



**DESERT TORTOISE COUNCIL**

4654 East Avenue S #257B

Palmdale, California 93552

[www.deserttortoise.org](http://www.deserttortoise.org)

[eac@deserttortoise.org](mailto:eac@deserttortoise.org)

**Via email only**

November 7, 2018

Brandon G. Anderson, Project Manager  
Desert Quartzite Solar Project  
Bureau of Land Management  
Palm Springs South Coast Field Office  
1201 Bird Center Drive  
Palm Springs, CA 92234  
Via email: [blm\\_ca\\_desert\\_quartzite\\_solar\\_project@blm.gov](mailto:blm_ca_desert_quartzite_solar_project@blm.gov)

RE: Comment Letter on Desert Quartzite Solar Project Draft Plan Amendment/ Environmental Impact Statement/ Environmental Impact Report (DOI-BLM-CA-D060-2017-0002 / CA State Clearinghouse No. 2015031066)

Dear Mr. Anderson:

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

We appreciate this opportunity to provide comments on the above-referenced solar project. Given the location of the proposed project in habitats occupied by Agassiz's desert tortoise (*Gopherus agassizii*) (synonymous with "Mojave desert tortoise"), our comments pertain to enhancing protection of this species during activities authorized by the Bureau of Land Management (BLM) and Riverside County (County).

## **Summary of Proposed Project and Alternatives**

First Solar Development, LLC (the Applicant), has submitted an application to BLM and the Riverside County Planning Department (collectively Agencies) to approve the construction, operation and maintenance, and decommissioning of a photovoltaic (PV) solar facility on BLM-administered and private lands. The total area of the Desert Quartzite Solar Project (DQSP or Project) under application for the Agencies' approval is approximately 5,275 acres; approximately 5,115 acres of BLM-administered lands, and 160 acres of private lands.

Three action alternatives are analyzed in the Draft Plan Amendment/ Environmental Impact Statement/Environmental Impact Report (Draft PA/EIS/EIR or Document). All three are located within the same 5,275 acres.

- The Proposed Action Alternative (PAA) would generate up to 450 MW of electricity and occupy approximately 3,770 acres - 3,560 acres for the solar facility; 54 acres for the proposed 2.79-mile long transmission line (generation interconnection [gen-tie] line); 2 acres for the offsite portion of a buried telecommunications line and possible above-ground electrical service line on BLM land; and 154 acres for the solar facility on private land. The larger acreage under application allows for the Agencies to consider various site layouts as Project alternatives for their environmental analysis. If approved, the final proposed Project would be 3,616 acres of BLM land, and 154 acres of private land.
- The Resource Avoidance Alternative (RAA) was developed to specifically avoid locations of cultural and biological resources, drainages, and watercourses. Implementation of this alternative would also generate up to 450 MW, and would occupy a land area of 2,782 acres, including 2,622 acres on BLM land and 160 acres of private land. Under the RAA, the length of the gen-tie line would be 4.18 miles.
- The Reduced Project Alternative (RPA) further reduces the acreage of the solar arrays, with elimination of the proposed solar arrays primarily in the northern portion of the area to maintain habitat for the Mojave fringe-toed lizard and Harwood's eriastrum, a BLM Sensitive Species plant. The RPA would generate 285 MW, and would occupy a land area of 2,047 acres, including 1,887 acres on BLM land and 160 acres of private land. Under the RPA, the length of the gen-tie line would be 4.18 miles.

All three action alternatives would include 61 acres of temporary construction areas on BLM land for the solar arrays and gen-tie line.

The proposed Project would be located approximately 2.75 miles southwest of the City of Blythe, just south of the Interstate 10 (I-10) freeway, and 1.5 miles southwest of the Blythe Airport in Riverside County, California. Primary ingress and egress to the Project would use existing access roads. The secondary access route would require construction of approximately 0.7 mile of new road near the southeastern boundary of the Project.

## **Analysis of Alternatives**

The Council supports alternatives not identified in the Draft PA/EIS/EIR to reduce the need for additional solar energy projects in relatively undisturbed habitats in the Mojave Desert. One such alternative is rooftop solar. The owners of large buildings should install solar panels on their roofs, and sell the power these panels generate back to utilities for distribution into the power grid. This approach puts the generation of electricity where the demand is greatest, in populated areas. It may also reduce transmission costs; the number of affected resources that must be analyzed under the National Environmental Policy Act (NEPA) and other environmental laws; mitigation costs for direct, indirect, and cumulative impacts; monitoring and adaptive management costs; and habitat restoration costs following decommissioning. The Draft PA/EIS/EIR should include an analysis of where the energy generated by this Project would be sent, and how the needs for energy in those targeted areas may be satisfied by rooftop solar.

In addition, the Agencies should include another viable alternative of locating solar projects on bladed or highly degraded tracts of land (e.g., abandoned agricultural fields) rather than destroying desert habitats and attempting to mitigate for the lost functions and values of these habitats, which is costly from an economic, environmental, and social perspective. To support the development of these additional alternatives, we note that a federal appellate court has previously ruled that in its EIS the BLM must evaluate a reasonable range of alternatives to the project including other sites and must give adequate consideration to the public's needs and objectives in balancing ecological protection with the purpose of the proposed project, along with adequately addressing the proposed project's impacts on the desert's sensitive ecological system (*National Parks & Conservation Association v. Bureau of Land Management*, Ninth Cir. Dkt Nos. 05-56814 *et seq.* (11/10/09)). We believe the Agencies have artificially narrowed the Purpose and Need of the Draft PA/EIS/EIR so that only options rather than alternatives are presented. We believe that the Draft PA/EIS/EIR does not comply with NEPA as written and should include an analysis of a viable alternative where electricity generation via solar energy is located much closer to the areas where the energy use has the greatest demand, including urban/suburban areas (i.e., "rooftop solar").

## **Use of Terms**

We are confused by what we perceive as the interchangeable use of the terms "reclamation," "revegetation," and "restoration." For example, "The Applicant has developed a Draft Decommissioning and Site Reclamation Plan," "reclamation of the public land to pre-application conditions," "Revegetation would include a combination of natural regeneration, mechanical reseeding, planting of nursery stock, and transplanting local vegetation," "proposed methods for revegetation of temporarily disturbed areas with native species," and in section **"4.1.7 Terms and Conditions found in FLPMA and BLM ROW Regulations**, the Agencies state "The "Performance and Reclamation" bond would consist of three components. The first component would be hazardous materials, the second component would be the decommissioning and removal of improvements and facilities, and the third component would address reclamation, revegetation, restoration, and soil stabilization."

