BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE BEACON SOLAR ENERGY PROJECT	DOCKET NO. 08-AFC-2

RESPONSES TO SELECT CURE COMMENTS AT CEC'S REQUEST

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Memorandum

Date:	July 17, 2009
To:	Susan Sanders, California Energy Commission
From:	Jennifer Guigliano, AECOM
Subject:	Responses to CURE Comments

Distribution:	Eric Solorio, CEC Scott Busa, Beacon Solar Kenneth Stein, Beacon Solar Meg Russell, Beacon Solar Sara Head, AECOM Kim McCormick, Beacon Solar Counsel Jane Luckhardt, Beacon Solar Counsel

Below is a table summarizing responses to requested CURE comments from the Comments of the California Unions for Reliable Energy on the Preliminary Staff Assessment Beacon Solar Energy Project Application for Certification (08-AFC-2) submitted to the CEC on April 30, 2009.

#	Bio Species	Subject	CURE Source	Comment	Response
7	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 24, V. A. 1. a.	Substantial evidence does support a finding that a portion of the plant site provides habitat to support resident desert tortoise. First, preferred food items for desert tortoise are present on the site. Although the PSA relies on the Applicant's conclusion that the vegetation characteristics of the Project site are correlated with absence of desert tortoise, the Applicant provided no scientific support for its conclusion. According to published scientific literature, the desert tortoise has been characterized as an opportunistic generalist with respect to diet. Even though desert tortoises eat a wide variety of herbaceous vegetation, research indicates clear food preferences. A study conducted in the western Mojave Desert calculated the 10 most-preferred food plants consumed. These included *Astragalus laynae*, *Lotus humistratus*, and *Mirabilis bigelovii*, all three of which were documented as occurring within the Project survey area. This clearly indicates that preferred food items for the species are present on the site.	Presence of food alone is not an indicator of desert tortoise presence; it is merely one variable that provides habitat for tortoises. Even when all habitat variables are present, tortoises may not be present for other reasons. The Applicant conducted protocol surveys, approved by USFWS and CDFG, due to the possibility of tortoise presence. The results of these surveys strongly support absence of tortoises on the Plant Site. These surveys, plus the assessment of the Plant Site by a tortoise habitat expert, Dr. Alice Karl, were the basis for concluding that tortoises do not occupy the Plant Site. Dr. Karl's assessment included the suite of variables that characterizes desert tortoise presence, not merely vegetation as CURE has mis-stated. The species that CURE has listed do, in fact, occur in the Survey Area and were found on the Project Area, but outside the Plant Site (*EDAW. 2008. Beacon Solar Energy Botanical and Wildlife Special Status Species 2008 Spring Survey Report, Kern County, California*).

8	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 25, V. A. 1. a.	Second, portions of the Project site contain shrubs that are suitable cover for desert tortoise. Throughout most of the Mojave region, desert tortoises are commonly associated with habitat having scattered shrubs and abundant inter-shrub space for growth of herbaceous plants. The Applicant's suggestion that the site lacks the shrub cover associated with desert tortoise presence conflicts with: 1) the AFC, which states "…there is potential that a DT could be observed in these [plant site] shrub patches or in the wash that crosses the Plant Site..." and 2) a Project memorandum, which indicates the presences of shrubs in the areas referred to as "B, C, D, and E." Clearly, shrub cover is lacking in a portion of the site. However, portions of the site that contain shrubs should be considered suitable cover for the species.	See Comment 7 response above. Again, mere shrub cover is not adequate to support desert tortoises. No desert tortoises have been observed on the Plant Site; minimal cover is available and discontinuous; and an expert has concluded that the Plant Site is not marginal, much less good, desert tortoise habitat. Nevertheless, the Applicant has offered to provide mitigation for the unlikely potential that up to two (2) transient desert tortoises may wander onto the edge zones of the Plant Site and be harmed in some way.

