

Following release of desert tortoises translocated outside of their home range, a small number may die due to exposure, stress, dehydration, inadequate food resources, and increased predation. We anticipate that any mortality associated with these factors is likely to occur in the first year after release, during the period that translocated animals are attempting to establish new home ranges. In addition, we anticipate that a small number of resident desert tortoises at the Recipient Site may die from natural causes due to these same vulnerabilities. However, we cannot determine if mortality rates in the translocated or resident populations would be above natural mortality levels for the Recipient Site. In addition, the potential impacts of capturing, handling, and moving tortoises for the purposes of translocation would be avoided or reduced through implementation of the actions specified in the "Conservation Measures" section.

Desert Tortoise Translocation: Post-Translocation Monitoring

Translocated tortoises will be monitored via telemetry for several weeks to ensure that no tortoise is fence-walking or otherwise compromised. Depending on construction schedule and Service approval of the disposition plans, all translocated tortoises moved to the Primary Recipient Site may be monitored via telemetry until the clearance is complete and the final number of translocated tortoises has been tallied. If no more than five desert tortoises are found onsite, then translocated tortoises will be monitored for several weeks post-release.

For projects that require translocation of more than five desert tortoises, a long term post-translocation effectiveness monitoring program will be designed to evaluate the translocation relative to project-specific conditions. As noted in the draft Desert Tortoise Translocation Plan, an initial pre-clearance passes may be conducted in each unfenced unit to find and conduct health assessments all tortoises on site. These surveys will be conducted to confirm the number of tortoises that are likely to need translocation and whether a long-term study and control site will be necessary. A pre-clearance pass also will facilitate health sampling and the development and approval of disposition plans, if needed. Depending on the construction timeline and agency concurrence, the cumulative number of tortoises from both units may be used to determine if a long term post-translocation is needed. Based on the estimated number of subadult and adult tortoise on the Solar Plant Site, the applicant may need to attach transmitters to no more than 30 subadult and/or adult desert tortoises (i.e., 10 each of translocated, resident, and control animals) to facilitate long-term monitoring. Thus, desert tortoises will have transmitters attached and be monitored and handled periodically for visual health assessments throughout the monitoring period.

In both scenarios, some potential exists that handling of desert tortoises may cause elevated levels of stress that may render these animals more susceptible to disease or dehydration from loss of fluids. However, because the applicant will employ experienced biologists approved by the Service and BLM and sanctioned handling techniques to perform health assessments, we do not expect handling and monitoring activities to result in death or injury of any individuals.

Habitat Loss

Phased construction of the proposed Solar Plant Site and Linear Facilities would cause the long-term loss of 4,532.9 acres of desert tortoise habitat. Based on numerous studies cataloguing restoration rates of desert vegetation, we consider all ground-disturbing impacts associated with the proposed Project to be permanent. Vasek et al. (1975) found that the Mojave Desert transmission line construction and O&M activities resulted in a permanently devegetated maintenance road, enhanced vegetation along the road edge and between tower sites (often dominated by nonnative species), and reduced vegetation cover under the towers, which recovered significantly but not completely in about 33 years. Webb (2002) determined that absent active restoration following extensive disturbance and compaction in the Mojave Desert, soils in this environment could take between 92 and 124 years to recover. Other studies have shown that recovery of plant cover and biomass in the Mojave Desert could require 50 to 300 years in the absence of restoration efforts (Lovich and Bainbridge 1999). For these reasons, the BLM and Service consider temporary impacts to be functionally permanent relative to the lifetime of construction projects, and therefore, subject to habitat loss calculations for determining impacts and commensurate offsetting measures.

To offset permanent losses of tortoise habitat, a total of 4,532.9 acres of equivalent or better quality habitat would be acquired to benefit the tortoise by connecting occupied habitat adjacent to critical habitat, and/or other core habitats in the Colorado Desert Recovery Unit identified in the BLM's NECO bioregional planning unit (PM25). These future conservation lands will be conserved and managed in perpetuity for tortoises.

The permanent loss of habitat would impact resident tortoises by reducing available habitat for expanding and contracting home range size and disrupting movement of individuals. Based on the widespread distribution of older sign found throughout the project site and other projects in the area, the population of desert tortoises in the past appears more numerous than under current conditions. Today tortoise occupation appears to be restricted to the upper alluvial fans near McCoy Mountains, where at least three resident tortoises were found on and adjacent to the Project site. When considering an area occupied by resident desert tortoises, we expect that home range size will vary with respect to location and year (Berry 1986), and this expansion and contraction may indicate changes in resource availability, reproductive opportunities, and social interaction (O'Connor et al. 1994). Over their lifetimes, individual desert tortoises may average more than 1.5 square miles of habitat (Service 1994) and may make periodic forays of more than 4.3 miles at a time (Berry 1986). We expect that if available, the lower quality habitat on the eastern portion of the project would be utilized again under more favorable weather conditions that produce forage or suitable cover.