Our confusion is based on the different definitions for these words. For example, reclamation is frequently limited to the physical or topographical appearance or conformation of an area. It usually does not include the biological components of the land or returning the land to its previous functions and values. Revegetation is limited to seeding or planting. It may not include the conformation of an area or the physical, chemical, or biological properties of soils and it may not return the land to its previous functions and values. We searched **Appendix B - Acronyms and Glossary** to see how the Agencies defined these words but found no definitions. We request that the Document be consistent in its use of terms regarding this important mitigation and that “habitat restoration” be the term that is used throughout the Document as it has an ecological/biological foundation that includes reclamation, revegetation, and returning the land to its previous functions and values. (Please see **2.3.4.2 Temporary Construction** and the Society for Ecological Restoration’s “Guidelines for Developing and Managing Ecological Restoration Projects.” below). Please note that habitat restoration is the highest prioritized action for the Mojave desert tortoise in the Colorado Desert Recovery Unit (USFWS 2014a). Thus, implementing habitat restoration for the tortoise as mitigation for the proposed Project would comply with the Recovery Action Plan.

## **Chapter 1 – Introduction and Purpose and Need**

### **1.5.3 Major Authorizing Laws and Regulations/Agency Roles and Authorizations**

The Agencies state “The United States Fish and Wildlife Service (USFWS) has jurisdiction over threatened and endangered species listed under the Federal Endangered Species Act (FESA) (16 USC § 1531 et seq.). Formal consultation with the USFWS under Section 7 of the FESA is required for any Federal action that may adversely affect a Federally listed species.” While section 7(a)(2) of FESA requires this, section 7 (a)(1) of the FESA states that all federal agencies “...shall...utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act.” In section 3 of the FESA, “conserve,” “conserving,” and “conservation” mean “to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition...”

When analyzing and implementing the proposed Project, we request that BLM demonstrate how it is contributing effectively to the conservation and recovery of the Mojave desert tortoise, especially in California, Colorado Desert Recovery Unit, and Chuckwalla Tortoise Conservation Area/population. We request that BLM show how mitigation for the proposed Project will do more than offset all direct, indirect, and cumulative impacts so that the status of the tortoise (see below) will improve. By providing this information, BLM would demonstrate its compliance with section 7(a)(1) of the FESA for the Mojave desert tortoise

#### ***Status of the Mojave Desert Tortoise***

To assist the Agencies with their analysis of the direct, indirect, and cumulative impacts of the proposed Project on the Mojave desert tortoise, we provide the following information on its status and trend. We believe that, as written, the Document is deficient in divulging this information, and that it must be published in the Final Document.

The Council has serious concerns about direct, indirect, and cumulative sources of human mortality for the Mojave desert tortoise given the status and trend of the species rangewide, within each of the five recovery units, within the Tortoise Conservation Areas (TCAs) that comprise each recovery unit, and the Chuckwalla TCA. The Project is less than 6 miles from the Chuckwalla TCA and is located in tortoise habitat.

Densities of Adult Mojave Desert Tortoises: A few years after listing the Mojave desert tortoise under the FESA, the USFWS published a Recovery Plan for the Mojave desert tortoise (USFWS 1994a). It contained a detailed population viability analysis. In this analysis, the minimum viable density of a Mojave desert tortoise population is 10 adult tortoises per mile<sup>2</sup> (3.9 adult tortoises per km<sup>2</sup>). This assumed a male-female ratio of 1:1 (USFWS 1994a, page C25) and certain areas of habitat with most of these areas geographically linked by adjacent borders or corridors of suitable tortoise habitat. Populations of Mojave desert tortoises with densities below this amount are in danger of extinction (USFWS 1994a, page 32). The revised recovery plan (USFWS 2011) designated five recovery units for the Mojave desert tortoise that are intended to conserve genetic, behavioral, and morphological diversity necessary for the recovery of the entire listed species (Allison and McLuckie 2018).

Rangewide, densities of adult Mojave desert tortoises declined more than 32% between 2004 and 2014 (Table 1) (USFWS 2015). At the recovery unit level, between 2004 and 2014, densities of adult desert tortoise declined, on average, in every recovery unit except the Northeastern Mojave (Table 1). Adult densities in the Northeastern Mojave Recovery Unit increased 3.1% per year (SE = 4.3%), while the other four recovery units declined at different annual rates: Colorado Desert (4.5%, SE = 2.8%), Upper Virgin River (3.2%, SE = 2.0%), Eastern Mojave (11.2%, SE = 5.0%), and Western Mojave (7.1%, SE = 3.3%) (Allison and McLuckie 2018). However, the small area and low starting density of the tortoises in the Northeastern Mojave Recovery Unit (lowest density of all Recovery Units) resulted in a small overall increase in the number of adult tortoises by 2014 (Allison and McLuckie 2018). In contrast, the much larger areas of the Eastern Mojave, Western Mojave, and Colorado Desert recovery units, plus the higher estimated initial densities in these areas, explained much of the estimated total loss of adult tortoises since 2004 (Allison and McLuckie 2018).

At the population level, represented by tortoises in the TCAs, densities of 10 of 17 monitored populations of the Mojave desert tortoise declined from 26% to 64% and 11 have a density that is less than 3.9 adult tortoises per km<sup>2</sup> (USFWS 2015). The Chuckwalla population is near the proposed Project and has a population below the minimum viable density, and an 11-year declining trend (-37.4%) (USFWS 2015). We are concerned that the proposed Project would bring additional indirect and cumulative impacts to this population and its density and trend would further decline.

Population Data on Mojave Desert Tortoise: The Mojave desert tortoise was listed as threatened under the FESA in 1990. The listing was warranted because of ongoing population declines throughout the range of the tortoise from multiple human-caused activities. Since the listing, the status of the species has changed. Population numbers (abundance) and densities continue to decline substantially (please see Table 1).

Table 1. Summary of 10-year trend data for 5 Recovery Units and 17 Critical Habitat Units (CHU)/Tortoise Conservation Areas (TCA) for Agassiz’s desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise). The table includes the area of each Recovery Unit and Critical Habitat Unit (CHU)/Tortoise Conservation Area (TCA), percent of total habitat for each Recovery Unit and Critical Habitat Unit/Tortoise Conservation Areas, density (number of breeding adults/km<sup>2</sup> and standard errors = SE), and the percent change in population density between 2004-2014. Populations below the viable level of 3.9 breeding individuals/km<sup>2</sup> (10 breeding individuals per mi<sup>2</sup>) (assumes a 1:1 sex ratio) and showing a decline from 2004 to 2014 are in red (USFWS 2015).