9	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 25, V. A. 1. a.	Third, substantial evidence supports a finding that a portion of the plant site provides habitat to support resident desert tortoise, because soil types present on the Project site are highly friable, indicating that the soil is suitable for desert tortoise burrowing and nesting. Desert tortoises require suitable substrates for burrow and nest sites. The PSA lacks any evidence regarding whether the soils on the site contain suitable substrates for burrowing and nesting. The Applicant's habitat assessment does not establish a relationship between the soil conditions observed at the site and desert tortoise habitat suitability, other than a reference to the site's all-scale community having poor soil friability. Soil friability is measured by the distribution of flaws or microcracks within it, and estimates of friability generally entail laboratory tests or use of specialized field equipment. As with other estimates, replicate measurements are required to obtain accuracy. There is no indication that the PSA relies on any standard friability tests or that the Applicant otherwise sufficiently examined the soil. Whereas it is recognized that management practices can influence soil friability, the soil types present on the Project site have been classified by the USDA Natural Resource Conservation Service as highly friable.	Soil friability is too general a term to apply to desert tortoise habitat. While soils must be sufficiently friable for a tortoise to dig a burrow, friable soils that are too loose and without the structure of either shrub roots or moisture-holding particles will not support a large tortoise burrow. Furthermore, coarse particles in the substrate are critical when assessing the digging environment. So, "soil friability" is an inappropriate term to use without further clarification. The soils that were under the *Atriplex polycarpa* shrubs in the northwest were very fine, compacted, and showed evidence of inundation (i.e., holding water), none of which characterizes desert tortoise habitat. Assessing habitat suitablity for determining significance of impacts does not require detailed laboratory tests or field equipment. Biology experts that specialize in desert tortoise and Mohave ground squirrel were consulted frequently and consistently to provide adequate assessments of species presence and habitat suitability. Survey results showing lack of desert tortoise presence support the conclusion that the Plant Site is not suitable for these species.

10	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 26, V. A. 1. a.	Fourth, substantial evidence supports a finding that a portion of the plant site provides habitat to support resident desert tortoise, because the Project site's hydrology does not limit desert tortoise habitat suitability. The Applicant's habitat assessment does not establish a relationship between hydrologic conditions at the site and published information on desert tortoise habitat suitability. The only information provided by the Applicant relating site hydrology to habitat suitability was a single reference to a portion of the site having signs of periodic inundation by water. However, the site contains well-drained soils, receives relatively little rainfall, and according to the Streambed Alteration Agreement application, the site does not have any wetlands features besides washes. These factors suggest that the site's hydrology does not limit desert tortoise habitat suitability.	The Plant Site's native hydrology does not limit tortoise occupation. That was never stated. The periodic flooding in the northwest, resulting from agricultural activities, would limit tortoise occupation. The soils on the Plant Site were probably well drained in their native condition.
11	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 26, V. A. 1. a.	Fifth, substantial evidence supports a finding that a portion of the plant site provides habitat to support resident desert tortoise, because good desert tortoise habitat also exists adjacent to the Project site, as admitted to by the Applicant. For example, the Applicant concluded that desert tortoise habitat adjacent to the site ranges from poor (north of the site) to good (south of the site). Suitable habitat adjacent to the Project site is yet another variable indicating that the Project site provides suitable habitat for desert tortoise. Despite this evidence, the PSA provides no explanation for concluding that the Project site is unsuitable for desert tortoise.	The intervener has provided no good rationale for how and why moderate or good quality adjacent habitat would make habitat on the Plant Site "suitable for desert tortoise." This view would suggest that a parking lot surrounded by good quality habitat would make the parking lot desert tortoise habitat. The Applicant has agreed to provide mitigation for potential impacts to two transient desert tortoises in the unlikely event that individuals may cross from the adjacent habitat onto the edges of the Plant Site and be harmed in some way.

12	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 26, V. A. 1. a.	Sixth, there is no evidence that potential habitat degradation on the Project site makes the site unsuitable as desert tortoise habitat. Again, the PSA relies on the Applicant's conclusion that the site contains no habitat based, in part, on the Applicant's argument that past disturbance has degraded the site and that the site's degraded conditions make it unsuitable for desert tortoise. However, there are no studies on tortoise habitat choice or preference patterns changing as a result of habitat changes, and thus no evidence to support this conclusion.	Like the remainder of CURE's comments relative to desert tortoise habitat evaluation, "past disturbance" is too general a term. It is the type of disturbance and its extent that are important. The Plant Site is unsuitable because of the type, intensity, and length of time the disturbance occurred. Agricultural activity removed the vegetation, introduced exotic species, changed the natural surface slope, and altered the surface soils, over a substantial period of time. The characterization of the Plant Site as highly disturbed/degraded (including an explanation of that disturbance) and of poor quality and the lack of presence of desert tortoise over many surveys is good evidence that the Plant Site is not used by the species and is not occupied habitat or even good habitat for that species.