The agencies (the Service, BLM, and CDFW) worked with McCoy Solar, LLC to realign the western boundary to reduce potential hazardous fencing conditions and minimize habitat loss. Our common goal was to maintain a zone of high quality habitat along the base of the mountains for resident tortoises and any future translocation while eliminating potential predator traps and wildlife entrapment issues associated with the fencing alignment. The applicant agreed to straighten the western boundary, generally moving it eastward, which expanded the Primary

Recipient Site and reduced the Solar Plant Site footprint by approximately 355 acres. This reconfiguration provided about 2,600 acres of upper alluvial fan habitat (about 4 square miles), varying in width from about 1.0 to 1.5 miles along the base of the mountains west of the project site. This calculation does not include the suitable habitat within the mountain canyons and lower slopes of the McCoy Mountains, which functionally provides a wider zone of habitat for resident tortoises. Protecting this area adjacent to the mountains could provide additional security against population declines by allowing gene flow to reliably occur at the local population level by connecting areas of occupied habitat south of the project site to the upper McCoy Wash and the proposed BSPP translocation site. As a designated translocation site, the Primary Recipient site and the BSPP Recipient Site would potentially be excluded from all future solar development per the exclusion policy of the Solar PEIS. The Solar PEIS designates all desert tortoise translocation sites that are identified in applicable land use plans, project-level mitigation plans, or biological opinions as ROW exclusion zones (BLM 2012a).

We expect less than 0.06 percent of the Colorado Desert Recovery Unit (which is approximately 7,635,000 acres) would be lost by constructing this Project. Because of the location, we do not expect this loss of habitat to regionally impact population connectivity. We evaluated the habitat loss in regards to regional connectivity by looking at various models identifying priority linkages or connectivity corridors for desert tortoise. *A Linkage Network Study for the California Deserts*, modeled tortoise connectivity using the least-cost corridor methodology for (Penrod et al. 2012) and the Desert Tortoise Recovery Office (DTRO) modeled landscape-scale connectivity, which identified priority habitat linkages between and among tortoise conservation areas in the Sonoran and Mojave deserts. Though the landscape scale of these modeling efforts can overlook site-specific conditions at a more local scale, these modeling results did not indicate a regional-scale linkage across McCoy Valley, and are consistent with current on-the-ground conditions in the project area. Based on field reconnaissance and these modeling results, we do not anticipate that a functional north-south desert tortoise linkage currently exists across southern McCoy Valley or the Project site because the sand transport corridor and I-10 related development in the lower Chuckwalla Valley separates the patches of suitable habitat on the alluvial fans draining the Mule and McCoy mountain ranges.

Decommissioning

As discussed above, we are assuming the permanent loss of suitable habitat for the entire Project Area. Decommissioning will include actions to remediate impacts, such as decompacting soils, seeding, and nonnative species control. McCoy Solar will hire an Authorized Biologist for the decommissioning phase to ensure habitat restoration activities will not harm tortoises and that all environmental protection measures are properly implemented (PM26). But desert habitat restoration studies indicate that disturbed areas may be permanently lost or ecologically unsuitable for decades to come. Abella (2010) conducted a quantitative review of over 46 studies evaluating post-disturbance plant recovery and success in the Mojave and Sonoran deserts and found that the reestablishment of perennial shrub cover (to amounts found on undisturbed areas) generally occurs within 100 years but in fewer than 40 years in some situations. He also found that a number of variables likely affect vegetation recovery times, including but not limited to, climate (e.g., precipitation and temperatures), invasion by nonnative

plant species, and the magnitude and extent of ongoing disturbance. Therefore, when and if successful restoration of these areas would reclaim habitat suitable for desert tortoises in the future cannot be determined at this time, and potential effects of decommissioning would be reassessed prior to the beginning of that process.

Indirect Effects

Human activities may provide food in the form of trash and litter or water that attracts tortoise predators such as the common raven. Ravens capitalize on human encroachment and expand into areas where they were previously absent or in low abundance. Ravens habituate to human activities and are subsidized by the food and water, as well as roosting and nesting resources that are introduced or augmented by human encroachment. The nearby Blythe airport and other urban areas provide food, water features, and roosting/nesting substrates (e.g., buildings, signs, lamps, and utility poles) that otherwise would be unavailable. Small mammal, fox, coyote, rabbit, lizard, snake, and tortoise road kill along I-10 and other roads provide additional attractants and subsidies for opportunistic predators/scavengers. Road-killed wildlife would likely increase with Project construction and O&M traffic, further exacerbating the raven/predator attractions and increasing tortoise predation levels.