<b>Recovery Unit</b> Designated Critical Habitat Unit/Tortoise Conservation Area	Surveyed area (km <sup>2</sup> )	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km <sup>2</sup> (SE)	% 10-year change (2004–2014)
<b>Western Mojave, CA</b>	<b>6,294</b>	<b>24.51</b>	<b>2.8 (1.0)</b>	<b>-50.7 decline</b>
Fremont-Kramer	2,347	9.14	2.6 (1.0)	-50.6 decline
Ord-Rodman	852	3.32	3.6 (1.4)	-56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	-61.5 decline
<b>Colorado Desert, CA</b>	<b>11,663</b>	<b>45.42</b>	<b>4.0 (1.4)</b>	<b>-36.25 decline</b>
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	-29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	-37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	-64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	-52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	-60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
<b>Northeastern Mojave</b>	<b>4,160</b>	<b>16.2</b>	<b>4.5 (1.9)</b>	<b>+325.62 increase</b>
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase
Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
<b>Eastern Mojave, NV &amp; CA</b>	<b>3,446</b>	<b>13.42</b>	<b>1.9 (0.7)</b>	<b>-67.26 decline</b>
El Dorado Valley, NV	999	3.89	1.5 (0.6)	-61.14 decline
Ivanpah, CA	2,447	9.53	2.3 (0.9)	-56.05 decline
<b>Upper Virgin River</b>	<b>115</b>	<b>0.45</b>	<b>15.3 (6.0)</b>	<b>-26.57 decline</b>
Red Cliffs Desert	115	0.45	15.3 (6.0)	-26.57 decline
<b>Total amount of land</b>	<b>25,678</b>	<b>100.00</b>		<b>-32.18 decline</b>

Density Juvenile Mojave Desert Tortoises: Survey results indicate that the proportion of juvenile desert tortoises has been decreasing in all five recovery units since 2007 (Allison and McLuckie 2018). The probability of encountering a juvenile tortoise was consistently lowest in the Western Mojave Recovery Unit. Allison and McLuckie (2018) provided reasons for the decline in juvenile desert tortoises in all recovery units. These included decreased food

availability for adult female tortoises resulting in reduced clutch size, decreased food availability resulting in increased mortality of juvenile tortoises, prey switching by coyotes from mammals to tortoises, and increased abundance of common ravens that typically prey on smaller desert tortoises.

Declining adult densities through 2014 have left the Western Mojave adult numbers at 49% (a 51% decline) and in the Eastern Mojave at 33% (a 67% decline) of their 2004 levels (Allison and McLuckie 2018, USFWS 2015). Such steep declines in the density of adults are only sustainable if there were suitably large improvements in reproduction and juvenile growth and survival. However, the proportion of juveniles has not increased anywhere in the range of the Mojave desert tortoise since 2007, and in the Western and Eastern Mojave recovery units the proportion of juveniles in 2014 declined to 91% (a 9% decline) and 77% (a 23% decline) of their representation in 2004, respectively (Allison and McLuckie 2018).

Abundance of Mojave Desert Tortoises: Allison and McLuckie (2018) noted that because the area available to tortoises (i.e., tortoise habitat and linkage areas between habitats) is decreasing, trends in tortoise density no longer capture the magnitude of decreases in abundance. Hence, they reported on the change in abundance or numbers of the Mojave desert tortoises in each recovery unit (Table 2). They noted that these estimates in abundance are likely higher than actual numbers of tortoises and the changes in abundance (i.e., decrease in numbers) are likely lower than actual numbers because of their habitat calculation method. They used area estimates that removed only impervious surfaces created by development as cities in the desert expanded. They did not consider degradation and loss of habitat from other sources, such as the recent expansion of military operations (753.4 km<sup>2</sup> so far on Fort Irwin and the Marine Corps Air Ground Combat Center), intense or large scale fires (e.g., 576.2 km<sup>2</sup> of critical habitat that burned in 2005), development of utility-scale solar facilities (so far 194 km<sup>2</sup> have been permitted) (USFWS 2016), or other sources of degradation or loss of habitat (e.g., recreation, mining, grazing, infrastructure, etc.). Thus, the declines in abundance of Mojave desert tortoise are likely greater than those reported in Table 2.

Table 2. Estimated change in abundance of adult Mojave desert tortoises in each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Decreases in abundance are in red.

Recovery Unit	Modeled Habitat (km <sup>2</sup> )	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
<b>Total</b>	<b>68,501</b>	<b>336,393</b>	<b>212,343</b>	<b>-124,050</b>	<b>-37%</b>

Habitat Availability: Data on population density or abundance does not indicate population viability. The area of protected habitat or reserves for the subject species is a crucial part of the viability analysis along with data on density, abundance, and other population parameters. In the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994a), the analysis of population viability included population density and size of reserves (i.e., areas managed for the desert tortoise) and population numbers (abundance) and size of reserves. The USFWS Recovery Plan reported that as population densities for the Mojave desert tortoise decline, reserve sizes must increase, and as population numbers (abundance) for the Mojave desert tortoise decline, reserve sizes must increase (USFWS 1994a). In 1994, reserve design (USFWS 1994a) and designation of critical habitat (USFWS 1994b) were based on the population viability analysis from numbers (abundance) and densities of populations of the Mojave desert tortoise in the early 1990s. Inherent in this analysis is that the lands be managed with reserve level protection (USFWS 1994a, page 36) or ecosystem protection as described in section 2(b) of the FESA, and that sources of mortality be reduced so recruitment exceeds mortality (that is,  $\lambda > 1$ ) (USFWS 1994a, page C46).

Habitat loss would also disrupt the prevailing population structure of this widely distributed species with geographically limited dispersal (isolation by distance; Murphy et al. 2007; Hagerty and Tracy 2010). Allison and McLuckie (2018) anticipate an additional impact of this habitat loss/degradation is decreasing resilience of local tortoise populations by reducing demographic connections to neighboring populations (Fahrig 2007). Military and commercial operations and infrastructure projects that reduce tortoise habitat in the desert are anticipated to continue (Allison and McLuckie 2018) as are other sources of habitat loss/degradation.

Allison and McLuckie (2018) reported that the life history of the Mojave desert tortoise puts it at greater risk from even slightly elevated adult mortality (Congdon et al. 1993; Doak et al. 1994), and recovery from population declines will require more than enhancing adult survivorship (Spencer et al. 2017). The negative population trends in most of the TCAs for the Mojave desert tortoise indicate that this species is on the path to extinction under current conditions (Allison and McLuckie 2018). They state that their results are a call to action to remove ongoing threats to tortoises from TCAs, and possibly to contemplate the role of human activities outside TCAs and their impact on tortoise populations inside them.