13	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 26, V. A. 1. a.	Seventh, substantial evidence supports a finding that a portion of the plant site may provide long-term and current value to desert tortoises. Desert tortoises were observed on the Project site; the site contains at least three species of preferred food plants, which presumably promote fitness; portions of the Project site contain shrubs that are suitable cover for desert tortoise habitat; soil types present on the Project site are highly friable, indicating that the soil is suitable for desert tortoise burrowing and nesting; good desert tortoise habitat exists adjacent to the Project site; and there is no evidence that the site's hydrology limits desert tortoise habitat suitability or that potential habitat degradation on the Project site makes the site unsuitable. The PSA relies on the Applicant's conclusion that the site does not provide long-term and current value to desert tortoises. However, this finding requires more than cursory observations, such as those reported by the Applicant and relied on in the PSA. Even though the Applicant did not effectively establish how the site lacks value, there is some indication that the Applicant is assuming low value based on the low abundance of tortoises detected during surveys. However, the amount of time an organism spends in a location is not necessarily correlated with habitat value or subsequent effects on fitness. Based on the evidence provided, occupancy may be low, i.e. the Applicant's survey results, and the site's habitat value may be high.	Desert tortoises were not observed on the Plant Site. The remainder of CURE's statements have been discussed specifically above. The intervener has started to mix terminology regarding locations. It is not clear what boundary the "Project site" is referring to. The PSA does not just rely on "cursory" observations. The analyses and conclusions are based on standard protocol surveys and detailed assessments. CURE has not provided credible, scientific analyses showing that the Plant Site has any value, let alone "high habitat value," to desert tortoise.

14	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 27, V. A. 1. a.	Finally, substantial evidence supports a finding that a portion of the plant site may provide habitat connectivity for desert tortoise. The PSA relies on the Applicant's conclusion that the site lacks connectivity for the species, even though the Applicant provided no explanation for why it used connectivity as a variable to support its conclusion that the Project site is unsuitable for desert tortoise. According to the Applicant's habitat assessment, areas B, D, E, and the wash have shrub cover that is partially connected to tortoise habitat outside the site. The evidence is contrary to the Applicant's conclusion that lack of connectivity makes the Project site unsuitable for desert tortoises.	In the CURE comment letter, on page 23, section V. A. 1. a., even the intervener lists connectivity as a variable that must be considered. Yet they now ask for an explanation as to why that variable is being used. Connectivity is important to understanding the potential for an area to support the movement of desert tortoise. As the intervener states, "According to the Applicant's habitat assessment, areas B, D, E, and the wash have shrub cover that is partially connected to tortoise habitat outside the site." The intervener has not offered the full analysis however. The Applicant further discussed the poor quality of that wash, including, but not limited to (1) the long, barren stretches, several hundred to 1,875 feet, between the small, monospecific shrub patches; (2) the highly invaded northern portion, densely vegetated with Russian thistle; and (3) the adjacent, barren areas that are not used by tortoises. Most importantly, the connectivity concept implies a source and a terminus. The source at the Plant Site would be tortoises in intact habitat to the south. At the north end of the wash, there is no tortoise habitat. That area is all alkali sink and abandoned agriculture. So, there is no terminus. The potential for desert tortoise transients adjacent to the Plant Site to enter the Plant Site's edges and be harmed is being mitigated, as discussed above in response to Comment 11 and below in Comment 29.