Facility infrastructure such as power poles, fencelines, buildings, and other structures on the Project site could also provide perching, roosting, and nesting opportunities for ravens. Natural predation rates may be altered or increased when natural habitats are disturbed or modified. Common raven populations in some areas of the Mojave Desert have increased 1,500 percent from 1968 to 1988 in response to expanding human use of the desert (Boarman 2002). Since ravens were scarce in the Mojave Desert prior to 1940, the existing level of raven predation on juvenile tortoises is considered an unnatural occurrence (BLM 1990). In addition to ravens, feral dogs have emerged as significant predators of tortoises in rural residential areas. Though feral dogs may range several miles into the desert and have been found digging up and killing tortoises (Evans 2001, Service 1994a), we are not aware of any reports of feral dogs in the Project Area.

To minimize the generation of food subsidies due to construction and O&M-related activities, all trash materials would be disposed of in self-closing containers and removed to prevent the attraction of tortoise predators to the Project footprint and road-killed animals would be immediately removed and disposed (PM15). The applicant would minimize water subsidies by having a Biological Monitor patrol those areas that are treated with water to ensure water does not puddle (PM22). Also, increases in raven abundance in the Project Area would be minimized by measures outlined in the Raven Management and Control Plan, which include a program to monitor raven presence in the Project vicinity. If monitoring indicates raven numbers are increasing, the applicant would implement raven control as needed (PM20). To further minimize indirect and cumulative impacts of raven predation on tortoises associated with the proposed Project, the applicant would contribute to the Service's Regional Raven Management Program (PM20) developed to address raven predation on tortoises at a population scale in the California Desert region as a conservation action for the species.

In addition, desert tortoise behavior may be impacted by increased noise levels and the presence of full-time facility lighting during construction and operation of the facility over a 30-year period. While we do not have data demonstrating the effect of increased noise levels and the presence of artificial lighting to desert tortoise behavior, several measures proposed to minimize these potential impacts on other sensitive species (PM17) will also benefit tortoises.

Native shrubs and annual plants used by tortoises for sheltering and feeding adjacent to the Project footprint also may be adversely affected by introduced or previously naturalized invasive nonnative plants (also referred to as weeds) that respond positively to ground disturbing activities. Project equipment may transport invasive nonnative plants into the Project Area where they may become established. Additionally, the potential introduction of noxious weeds may lead to increased wildfire risk (Brooks et al. 2003). However, potential degradation of habitat due to spread of invasive nonnative plants would be avoided and minimized by measures outlined in the Weed Management Plan designed to prevent the introduction of any new weeds and the spread of existing weeds as a result of Project construction and O&M (PM21).

Effect on Recovery

Per section 2(b), the primary purposes of the Act are to provide a means whereby the ecosystems upon which listed species depend may be conserved, and to provide a program for the recovery of listed species. Per section 2(c), Congress established a policy requiring all Federal agencies to use their authorities in seeking to recover listed species in furtherance of the purposes of the Act. Consistent with these purposes and Congressional policy, sections 3(5), 4(f), and 7(a)(1) of the Act, and the implementing regulations (50 CFR § 402.02) to section 7(a)(2) of the Act, and related preamble (51 FR 19926) generally mandate Federal agencies to further the survival and recovery of listed species in the use of their authorities. Our analysis below assesses (1) whether the proposed action adequately offsets its adverse effects to the environmental baseline to the desert tortoise, and (2) the extent to which the proposed action would cause "significant impairment of recovery efforts" or adversely affect the "species' chances for survival to the point that recovery is not attainable" (51 FR 19934).

The applicant will implement numerous measures to avoid, minimize, reduce, and offset the adverse effects to the relatively few tortoises in the Project footprint. Overall, we expect that 10 or fewer subadult and adult and 5 or fewer juvenile desert tortoises would be captured, injured, or killed during construction of the Solar Plant Site, and that an unquantifiable, but extremely small, number of eggs may be moved or destroyed during construction. Few tortoises of any size would be killed or injured during O&M of the facility. We expect that most subadult and adult tortoises encountered during work activities would be either moved short distances out of harm's way or translocated. Because BLM and applicant would implement a variety of measures to reduce stress to these animals, we do not anticipate that injury or mortality would result from the handling and relocation of these animals.

Based on the results of studies discussed above, most of the subadult and adult tortoises moved from the Project footprint likely would continue to survive and reproduce at the location to

which they are moved (i.e., in adjacent habitat or the Recipient Site). Consequently, we anticipate that the proposed Project would not appreciably diminish the reproductive capacity of the species, particularly in light of the relatively few tortoises that would be affected.