Densities, numbers, and habitat for the Mojave desert tortoise declined between 2004 and 2014. As reported in the population viability analysis, to improve the status of the Mojave desert tortoise, reserves (area of protected habitat) must be established and managed. When densities of tortoises decline, the area of protected habitat must increase. When the abundance of tortoises declines, the area of protected habitat must increase. We note that the Desert Tortoise (Mojave Population) Recovery Plan was released in 1994 and its report on population viability and reserve design was reiterated in the 2011 Revised Recovery Plan as needing to be updated with current population data (USFWS 2011, p. 83). With lower population densities and abundance, a revised population viability analysis would show the need for greater areas of habitat to be protected for the Mojave desert tortoise. In addition, we note that none of the recovery actions that are fundamental tenets of conservation biology has been implemented throughout most or all of the range of the Mojave desert tortoise.



Definition of an Endangered Species: Agassiz's desert tortoise is now on the list of the world's most endangered tortoises and freshwater turtles. It is in the top 50 species. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers Agassiz's desert tortoise to be Critically Endangered (Turtle Conservation Coalition 2018).

The IUCN places a taxon in the Critically Endangered category when the best available evidence indicates that it meets one or more of the criteria for Critically Endangered. These criteria are 1) population decline - a substantial (>80 percent) reduction in population size in the last 10 years; 2) geographic decline - a substantial reduction in extent of occurrence, area of occupancy, area/extent, or quality of habitat, and severe fragmentation of occurrences; 3) small population size with continued declines; 4) very small population size; and 5) analysis showing the probability of extinction in the wild is at least 50 percent within 10 years or three generations.

In the FESA, Congress defined an "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range..." The California Endangered Species Act (CESA) contains a similar definition. In CESA, the California legislature defined an "endangered species" as a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant, which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes. (California Fish and Game Code § 2062.). Given the information on the status of the Mojave desert tortoise and the definition of an endangered species, the Council believes the status of the Mojave desert tortoise is that it is an endangered species.

### **1.5.5 California Department of Fish and Wildlife**

The Agencies state "CDFW also has the authority to regulate potential impacts to species that are protected under the California Endangered Species Act (CESA) (Fish and Game Code §2050, et seq.). If appropriate, the Applicant would be required to file an Incidental Take Permit application, and the requirements of the Incidental Take Permit would apply to the Project independent of and in addition to the mitigation measures included in the PA/EIS/EIR."

In the paragraph preceding this, the Document explains the requirements of Fish and Game Code 1602 including the need to protect affected resources. We did not find similar language in the paragraph on the CESA. We request additional language comparable to that already provided for Fish and Game Code 1602 be provided for Fish and Game Codes 783, 2080, and 2081 in the Final Document. To Assist the Agencies, we provide the following subset of requirements for these codes:

- "The applicant will minimize and fully mitigate the impact of the take authorized under the permit."
- "All required measures shall be capable of successful implementation."
- "Impacts of taking include all impacts on the species that result from any action that would cause the proposed taking."

- “The applicant has ensured adequate funding to implement the measures required under the permit to minimize and fully mitigate the impacts of the taking, and to monitor compliance with, and the effectiveness of, the measures.”

We note that this section says “If appropriate, the Applicant would be required to file an Incidental Take Permit application” with CDFW. We believe it is not at the Applicant’s discretion to obtain an Incidental Take Permit for this Project for the reasons that follow. CDFW required an Incidental Take Permit for the Beacon Solar Energy Project, which is located primarily on old agricultural fields and adjacent to tortoise habitat. For this project, pre-project survey results were tortoise sign but no tortoises. Given the presence of tortoise sign and tortoise habitat both on and near the Project area and CDFW’s past action, we believe that the Applicant will need an Incidental Take Permit. In addition, the Document includes wording that describes the Applicant capturing and removing tortoises from the Project area during the Operation and Maintenance phase of the Project. This activity requires an Incidental Take Permit from CDFW.

## **Chapter 2 - Proposed Action and Alternatives**

### **2.3.4.1 Preconstruction Surveying and Staking**

“Once exclusion fence is established, biological surveys, clearance, relocation, and/or transplanting would be conducted, as determined necessary. These activities could include clearance surveys for Mojave desert tortoise and other sensitive species (e.g., Mojave fringe-toed lizard); translocation for Mojave desert tortoise; seasonal avoidance of nesting birds, including burrowing owls; passive relocation of burrowing owls, as necessary; and possible transplantation of sensitive plant species and species listed under the California Desert Native Plants Act.” The wording of these activities is vague. Who determines whether this is necessary? As a minimum, clearance surveys for Mojave desert tortoise should be implemented according to USFWS (2017) protocol and CDFW requirements. We suggest this section be rewritten so it clearly describes the situations when the Applicant would conduct biological surveys, clearance, and relocation of tortoises.

### **2.3.4.2 Temporary Construction**

“The areas situated outside of the permanent ROW would be restored.” This is the only information we were able to find regarding restoration of habitat in this chapter. Given that impacts to biological resources are significant for the proposed Project, we urge the Applicant and the Agencies to develop and include in the Document a habitat restoration plan with requirements that the Applicant must meet. We recommend using the most recent version of the Society for Ecological Restoration’s “Guidelines for Developing and Managing Ecological Restoration Projects.” These guidelines identify the essential elements of a habitat restoration plan.

[https://cdn.ymaws.com/www.ser.org/resource/resmgr/custompages/publications/ser\\_publications/Dev\\_and\\_Mng\\_Eco\\_Rest\\_Proj.pdf](https://cdn.ymaws.com/www.ser.org/resource/resmgr/custompages/publications/ser_publications/Dev_and_Mng_Eco_Rest_Proj.pdf).

The Project’s habitat restoration plan should be part of the Document, so the decisionmaker and the public have sufficient information to see if this plan is adequate and will restore the degraded/destroyed habitat. We note that in section **2.3.4.3 Site Preparation**, “Topsoil removed through grading in these areas would be stockpiled and used for post-construction

reclamation of temporarily-disturbed areas.” We appreciate the stockpiling of soil as this is one of many important components in a habitat restoration plan. However, this language discusses “reclamation of temporarily-disturbed areas,” which may not be the same as “restoration of habitat.” We request that temporarily disturbed areas be included in the implementation of the habitat restoration plan.