15	Desert Tortoise	The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise	Pg. 27, V. A. 1. a.	In sum, the PSA relies on a flawed habitat assessment to conclude that the plant site provides little or no habitat to support resident desert tortoise. Thus, it is impossible to determine the actual impacts to the desert tortoise posed by the Project. Consequently, it cannot be determined whether the PSA's proposed mitigation will fully mitigate impacts to the desert tortoise. Thus, the PSA must be revised to include an analysis based on a revised habitat assessment with sound scientific data.	The habitat assessment, along with approved surveys that found no desert tortoise on the Plant Site, were extensive, comprehensive, standard, and conducted by industry experts, and provide strong scientific evidence that tortoises do not occupy the Plant Site. The responses above refute the intervener's thesis that the data and assessment of tortoise presence were flawed and incorrect. Proposed mitigation also would fully mitigate potential impacts to the species as discussed above.
16	Desert Tortoise	The PSA Relies on Flawed Surveys and Incorrect Interpretations of Survey Results for the Desert Tortoise	Pg. 27, V. A. 1. b.	The PSA states that protocol-level surveys were conducted for the desert tortoise. This statement is incorrect. The protocol referenced by the Applicant requires 100% coverage of the project area through use of belt transects that are no more than 30 feet wide. With respect to transect spacing, the Project's Incidental Take Permit application states: For both the 2007 and 2008 surveys, the entire Project (100 percent coverage) was surveyed according to protocol by spacing transects 10 meters [32.8 feet] apart. The survey was conducted by slowly and systematically walking linear transects while surveyors visually searched for DT and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes.	The reference to the 10-meter belt transects in the various reports was a typographical error and should have been a reference to 30-foot-wide belt transects. Transect spacing was double-checked in the field by highly qualified desert tortoise surveyors, including Ms. Peggy Wood (see AFC for Ms. Wood's resume and other resumes of qualified surveyors' with vast years of experience and other qualifications for conducting protocol-level desert tortoise surveys).

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<td>17</td>
<td>Desert Tortoise</td>
<td>The PSA Relies on Flawed Surveys and Incorrect Interpretations of Survey Results for the Desert Tortoise</td>
<td>Pg. 28, V. A. 1. b.</td>
<td>First, it is unclear why surveyors established transects that exceed protocol spacing requirements by over nine percent (i.e., 32.8 feet versus 30 feet). Second, based on the information supplied by the Applicant, the Applicant could not have surveyed the transects at a rate necessary to satisfy the protocol. Assuming that each surveyor worked independently, and each surveyor listed as participating conducted surveys for 10 hours a day (resulting in a 40-hour workweek), the 2008 plant site survey rate is as follows:
Plant Site = 2,012 acres
2,012 aces = 87,642,720 square feet
87,642,720 square feet = 9,361.8 feet by 9,361.8 feet
9,361.8 feet / 32.8 feet (spacing of transects) = 285 transects, each 9,361.8 feet long
285 transects * 9,361.8 feet (length) = 2,668,113 feet of transect
Surveyor Effort = 90 hours (9 person days at 10 hours/day) for the plant site (see Attachment A for survey effort information provided by the Applicant)
Survey Effort = 2,668,113 feet in 90 hours = 29,645 feet per hour = 5.6 miles per hour.
As a frame of reference, 5.6 miles per hour is similar to what is exhibited by racewalkers, and 3.5 to 4.0 miles per hour is equivalent to a brisk walk for the average woman. Presumably the rate for “slowly and systematically” walking161 through a desert environment would be considerably slower. Consequently, it appears nearly impossible for the survey team to have conducted surveys according to protocol.</td>
<td>Surveyors followed standard transect spacing and protocols. A 100 percent survey coverage was conducted at 30-foot intervals.

Surveyors were not constrained to working within a 40-hour work week, or even to 8-hour workdays. Surveyors routinely worked throughout the survey period of any given day, taking into account such variables as the amount of sunlight, wind, and factors affecting visibility, as determined by the qualified surveyors. During the survey period, adequate survey conditions were available to the surveyors on a routine basis that would allow for 10 or more hours of surveying per day. Additionally, surveys were also conducted over weekends.

The intervener has made gross assumptions to draw conclusions that support its argument, which are not based on a scientific understanding of the Plant Site or field biologist activities in the field. Below is a sampling (not a comprehensive summary) of actual hours worked by field staff during desert tortoise surveys:

<table>
<tr><th>Date</th><th>Day</th><th>Hour Begin</th><th>Hour End</th><th>Total Time</th></tr>
<tr><td>3/25/2008</td><td>Tuesday</td><td>6:45</td><td>16:51</td><td>10:06</td></tr>
<tr><td>5/6/2008</td><td>Tuesday</td><td>6:54</td><td>16:30</td><td>9:36</td></tr>
<tr><td>5/7/2008</td><td>Wednesday</td><td>6:22</td><td>17:08</td><td>10:46</td></tr>
<tr><td>5/8/2008</td><td>Thursday</td><td>6:30</td><td>17:30</td><td>11:00</td></tr>
<tr><td>5/9/2008</td><td>Friday</td><td>6:47</td><td>not noted</td><td>(after 4:30 pm)</td></tr>
<tr><td>5/10/2008</td><td>Saturday</td><td>6:30</td><td>17:22</td><td>10:52</td></tr>
<tr><td>5/11/2008</td><td>Sunday</td><td>6:25</td><td>13:47</td><td>7:22</td></tr>
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18	Desert Tortoise	The PSA Relies on Flawed Surveys and Incorrect Interpretations of Survey Results for the Desert Tortoise	Pg. 28, V. A. 1. b.	The CEC must require adherence to one or more of the field survey protocols established by the resource agencies. The purpose of conducting surveys according to protocol is to determine: 1) if a proposed action may adversely affect the desert tortoise; and 2) the potential for incidental take of desert tortoises and tortoise habitat. Surveys conducted by the Applicant only constituted approximately one-third of the effort mandated by the protocol. Thus, the PSA lacks substantial evidence to support its conclusion regarding baseline information for the desert tortoise. Without an adequate baseline, it is impossible for Staff, the decision makers, and the public to adequately evaluate and mitigate significant impacts to desert tortoise.	It is unclear how the intervener determined that the Applicant only conducted one-third of the survey effort mandated by the protocols. As explained above, the Applicant's surveyors have clarified the typographical error regarding band transect widths, and the response to Comment 17 explains that the intervener's assumptions on the level of effort (e.g., number of survey hours per day, and the assumption of working only five days per week) were incorrect.

19	Desert Tortoise	The PSA Relies on Flawed Surveys and Incorrect Interpretations of Survey Results for the Desert Tortoise	Pg. 29, V. A. 1. b.	Further, substantial evidence supports a conclusion that the baseline includes presence of desert tortoise and desert tortoise habitat. The PSA concludes that survey results support the inference that the plant site provides little or no habitat for desert tortoises. However, according to the Applicant, an intact juvenile desert tortoise carcass was detected in the plant site. Surveyors concluded that the carcass was less than two years old and that the individual had succumbed to raven predation. However, succumbing to raven predation does not mean that the species originated outside of the Project site. The carcass was located in the middle of the site within the Fallow Agricultural-Disturbed Atriplex Scrub community. If the tortoise had originated outside of the site, the raven would have had to carry it at least 2,300 feet to its resting point. This scenario does not coincide with the habits of the species and is extremely unlikely. A more plausible explanation is that the tortoise occurred near the carcass location when it was predated. Assuming the latter scenario, survey results have demonstrated that the site's Fallow Agricultural-Disturbed Atriplex Scrub community provides habitat for desert tortoises. Regardless of the scenario that occurred, the U.S. Fish and Wildlife Service has stated that occurrence of tortoise carcasses indicates desert tortoise presence (and thus habitat)	Ravens carry food and resources long distances. It is not unlikely that a raven would have carried food 2,300 feet. (Boarman, William I. 2003. *Managing a Subsidized Predator Population: Reducing Common Raven Predation on Desert Tortoises*. Environmental Management. V32:2 p205-217; Kristan, W.B., III, and W.I. Boarman. 2003. *Spatial pattern of risk of common raven predation on desert tortoises*. Ecology 84(9):2432-2443.)

20	Desert Tortoise	The PSA Relies on Flawed Surveys and Incorrect Interpretations of Survey Results for the Desert Tortoise	Pg. 29, V. A. 1. b.	The PSA incorrectly relies on flawed surveys and incorrect interpretations of surveys. Thus, the biological resource baseline is inaccurate, and it is impossible to determine the actual impacts to the desert tortoise posed by the Project. Consequently, it cannot be determined whether the PSA's proposed mitigation will fully mitigate impacts to the species. The PSA must be revised accordingly.	As noted above in the response to Comment 16 and 17, the survey methodology has been clarified, and the desert tortoise surveys were conducted per the protocol. The intervener's assumptions on the level of effort of these surveys is erroneous.
21	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 30, V. A. 1. c.	The PSA supports the Applicant's position that the 2,012-acre plant site provides little or no habitat to support the Mohave ground squirrel. The Applicant uses three lines of evidence to support its conclusion that the plant site is incapable of supporting a resident Mohave ground squirrel population: 1) food resources; 2) demographic evidence; and 3) trapping data. However, several of the Applicant's statements in the Project memorandum contradict scientific literature or otherwise lack scientific integrity. Thus, the environmental baseline for the Project site is inadequate, rendering it impossible to determine the actual impacts to the Mojave ground squirrel posed by the Project or whether the PSA's proposed mitigation will fully mitigate impacts to the species.	The Applicant's analysis was based on observations by and detailed evaluations of habitat by a highly regarded Mohave ground squirrel expert, Dr. Philip Leitner. The intervener has not provided the qualifications of the biologist that is questioning the assessment and conclusions of Dr. Leitner.