The distribution of the tortoise would be minimally reduced because the proposed Project would result in loss of a small percentage of the habitat in the Colorado Desert Recovery Unit, which includes the 1,020,600-acre Chuckwalla critical habitat unit, a majority of the approximately 1,000,000-acre Joshua Tree National Park, and additional lands. This percentage does not constitute a substantial portion of the recovery unit. Given the location of the proposed Project in an area near the edge of the tortoise's range, we do not anticipate that the amount of habitat to be lost because of the proposed Project would reduce the distribution of the tortoise to an appreciable degree. We do not anticipate that loss of habitat in the Project footprint would substantially reduce the ability of the tortoise to survive and recover in the wild because the recovery plan (Service 1994a) and final rule designating critical habitat for the species (Service 1994b) primarily focuses long-term conservation priorities in higher value habitat areas. The proposed acquisition of tortoise habitat would benefit tortoise habitat connectivity between known populations of tortoises, and/or or other preserve lands in the Colorado Desert Recovery Unit in the BLM's NECO bioregional planning unit.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local, private, or certain tribal actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any future State, local, private, or certain tribal actions that are reasonably certain to occur in the action area.

CONCLUSION

After reviewing the current status of the desert tortoise, environmental baseline for the action area, and effects of the proposed action and cumulative effects on the desert tortoise, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the desert tortoise. We base this decision on the following:

1. The applicant will implement numerous measures to ensure that most tortoises are moved out of the Project footprint and injury and death of tortoises is minimized (i.e., clearance surveys, exclusion fencing, relocation, translocation, and qualified tortoise biologists).

2. The applicant will implement measures to reduce the potential for increased predation by common ravens, both in the vicinity of the Project footprint and regionally, and to reduce the spread of invasive nonnative plants in the Project Area.

3. Current information from permanent study plots and line distance sampling does not document a statistical trend in adult tortoise densities in the Colorado Desert Recovery Unit. Nonetheless, given the small number of tortoises affected by the proposed Project, we have no information to indicate that development of the proposed Project would appreciably reduce the tortoise population levels in this recovery unit.

4. Few, if any, tortoises are likely to be injured and killed as a result of translocation.

5. Though the proposed Project would reduce the amount of available tortoise habitat in the McCoy Valley, regional connectivity between between the Chuckwalla and Chemehuevi DWMAs would not be affected, higher density habitat in the western and northern portions of McCoy Valley would be avoided and conserved, and sufficient habitat in those areas with a higher density population would remain to support a local population, including the low number of tortoises to be translocated from the Project site. Successful translocation would retain those tortoises in the population, thereby contributing towards recovery of the species.

6. Desert tortoise habitat acquisition required through BLM will result in an increase in the quantity or quality of habitat managed for the conservation of the tortoise.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, and Federal regulation pursuant to section 4(d) of the Act, prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below for desert tortoises are non-discretionary and must be undertaken by the BLM so that they become binding conditions of any ROW grant issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The BLM has a continuing duty to regulate the activity covered by this incidental take statement. If the BLM: (1) fails to assume and implement the terms and conditions; or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable stipulations that are incorporated into the grant document, the protective coverage of section 7(o)(2) may lapse. To

monitor the impact of incidental take, the BLM must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

AMOUNT AND EXTENT OF TAKE

The proposed action will likely result in the take of all desert tortoises within the Project boundary, along the Linear Facilities, in areas where exclusion fencing would be installed, and within the Recipient Site as a result of construction and long-term O&M of the proposed Project, moving individuals out of harm's way, and from translocation and subsequent health assessments. We anticipate that the number of desert tortoises that may be taken would be low due to the small number of individuals estimated to occur within the Project footprint and the anticipated effectiveness of conservation measures described as part of the proposed action. However, we cannot precisely quantify the amount of take that will occur during these activities. Some of the constraints that make it difficult to determine desert tortoise densities and abundance include the cryptic nature of the species (i.e., individuals spend much of their lives underground or concealed under shrubs), inactivity in years of low rainfall, and low abundance across a broad distribution within several different habitat types. In addition, population numbers and distribution of individuals fluctuate in response to weather patterns and other biotic and abiotic factors over time; hence, it is likely that the numbers and distribution of desert tortoises within the Project Area have changed since Project-specific surveys were completed. The number of juvenile desert tortoises and eggs is even more difficult to quantify because of small size, their location underground, and low detection probabilities during surveys. The following paragraphs define the form of take and the number of individuals taken that we anticipate will result from the proposed action.

Project Area Construction

The disturbance of 4,532.9 acres of desert tortoise habitat from construction of the proposed Solar Plant Site, Linear Facilities, and O&M-related activities may result in accidental death or injury of subadults, adults, and juvenile desert tortoises and eggs from crushing, trampling, or burial. If the proposed Project-related activities result in impacts to desert tortoise habitat beyond this acreage, the amount or extent of the anticipated level of take will be exceeded.