### **2.3.5 Operation and Maintenance**

“Further maintenance is also required to assure soil stabilization and vegetation restoration of temporary disturbance sites. These sites would be restored using methods defined in the Revegetation Plan.” We did not find a “Revegetation Plan” as part of the Draft PA/EIS/EIR. We did find Appendix J - Draft Integrated Weed Management Plan, which is not a revegetation plan or a habitat restoration plan. We request that **Appendix J - Draft Integrated Weed Management Plan** be amended to include a “Habitat Restoration Plan for the proposed Project. Please see our comments under **2.3.4.2 Temporary Construction**.

### **2.3.6 Decommissioning**

“If the ROW grant is not renewed beyond the 30-year operational period, or the Project ceases for other reasons, the ROW grantholder would be responsible for removal of the Project facilities and restoration of the public land through decommissioning. The Applicant has developed a Draft Decommissioning and Site Reclamation Plan (Desert Quartzite 2015) which describes the general outlines of the proposed activities. The Draft Decommissioning and Site Reclamation Plan would be updated and finalized prior to decommissioning to ensure that the Project area would be restored according to applicable regulations and site conditions in effect at that time.” We were unable to find the Draft Decommissioning and Site Reclamation Plan in the Draft PA/EIS/EIR, and when we searched online for this Plan using the reference provided in the Draft PA/EIS/EIR and Appendix C References, we could not find it. We request that this Draft Decommissioning and Site Reclamation Plan (Desert Quartzite 2015) be part of the Document so the decisionmaker and the public have the opportunity to review it. Please see our comments under **2.3.4.2 Temporary Construction**.

“Decommissioning is expected to take up to a year to complete.” However, we found no information how long restoration would take. Because the desert heals slowly from surface disturbance, we suggest that restoration would take much longer than decommissioning. We request that information on this issue be included in the Final Document.

### **2.3.7 Applicant-Proposed Management Plans and Mitigation Measures**

“The Applicant has proposed a variety of management procedures and mitigation measures, to be implemented during construction, operations, and decommissioning, to ensure compliance with all permit conditions, avoidance of environmental impacts where possible, and mitigation, reduction, and/or compensation for environmental impacts where avoidance is not possible.” “Prior to construction, the Applicant would develop and implement an Environmental Inspection and Compliance Monitoring Program.” Unfortunately, most of the management plans/compliance monitoring plan for mitigation measures are preliminary, or in need of being developed. We were unable to find the preliminary plans mentioned in the Document. Below is a list of these plans that are mentioned in the Document as planned for development or are in the preliminary. We were unable to find the preliminary plans in the Document.

- Preliminary Hazardous Materials Management and Emergency Response Plan (preliminary but not found)
- Storm Water Pollution Prevention Plan (preliminary summary, but not found)
- Hazardous Materials Business Plan (to be developed)
- Spill Prevention, Control, and Countermeasure Plan (to be developed)
- Vegetation Resources Management Plan (to be developed)
- Environmental Health and Safety Plan (to be developed)
- Bird and Bat Conservation Strategy (to be developed)
- Mojave Desert Tortoise Mitigation Plan (to be developed)
- Raven Management Plan (to be developed)
- Desert Kit Fox and Badger Management Plan (to be developed)
- Worker Environmental Awareness Program (to be developed)
- Desert Tortoise Translocation Plan (to be developed, if needed)
- Phased Site Preparation Plan/Dust Control and Soil Stabilization Plan (to be developed)
- Traffic and Monitoring Control Plan (to be developed)
- Lighting Management Plan (preliminary, but not found)
- Cultural Resources Monitoring and Mitigation Plan (to be developed)
- Paleontological Resources Monitoring and Mitigation Plan (to be developed)

This absence of these plans in the Document makes it difficult for the public to assess the adequacy of these plans and provide meaningful comment to the Agencies. In addition, their absence makes it difficult for the Agencies to evaluate correctly their direct, indirect, and cumulative impacts to the resource issues identified in the Document and their effectiveness at mitigating for these impacts. Thus, the public, the Agencies, and the decisionmaker are left to assume that the promised and preliminary plans will be adequate and appropriate. Given the status of the Mojave desert tortoise (please see **Status of the Mojave Desert Tortoise** above), we believe it is imperative that these mitigation plans be provided to the public so we can help determine their adequacy and effectiveness.

The Agencies state regarding the desert tortoise, “The measures are expected to include mitigation measures and habitat compensation ratios that are proportional to and consistent with the quality of habitat and management status associated with the Project area.” We note that the Agencies describe the Project area as the 5,275 acres requested for the ROW. We also note that the indirect and cumulative impacts of the proposed Project extend beyond the 5,275 acres of the Project area for many impacted resources including the Mojave desert tortoise. As such, the mitigation for the tortoise, including compensation, should include all direct, indirect, and cumulative impacts, not just those within the Project area. This would be required under the CDFW’s Incidental Take Permit for the proposed Project. We request that this actual impact acreage be calculated with input from CDFW and USFWS and be published in the Final Document.

### **2.9.1 Rationale for Eliminating**

The Agencies provide reasons why alternatives other than the three action alternatives were eliminated. The reasons include 1) it is substantially similar in design to an alternative that is

analyzed, and 2) it would have substantially similar effects to an alternative that is analyzed. We contend that the PAA and the RAA are substantially similar in design, and the RAA would have substantially similar effects to an alternative that is analyzed. Please see **Analysis of Alternatives** above.

### **2.9.2.1 Site Alternatives**

The Agencies state “The Applicant’s consideration of alternative locations for large-scale solar facilities was restricted by several criteria, including:

- Availability of a contiguous area of land large enough to accommodate the proposed Project;
- Technical constraints, including insolation, slope, and hydrology;
- Environmental impacts, based on the presence of potentially impacted resources and associated management and resource protection constraints; and
- Costs associated with site accessibility, and proximity to existing high voltage transmission facilities with sufficient available capacity and viable access to energy markets, including suitable interconnection and priority queue position” and “interconnection locations.” “The Applicant identified the Colorado River Substation as one of the most viable interconnection points for new renewable projects.”

In reading this information, we interpret the first criterion as needing to have one area large enough to generate 450 MW of electricity. We find this criterion to be limiting and found no information in the Document as to why a project of this size is required rather than, for example, a smaller project or smaller projects located near each other. One of the viable alternatives is for a project smaller than 450 MW but it is not the preferred alternative because it produces less electricity.

For the second criterion, much of southern California and the southwestern United State meet insolation, slope, and hydrology requirements for solar generation of electricity. Thus, the Agencies have a large geographic area to consider. For the third criterion, environmental impacts, these are minimized to the greatest extent when solar projects are placed in previously developed areas, especially when considering the direct, indirect, and cumulative impacts of such projects. Thus, areas previously used for agriculture (e.g., Antelope Valley in Los Angeles and Kern Counties) or developed areas in/near the Los Angeles Basin (e.g., rooftop solar) would meet this requirement. The fourth criterion, cost of construction, appears to be the deciding factor for the Applicant and not the Agencies as the Applicant selected the Colorado River Substation because it was one of the most viable. However, we found no information in the Document that other viable interconnection locations were identified or analyzed. The Agencies state that Applicant limited their search to Riverside County near Blythe and the Colorado River Substation.