22	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 30, V. A. 1. c.	Substantial evidence supports a finding that the Project site provides habitat to support Mohave ground squirrel. First, preferred food items for Mohave ground squirrel are present on the site. According to the Draft Mohave Ground Squirrel Conservation Strategy, a study indicated that the leaves of winterfat, spiny hopsage, and saltbush (Atriplex sp.) constituted 60% of the Mohave ground squirrel shrub diet, and that these three shrubs are considered the mainstay food for Mohave ground squirrel when forbs are not available. These three plant species are present on the Project site. Despite these facts, the PSA relies on the Applicant's conclusion that the Project site does not contain the food resources necessary to support resident animals. However, the Applicant's conclusion is not supported by evidence.	The intervener confuses Project Site and Plant Site. Winterfat and spiny hopsage are not present on the Plant Site. Furthermore, the Draft Mohave Ground Squirrel Conservation Strategy document was never approved by the Desert Managers Group and has no status as a source of scientific information.

23	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 30, V. A. 1. c.	Specifically, the Applicant dismisses the ability of the plant site to provide food resources by stating "there is no evidence that Mohave ground squirrel can maintain themselves on a diet made up of only these plants." However, the Applicant supports its argument by referencing a study in Inyo County that did not document a single case in which the diet of Mohave ground squirrels consisted of only one or any combination of the three food items present on the plant site. The Applicant has confused the distinction between food selection and requirements. Specifically, the results of a food selection study do not support the conclusion that the site does not have the food resources necessary to support the species. There is no evidence that Mohave ground squirrel cannot maintain themselves on a diet of these plants. In fact, the Draft Mohave Ground Squirrel Conservation Strategy provides evidence that it can.	The Inyo County study provides the best available data regarding the Mohave ground squirrel diet. It was not a food selection study, but a record of what foods Mohave ground squirrels actually consume. The Inyo County study site, dominated by two saltbush species, supported a variety of native herbaceous plants that were consumed by Mohave ground squirrels. Saltbush leaf never made up more than a small percentage of the diet. Mohave ground squirrels have never been recorded from monotypic allscale regrowth vegetation such as is present on the Plant Site. Thus, there is no evidence that the species can survive on a diet of allscale leaf or that it occurs in this type of vegetation.

24	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 31, V. A. 1. c.	Second, substantial evidence supports a finding that the Project site provides habitat to support Mohave ground squirrel, because the Project site provides vegetative cover which is suitable for the species. The PSA relies on the Applicant's conclusion that the site is not suitable habitat based on the Applicant's position that the type of vegetative cover present at the plant site is not suitable Mohave ground squirrel habitat. The Applicant again references the Inyo County study, in which an Atriplex-dominated site was the only one of four study sites that did not support a permanent Mohave ground squirrel population. The Applicant also used anecdotal trapping survey data provided by two biologists. This is not substantial evidence.	The analysis was provided by Dr. Philip Lietner, a Mohave ground squirrel expert well versed in the literature and also well respected and known for assessments of habitat quality and suitability for the Mohave ground squirrel. The conclusion that the Plant Site does not provide vegetative cover suitable for the Mohave ground squirrel is based upon all available evidence. Again, there is no record of the species being present in monotypic allscale regrowth vegetation such as is present on the Plant Site.