As discussed in the "Environmental Baseline" section, we estimate that up to 10 subadult and adult desert tortoises, up to five juveniles, and an unquantifiable number eggs may occur within the proposed Solar Plant Site. These numbers are estimates based on pre-Project survey results and the upper limit of the 95 percent confidence range; the actual number of individuals requiring translocation may be much lower. We also estimated a small number of tortoises on the Linear Corridor based on live animals and sign found during the pre-Project surveys. The applicant will implement numerous conservation measures to avoid and minimize death and injury to desert tortoises, such as permanent or temporary desert tortoise exclusion fencing around construction zones and moving individuals out of harm's way or translocating them appropriately. We anticipate that most subadult and adult tortoises on site will be translocated or excluded from the Solar Plant Site. Consequently, we anticipate that construction within the

Solar Plant Site and Linear Facilities will result in the death or injury of a maximum of one adult or subadult tortoise. If more than one tortoise is found injured or dead during construction activities the amount or extent of the anticipated level of take will be exceeded.

Though we do not know how many juvenile desert tortoises and eggs will remain undetected on the proposed Project Site, we anticipate that construction is likely to take, in the form of death or injury, all juvenile desert tortoises and eggs (i.e., up to five juveniles and an unquantifiable number of eggs) that occur on the proposed Project site. We would consider the amount or extent of that taking to be exceeded if the number of subadult and adult desert tortoises captured or collected on the proposed Project site and perimeter fence lines exceeds 10 individuals. We have established this threshold because the BLM will not be able to accurately monitor the actual incidences of death and injury resulting from the construction of the proposed Project (i.e., up to five juveniles and an unquantifiable number of eggs on the proposed Project site) due to the likelihood that virtually all of the individuals missed during clearance surveys and killed during construction will be juveniles or eggs and locating the carcasses or shell fragments would not be feasible. To address this issue, we have used the threshold for capture or collection of subadult and adult individuals on the proposed Project site as a surrogate measure of mortality of the smaller size classes. Using this threshold as a surrogate assumes that our method of calculating the number of reproductive females, which is based on the estimated abundance of subadult and adult desert tortoises on the proposed Project site, allows us to also calculate the number of juveniles and eggs that may be affected. Consequently, finding more than 10 subadult and adult desert tortoises would indicate that a larger number of juveniles and eggs may be killed or destroyed during construction. Because clearance surveys would occur prior to commencement of construction activities in each Unit, use of this threshold would allow reinitiation of consultation and a reassessment of the estimated mortality take prior to any mortality occurring on the ground. Because we estimate below that few, if any, subadult or adult desert tortoises would be killed, the terms and conditions below set additional thresholds for reinitiation of consultation related to take, in the form of death or injury, of desert tortoises in that size class.

We estimate up to six desert tortoises along the Linear Corridor; however, because of the imprecise nature of this estimate, the actual number of individuals that may be moved out of harm's way along the gen-tie line and access road is unknown. The applicant will employ experienced biologists, approved by the Service and BLM, and use sanctioned handling techniques, therefore, we do not expect that take, in the form of capture or collection, will result in mortality or injury of any individuals, and will result in an overall benefit to the desert tortoise. Therefore, we are not establishing a reinitiation criterion or notification requirement for the number of individuals that would be moved out of harm's way during construction of linear Project components.

Desert Tortoise Translocation

For implementation of the Desert Tortoise Translocation Plan, we anticipate take in the form of trapping, capture, or collection of up to 71 subadult and adult tortoises (i.e., up to 10 translocatees from the Solar Plant Site, up to 51 resident tortoises at the Recipient Sites, and up to 10 tortoises at the control site). Tortoises associated with implementing translocation will be

taken, in the form of capture or collection, for the purposes of blood draw to assess disease prevalence. Although such an invasive procedure presents some likelihood that individuals could be injured or killed, we do not anticipate that blood collection will result in the mortality of any individuals because blood draw will be conducted by Service-approved biologists, following Service-approved methods. If any tortoises are directly injured or killed during capture of collection for the purposes of drawing blood, the amount or extent of the anticipated level of take will be exceeded.

In addition, during the implementation of the Desert Tortoise Translocation Plan post-translocation monitoring, this incidental take statement covers all take, in the form of capture or collection, of subadult and adult tortoises in the resident and control populations for monitoring purposes. Although these tortoises may be captured multiple times over the course of the post-translocation monitoring effort, we do not anticipate injury or mortality of these individuals due to post-translocation monitoring. If any tortoises are directly injured or killed during capturing associated with the post-translocation monitoring, the amount or extent of the anticipated level of take will be exceeded.

Although unlikely, desert tortoises that were undetected during clearance surveys for construction may be located during ground-disturbing activities. Though we do not know how many desert tortoises will subsequently be detected, all individuals located will be captured and translocated and any desert tortoise eggs that are located will be excavated and translocated.

Take, in the form of capture and collection of all desert tortoises resulting from these incidental detections is covered by this incidental take statement to ensure mortality and injury of desert tortoises is minimized.

Operations and Maintenance

No incidental take of desert tortoises is anticipated due to O&M of the proposed Solar Plant Site itself because all activities would occur within the perimeter security fence. However, we anticipate that maintenance and repair of the perimeter security fence may result in incidental take, in the form of mortality or injury, of no more than one subadult or adult desert tortoise per calendar year.