The wording in the Document gives the impression that the Applicant selected the site because it met all of its criteria, not the legal criteria, and the Agencies created the Purpose and Need to meet the Applicant’s selection of the Project site. Thus, it appears the Project site was “justified” after it was found in 2007, rather than objectively evaluating a range of locations for alternatives. For these reasons, we do not believe the Purpose and Need section of the Document complies with NEPA, and we do not believe that the Agencies have presented a

reasonable range of alternatives as required by NEPA. We find the RAA and RPA are options or variations of the PAA and not alternatives. Their direct, indirect, and cumulative impacts do not differ substantially from each other. We request that the Agencies rewrite the Purpose and Need to comply with NEPA, and develop alternatives to the PAA at other locations including those not on/primarily on BLM land to comply with NEPA, and analyze and publish these in the Final Document. Please see **Analysis of Alternatives** above.

## **Chapter 3 – Affected Environment**

### **3.4.1 Environmental Setting**

The Agencies present information on the presence of desert tortoise sign and tortoises. However, we were unable to determine from information provided in this section whether protocol level surveys were conducted in the “action area” for the Mojave desert tortoise. Such surveys help the Agencies to comply with section 7(a)(2) of the FESA. The USFWS defines “action area” in 50 CFR 402.2 and their Desert Tortoise Field Manual (USFWS 2009) as “all areas to be affected directly or indirectly by proposed development and not merely the immediate area involved in the action.” In addition, California Department of Fish and Wildlife may require a survey of the entire project site. We request that the Final Document provide clarification of the type of survey methods implemented “during biological surveys” for the desert tortoise.

## **Chapter 4 – Environmental Consequences**

### **4.4.2 Applicant-Proposed Measures**

In this section “No APMs specific to wildlife are proposed.” Our interpretation of this section is that this statement includes the Mojave desert tortoise. We request that as a minimum standard mitigation measures for the tortoise be added to this section. Although the Agencies claim that the proposed Project is not subject to the Desert Renewable Energy Conservation Plan (DRECP), we believe that the mitigation measures for the tortoise contained in the DRECP should be applied to the proposed Project.

### **4.3 Biological Resources – Vegetation Applicant-Proposed Measures**

#### ***Construction - Native Vegetation Alliances***

The Agencies state, “The potential introduction of invasive nonnative plant species is considered a permanent indirect impact as total eradication of invasive plants is rarely achieved. Implementation of APM BIO-3 (Construction-Related BMPs) would minimize the indirect loss of native and sensitive vegetation by limiting impacts to only areas that must be disturbed to complete construction. Related measures include Mitigation Measures VEG-8 (Avoidance of Biological Resources During Construction), VEG-9 (Special-Status Plant measures), and VEG-10 (Measures for Riparian Habitat and State Waters), which require biological construction monitoring, and avoiding and minimizing construction-related impacts to vegetation, jurisdictional waters, and special-status species.”

We were unable to find any mention in this section of implementing the Invasive Species Integrated Weed Management Plan (IWMP). Please add this information to the Final Document. In addition, **Appendix J – Draft Integrated Weed Management Plan** only covers the construction and operation and maintenance phases and maintenance of an approximately 300-megawatt (MW) solar power generating facility. The proposed Project is up to a 450 MW facility and has a decommissioning phase (that includes restoration) that should be covered by the IWMP. During the decommissioning phase, the Applicant or current lessee may be required to restore the habitat at the Project site to pre-project conditions if the site is not used for another development purpose. As such, the IWMP should include the decommissioning phase of the proposed Project.

We note that **Appendix J - Draft Integrated Weed Management Plan** focuses on weedy species currently present at the proposed Project Site. The methods discussed to control the occurrence of weedy species on the proposed Project Site and management methods to reduce/eliminate these occurrences are limited to methods currently identified in certain documents. The IWMP should include provisions for the use of future methods that may be more effective than current ones and should include weed species that are identified in the future as occurring on the proposed Project Site. In addition, the IWMP should include success criteria and an adaptive management component such that periodic monitoring for the life of the proposed Project indicates whether the methods used for weed management are effective. If not, other methods should be developed, implemented, and monitored for effectiveness. Please add this information to the IWMP.

Under *Native Vegetation Alliances*, the Agencies state “Construction activities could also result in changes to existing hydrology regimes and geomorphic processes.” We agree but the discussion that follows this statement focuses on increased erosion potential and rate, volume, and sediment load of storm water runoff traveling offsite. We found no analysis of the disruption of sheet flow to vegetation downslope of the proposed Project that may deprive these plants of needed water for maintenance, growth, and reproduction/recruitment, which may lead to their mortality and change in vegetation type. We request that an analysis of these impacts be included in this section of the Final Document or refer the reader to another section where this analysis of indirect impacts is presented.

#### **Operation and Maintenance - *Native Vegetation Alliances***

We did not find an analysis in the Document on the impacts of the photovoltaic heat-island effect (Barron-Gafford et al. 2016) from operation of the proposed Project. We request that an analysis of this effect be added to the Final Document in the sections analyzing indirect, cumulative, and residual impacts to biological resources (vegetation and wildlife), specifically the desert tortoise and its habitat, geology and soils, climate change, agricultural resources, water resources, and wildlife fire.

The Agencies state “Implementation of APM BIO-5 (Integrated Weed Management Plan) would mitigate the impacts associated with the spread of invasive weeds by requiring the finalization and implementation of an Integrated Weed Management Plan, thereby minimizing the effects of invasive weeds on native and/or sensitive vegetation alliances.” We agree with this statement only if the topics we presented above are added to the IWMP and that the mitigation would minimize the impacts of lost/degraded vegetation that is used by tortoise for feeding, shelter, protection from predators, and connectivity. However, we note that it would not fully mitigate for these impacts.

#### **4.4 Biological Resources – Wildlife**

##### **Construction - *Mojave Desert Tortoise.***

We found mention of numerous direct and indirect sources of mortality likely to occur to the desert tortoise from Project construction, but no analysis of the extent of these impacts to the tortoise and its ability to survive (i.e., the consequences). We believe this is necessary given the tortoise's status rangewide, in California, in the Colorado Desert Recovery Unit and in the nearby Chuckwalla TCA/CHU. Please include this analysis in the Final Document and in the sections on operation and maintenance and decommissioning.