Because the applicant will implement the conservation measures identified under the proposed action, take, in the form of capture and collection, is anticipated for few, if any, individuals located during O&M activities along the gen-tie and associated access roads over the life of the Project. Take, in the form of death or injury, of no more than one subadult or adult desert tortoise per calendar year is anticipated during O&M activities along the gen-tie, which will be localized and infrequent because access will be along existing routes and the applicant will implement numerous conservation measures to avoid and minimize death and injury of desert tortoises.

REASONABLE AND PRUDENT MEASURES

The BLM and the applicant will implement numerous conservation measures as part of the proposed action to minimize the incidental take of desert tortoises. Our evaluation of the proposed action is based on the assumption that the actions as set forth in the "Conservation Measures" section of this biological opinion will be implemented. Any changes to the conservation measures proposed by BLM or the applicant or in the conditions under which Project activities were evaluated may constitute a modification of the proposed action. If this modification causes an effect to desert tortoises that was not considered in the biological opinion, reinitiation of formal consultation pursuant to the implementing regulations of section 7(a)(2) of the Act (50 CFR § 402.16) may be warranted. The reasonable and prudent measure is necessary and appropriate to minimize the impact of take on the desert tortoise.

1. The BLM shall ensure the level of incidental take anticipated in this biological opinion is commensurate with the analysis contained herein.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the BLM, applicant, and all agents/contractors must comply with the following terms and conditions, which implement the reasonable and prudent measure, described above, and are intended to minimize the impact of the incidental taking. These terms and conditions are non-discretionary.

The following terms and conditions implement the reasonable and prudent measure above:

1.1 To ensure that the measures proposed by the BLM and the applicant are effective and properly implemented, the BLM and the applicant must contact the Service immediately if it becomes aware that a desert tortoise has been killed or injured as a result of Project activities. At that time and in coordination with the Service, the BLM must review the circumstances surrounding the incident to determine whether additional protective measures are required. Project activities may continue pending outcome of the review, provided the conservation measures included as part of the proposed action (see "Conservation Measures" section) and the terms and conditions in this biological opinion have been and continue to be fully implemented;

1.2 If more than one subadult or adult desert tortoise is killed or injured in any calendar year as a result of any construction activities covered by this biological opinion for the proposed Solar Plant Site, Linear Facilities, and the perimeter security fence, the BLM must reinitiate consultation on the proposed action;

1.3 If more than one subadult or adult desert tortoise is directly killed or injured in any calendar year as a result of any O&M activities covered by this biological opinion along the perimeter security fence of the Solar Plant Site, or the gen-tie line and associated access road, the BLM must reinitiate consultation on the proposed action; and

1.4 If more than 10 subadult and adult desert tortoises are identified for translocation during clearance surveys of the proposed Project site then BLM must reinitiate consultation on the proposed action. As described above, the identification of more than these numbers of subadult and adult desert tortoises would also indicate that the anticipated level of take of juveniles and eggs will be exceeded, requiring reinitiation of consultation. This term and condition only applies to clearance of the Project site for construction and does not apply to the short distance movement of desert tortoises out of harm's way during activities that occur along the linear components.

Disposition of Sick, Injured, or Dead Specimens

The Palm Springs Fish and Wildlife Office (PSFWO) is to be notified immediately at 760-322-2070 if any desert tortoises are found sick, injured, or dead in the action area. Immediate notification means verbal (if possible) and written notice within 1 workday, and must include the date, time, and location of the carcass, and any other pertinent information. Care must be taken in handling sick or injured individuals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state.

The PSFWO should also be notified immediately at 760-322-2070 if any endangered or threatened species not addressed in this biological opinion is found dead or injured in the Project footprint during the life of the Project. The same reporting requirements also shall pertain to any healthy individual(s) of any threatened or endangered species found in the action area and handled to remove the animal to a more secure location.

Reporting Requirements

Within 60 days of the completion of the proposed action, the BLM must provide a report to the Service that provides details on the effects of the action on the desert tortoise. The BLM must also provide an annual report by February 1 of each year during construction of each phase and during any post-construction translocation monitoring. Specifically, these reports must include information on any instances when desert tortoises were killed, injured, or handled; the circumstances of such incidents; and any actions undertaken to prevent similar incidents from reoccurring. In addition, these reports should provide detailed information on the results of all translocation monitoring, including the following: (1) location of all transmittered desert tortoises; (2) mortality rate from each of the translocated, resident, and control populations (if applicable); (3) statistical analysis of differences in the mortality rates among all three populations; and (4) the health status and body condition of all transmittered desert tortoises. The BLM must also provide to the Service copies of the Monthly and Annual Compliance Reports as required under the conservation measures described in the proposed action.

We request that the BLM provide us with any recommendations that would facilitate the implementation of the conservation measures while ensuring protection of the desert tortoise. We also request that the BLM provide us with the names of any Biological Monitors who assisted the Authorized Biologists and an evaluation of the experience they gained on the project and the Service qualifications form filled out for this project (available at: http://www.fws.gov/

ventura/sppinfo/protocols/deserttortoise_monitor-qualifications-statement.pdf), along with any narrative that would provide an appropriate level of information. This information would provide us with additional reference material in the event any of these individuals are proposed as potential Authorized Biologists for future projects.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We recommend that the BLM amend the CDCA Plan to prohibit additional renewable energy development (e.g., solar energy facilities and wind development) within the upper bajadas (mapped as "dissected fans" on the NECO Map 3-4, Landforms) in the mountains of northeastern Riverside County. We offer this recommendation because this action would protect the higher quality tortoise habitat in the CDCA plan area. At a minimum, we recommend that BLM prohibit or limit development in the upper bajadas of the McCoy Mountains (mapped as "dissected fans" on the NECO Map 3-4, Landforms) to protect the higher quality tortoise habitat in the region and prevent isolating the proposed McCoy Mountains Recipient Site in light of potential future large-scale solar development.

REINITIATION NOTICE

This concludes formal consultation on the proposed Project for the desert tortoise. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this document, please contact Tera Baird of the PSFWO, 777 East Tahquitz Canyon Way, Suite 208, Palm Springs, California 92262 at 760-322-2070, extension 217.

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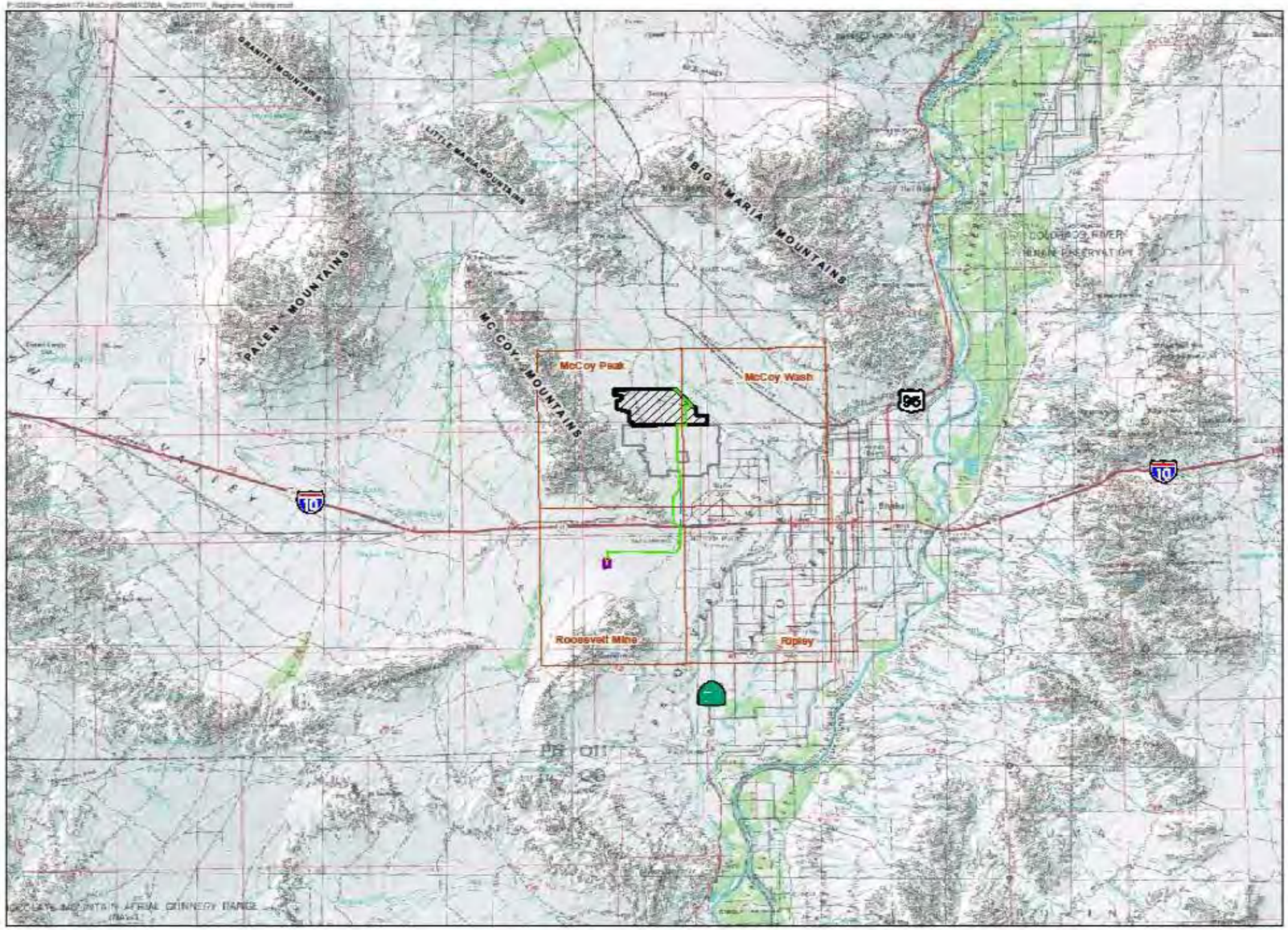