Regarding impacts to desert tortoise habitat, please add to the Final Document that construction activities result in increased wind erosion of soil and dust deposition, disruption of pollination systems, and the spread of invasive nonnative plant species both at the Project area and nearby areas. These impacts contribute to changes in vegetation type; increases in fire frequency, size, and intensity; fragmentation and reduction/loss of connectivity; reduced gene exchange; and reduced population persistence (USFWS 2014b). Adverse impacts to desert vegetation from dust deposition include increases in leaf temperatures and subsequent photosynthetic rates during early spring that may require an increased amount of water for growth and successful reproduction. If this increased amount of water is not available, these plant species may respond by reducing plant vigor and by reducing flower and seed production or abandoning reproduction for the year (USFWS 2014b). Subsequent years of dust may result in no recruitment of plants or plant mortality. These impacts in turn adversely affect the breeding, feeding, sheltering, and connectivity requirements of the desert tortoise. We did not find an analysis of the extent of these impacts to the desert tortoise in the Final Document and request that one be included for this section on construction and the sections on operation and maintenance and decommissioning.

We are concerned about the increased vehicle use/trips on new and existing access roads to the Project site. Increased vehicle use on roads equates to increased direct mortality and increased road edge effect to desert tortoises. Road construction, use, and maintenance adversely affect wildlife through numerous mechanisms that can include mortality from vehicle collisions, and loss, fragmentation, and alteration of habitat (Nafus et al. 2013; von Seckendorff Hoff and Marlow 2002).

Von Seckendorff Hoff and Marlow (2002) reported that they detected reductions in tortoise numbers and sign from infrequent use of roadways to major highways with heavy use. There was a linear relationship between traffic level and reduction. For two graded, unpaved roads, the reduction in tortoises and sign was evident 1.1 to 1.4 km (3,620 to 4,608 feet) from the road. Nafus et al. (2013) reported that roads may decrease tortoise populations via several possible mechanisms, including cumulative mortality from vehicle collisions and reduced population growth rates from the loss of larger reproductive animals. Other documented impacts from road construction, use, and maintenance include increases in roadkill of wildlife species as well as tortoises, creating or increasing food subsidies for common ravens, and contributing to increases in raven numbers and predation pressure on the desert tortoise. Based on this information, the Final Document should include analysis of the extent of these impacts to the desert tortoise and its habitats from the use of roads by vehicles associated with the proposed Project and associated mitigation given information on the species' population status.



Regarding impacts from road construction/use, please analyze the five major categories of primary road effects to the tortoise in the Final Document and how this would affect the survival of the tortoise at a population (Chuckwalla), recovery unit, and species level: (1) wildlife mortality from collisions with vehicles; (2) hindrance/barrier to animal movements thereby reducing access to resources and mates; (3) degradation of habitat quality; (4) habitat loss caused by disturbance effects in the wider environment and from the physical occupation of land by the road; and (5) subdividing animal populations into smaller and more vulnerable fractions (Jaeger et al. 2005a, 2005b, Roedenbeck et al. 2007).

The Agencies indicate that a Raven Management Plan will be developed and implemented. We request that it be a Predator Management Plan that includes ravens, coyotes, and other animals that may prey on the tortoise during the life of the project. The Moapa Solar Energy Project resulted in high (>60%) mortality of small translocated tortoises compared to control animals (Burroughs 2018 in litt.). Regardless of whether tortoises are repatriated to the Project site or translocated, management of coyote predation on tortoises should be included in the predator management plan.

The Final Document should analyze the extent of impacts that all phases of the proposed Project would have on predation of the tortoise and how this would affect their survival at a population (Chuckwalla), recovery unit, and species level.

As stated in the Document, common ravens are known predators of the Mojave desert tortoise, and raven numbers have increased substantially because of human subsidies of food, water, and sites for nesting, roosting, and perching to hunt (Boarman 2003). Because ravens are able to fly at least 30 miles in search of food and water on a daily basis (Boarman et al. 2006) and coyotes can travel an average of 7.5 miles or more daily (Servin et al. 2003), the analysis of impacts of tortoise mortality from ravens and coyotes should extend at least 30 miles from the proposed Project. The Chuckwalla Desert Tortoise ACEC is approximately five miles west of the proposed Project Site and the Chuckwalla Unit of Mojave desert tortoise critical habitat is approximately 15 miles west of the proposed Project Site. Both are within the daily flight range of the raven and one is within the daily coyote range. The construction, operation and maintenance, and decommissioning phases should include provisions for monitoring and managing tortoise predators (e.g., raven and coyote) because of or contributed by the proposed Project.

In the Document, the Agencies indicate temporary ponds or tanks are needed for water during construction (page 2-44), and “Water required for construction purposes shall only be stored in retention ponds (equipped with wildlife exclusion fencing), or closed containers/structures (APM BIO-3).” We note that temporary ponds with fencing are not likely to exclude ravens unless the ponds are covered. If covered with netting, this may result in unauthorized take of ravens and other migratory birds. Please ensure that an effective method to exclude ravens and other predators from access to water used during the construction phase is implemented

We request the Predator Management Plan include reducing/eliminating human subsidies for food, water, and sites for nesting, roosting, and perching to address local impacts (footprint of the proposed Project). This includes buildings, fences, and other vertical structures associated with the Project site. In addition, the Predator Management Plan should include provisions that eliminate the pooling of water on the ground or on roofs. The Predator Management Plan should include monitoring and adaptive management throughout the life of the Project to collect data on the effectiveness of its implementation and enact changes to reduce/eliminate predation on the tortoise.

Please ensure that all standard measures to mitigate the local, regional, and cumulative impacts of raven predation on the tortoise are included in this Predator Management Plan. USFWS (2010) provides a template for a project-specific management plan for common ravens. This template includes sections on construction, operation and maintenance, and decommissioning (including restoration) with monitoring and adaptive management during each project phase (USFWS 2010). In addition, the Applicant should contribute to the regional raven management plan (USFWS 2010) to address the indirect and cumulative impacts associated with this Project and other land uses in the desert to reduce the expansion of raven populations in the range of the tortoise.

#### **Operation and Maintenance – *Mojave Desert Tortoise***

We have similar concerns regarding the impacts of roads to the desert tortoise and tortoise habitat as mentioned above under **Construction**. While the number of vehicle trips associated with operation and maintenance would be substantially reduced when compared to the construction phase, for the life of the project there would be increased use of the roads, off-highway vehicle use along powerline roads, and associated impacts in the road-effect zone. These impacts should be quantified and analyzed in the Final Document regarding how they would affect the survival of the tortoise at a population (Chuckwalla), recovery unit, and species level. Appropriate mitigation should be developed and implemented to avoid or offset these impacts.