McCOY SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA

Legend

- MSEP Solar Plant Site Boundary
- BSPP ROW Boundary
- Shared Access Road with BSPP
- Linear Corridor
- Colorado River Substation (SCE)
- Switchyard
- USGS 1:24,00 Quadrangle

N

0 2.5 5 10
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, USGS, TTEC

FIGURE 1
REGIONAL VICINITY MAP

TETRA TECH

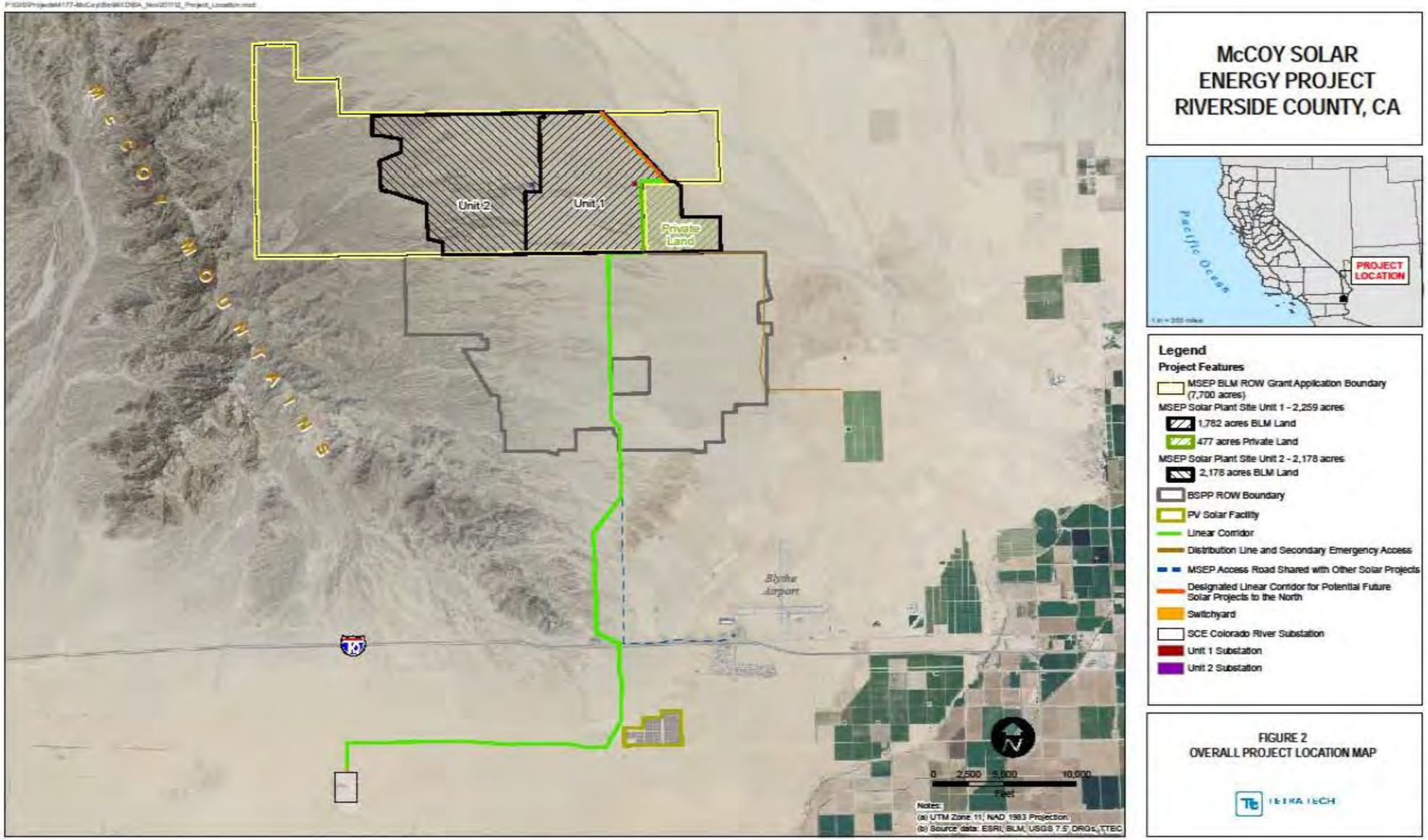

Figure 2. McCoy Solar Energy Project, Overall Project Location Map.