The Agencies mention that operation and maintenance activities introduce trash into the area and attract common ravens and other Mojave desert tortoise predators. We were unable to find any mention or analysis of the extent of impacts to the tortoise from the new roosting, perching, and nesting sites that the Project would provide and request that this analysis be added and address how it would affect the survival of the tortoise at a population (Chuckwalla), recovery unit, and species level given the current status of the tortoise, which should be addressed in the Final Document.

The Agencies state “To minimize the chances for individuals of these species [including desert tortoise] to access the Project site, the Applicant will install Mojave desert tortoise exclusionary fencing at the base of the perimeter security fence and cattle guards at Project entrances. These structures will be inspected quarterly and their integrity maintained, as necessary. Finally, if any terrestrial special-status species gain access to the Project site despite implementation of these minimization measures, the Applicant will ensure that an Authorized Biologist captures and relocates the individual(s) outside of the Project site, coordinating with USFWS and CDFW, as needed.”

From this information, we presume that cattle guards will be used instead of fences at vehicle access points to the Project area. Standard cattle guards can trap desert tortoises resulting in injury or mortality. We suggest that the Applicant implement another method to exclude desert tortoises at vehicle access points to the Project area that has been tested as effective.

If the Agencies expect an Authorized biologist to capture and relocate the tortoise outside the project site, this activity would require an Incidental Take Permit from CDFW. Please see our comments under **California Department of Fish and Wildlife** above.)

Please see our comment above regarding heat islands under **Operation and Maintenance - Native Vegetation Alliances** as it includes a request for analysis of impact to the Mojave desert tortoise and its habitat.

#### **Decommissioning – Mojave Desert Tortoise**

The Agencies state “the restored wildlife access to large expanses of denuded habitat that lack food, water, and cover could subject special-status species such as Mojave desert tortoises to mortality hazards long after site decommissioning.” We found no analysis of how that increased mortality would affect the survival of the tortoise at a population (Chuckwalla), recovery unit, or species level. We request that this analysis be included in this section of the Final Report.

#### **4.4.6 Cumulative Impacts**

The Document provided confusing information regarding the acres and percentages of habitat for the Mojave desert tortoise directly impacted by the proposed Project (ranges from 4.7% to 9.1%), impacts of present and future projects (1.9%), acreage for the Colorado Desert Recovery Unit. We say “confusing” as we were unable to find references that explain the calculations of these numbers. In addition, while there may be in total a large area that contains some/all of the life requisites for the Mojave desert tortoise, the calculation does not consider other crucial factors such as the quality or configuration of that habitat. In addition, habitat is only one part of the data set needed to determine the status of a wildlife species and potential impacts to that species from project implementation. A recent example is the greater sage-grouse where an estimated 50 percent of the species’ habitat has been lost but the population declined by 90 percent. Data, including population size, density, and recruitment are crucial to analyzing the impacts of a proposed project on that species (e.g., Mojave desert tortoise) especially into the future and must be presented in the Final Document.

The Agencies conclude “General threats to common and special-status wildlife species in the cumulative effects study area include the fragmentation of habitat from roads and urban development, the effects of historic livestock grazing on wildlife forage structure and availability, the effects of military training activities, and agricultural development. In the context of other existing and reasonably foreseeable projects, the proposed Project has the potential to further reduce wildlife habitat and incrementally degrade adjacent habitat. Thus, the Project would contribute to the cumulative loss and degradation of habitat for Mojave desert tortoise, Mojave fringe-toed lizard, and other species in the Palo Verde watershed.”

We consider this a descriptive list of ongoing and future impacts to tortoise habitat, but do not see 1) the “analysis” part of the cumulative impact analysis from this loss of habitat or 2) impacts to the desert tortoise and how these impacts would affect the survival of the tortoise at a population (Chuckwalla), recovery unit, or species level. This type of analysis is required in all environmental assessments and environmental impact statements (see below).

The Council on Environmental Quality (1997) states “Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects.” The analysis “must describe the response of the resource to this environmental change.” Cumulative impact analysis should “address the sustainability of resources, ecosystems, and human communities.”

The Council on Environmental Quality (CEQ) provides eight principles of cumulative impacts analysis (CEQ 1997, Table 1-2). These are:

**1. Cumulative effects are caused by the aggregate of past, present, and reasonable future actions.**

The effects of a proposed action on a given resources, ecosystem, and human community, include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to the effects (past, present, and future) caused by all other actions that affect the same resource.

**2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.**

Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effect at one time. The additional effects contributed by actions unrelated to the proposed action must be included in the analysis of cumulative effects.

**3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.**

Environmental effects are often evaluated from the perspective of the proposed action. Analyzing cumulative effects requires focusing on the resources, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.

**4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.**

For cumulative effects analysis to help the decisionmaker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to the affected parties.

**5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.**

Resources are typically demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.

**6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.**

Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.

**7. Cumulative effects may last for many years beyond the life of the action that caused the effects.**

Some actions cause damage lasting far longer than the life of the action itself ( e.g., acid mine damage, radioactive waste contamination, species extinctions). Cumulative effects analysis need to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.

**8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.**

Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

In addition, CEQ states, "The consequences of human activities will vary from those that were predicted and mitigated." "[M]onitoring for accuracy of predictions and the success of mitigation measures is critical." "Adaptive management provides the opportunity to combine monitoring and decision making in a way that will ensure protection of the environment and societal goals."

We were unable to find in the Document, the application of these eight principles of cumulative impacts analysis with respect to the Mojave desert tortoise or commitments by the Applicant to monitor the success of mitigation and implement adaptive management. We request that the Final Document be modified to include these eight principles in its analysis of cumulative impacts to the Mojave desert tortoise, to address the sustainability of the tortoise given the information on the **Status of the Desert Tortoise** (provided above), and to include monitoring and adaptive management for the mitigation measures that directly and indirectly affect the tortoise and its habitat.

Because of the deficiencies in the Document that we described above and the status of the Mojave desert tortoise, we cannot support any of the action alternatives and request that the Agencies select the no action alternative.

We appreciate this opportunity to provide input and trust that our comments will further protect tortoises if this Project is authorized. Herein, we ask that the Desert Tortoise Council be identified as an Affected Interest for this and all other BLM of Riverside County projects that may affect species of desert tortoises, and that any subsequent environmental documentation for this Project is provided to us at the contact information listed above.

Regards,



Edward L. LaRue, Jr., M.S.  
Chair, Ecosystems Advisory Committee

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