25	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 31, V. A. 1. c.	Standard scientific practice recognizes the minimal strength associated with a sample size of one, and of the importance of discussing other possible explanations for particular observations (i.e., other habitat variables that may have influenced residency), and the unreliability of anecdotal data that is not based on site specific work or supported by the literature. Furthermore, a year after the Inyo County study was published, a popular article was published by the Applicant's consultant containing the following excerpt: "…little is known of Mohave ground squirrel habitat needs or even where it still occurs." According to the Desert Tortoise Preserve Committee, "[m]uch more work will be needed to clear up the mysteries surrounding the Mohave ground squirrel and to assure it a secure future in the Mojave Desert ecosystem." Indeed, numerous scientific publications have made it abundantly clear that many aspects of Mohave ground squirrel ecology and distribution remain under-studied or unknown.	The analysis was provided by Dr. Phil Leitner, an expert well versed in the literature and also well respected and known for assessments of habitat quality and suitability for the Mohave ground squirrel. The analysis presented by the Applicant is based upon the best available scientific data for this species. Additional information about its ecology or habitat requirements would be desirable. However, since it does not exist the impact analysis must be based on what is known. Furthermore, it is inappropriate to cite out-of-context statements from a 10-year-old popular article or a petition for listing.

26	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 31, V. A. 1. c.	According to scientific literature, analysis of vegetation community composition at Mohave ground squirrel sites clearly indicates that the species is a generalist in terms of plant community preference. It is neither restricted to nor concentrated within any of the 16 plant communities where it has been reported, and its occurrence is directly proportional to the occurrence of plant communities. Mohave ground squirrels have been documented as occurring in urban and agricultural plant communities, and in an area entirely surrounded by urban and agricultural development. In fact, one squirrel was trapped at the recently opened Hyundai Proving Ground south of California City, where the consultant had identified habitats as being “marginal.”	An EIR or EIS is not a scientific document and should not be referred to as such. The Mohave ground squirrel occurrences mentioned in the FEIR/FEIS covered a 100+year time span and the vegetation/land use mapping did not have sufficient resolution for this purpose. The occurrences scored as in urban or agricultural settings may well have been natural desert vegetation at the time of the Mohave ground squirrel record. The occurrence at the Hyundai Proving Ground was in natural Mojave creosote bush scrub that had never been subject to human disturbance, unlike the Plant Site.
27	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 32, V. A. 1. c.	In addition, the West Mojave Plan provides data from vegetation surveys at 19 sites where Mohave ground squirrels had been documented as occurring through trapping efforts. Although the data has limitations, it provides relatively extensive information on vegetation characteristics at sites where squirrels occurred. Of the 19 sites examined, three (16%) were dominated by Atriplex, and two (11%) contained abundant Atriplex, but no winterfat (*Krascheninnikovia lanata*) or spiny hopsage (*Grayia spinosa*). The occurrence of Mohave ground squirrels in Atriplex communities lacking winterfat and spiny hopsage provides empirical data that the site provides suitable habitat for Mohave ground squirrel.	Literature regarding the occurrence of Mohave ground squirrel at other sites lacking certain vegetation does not provide "empirical data" that the Plant Site provides suitable habitat. Determination of habitat suitability is a site-specific evaluation and must consider multiple variables and interpretation by a species expert. In fact, none of the 19 sites was at all comparable to the Plant Site, where native desert vegetation was completely removed for agriculture and a monotypic allscale stand has come back as regrowth. All 19 sites supported undisturbed and diverse native plant communities.

28	Mohave Ground Squirrel	The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel	Pg. 32, V. A. 1. c.	As shown above, the PSA's conclusion that the Project site does not provide suitable habitat for the Mohave ground squirrel is based on an inadequate baseline for purposes of evaluating impacts and is not supported by substantial evidence. Consequently, it cannot be determined whether the PSA's proposed mitigation will fully mitigate significant impacts to the Mohave ground squirrel. The PSA must be revised to include an analysis based on sound scientific data.	Once again, the Intervener has confused the Project Site and the Plant Site. In fact, as shown in the preceding responses, the conclusion that the Plant Site does not provide suitable habitat for the Mohave ground squirrel is amply supported by all available data regarding the habitat requirements of the species.
29	Desert Tortoise and Mohave Ground Squirrel	The PSA Relies on Flawed Habitat Definitions	Pg. 32, V. A. 1. d.	The PSA appears to support the Applicant's position that the plant site does not provide habitat for either the desert tortoise or Mohave ground squirrel, despite the potential occurrence of "transient" individuals. The term "transient" is infrequently used in wildlife science, and thus it lacks an operational definition. Although the term has not been defined by the Applicant or Staff, it appears to have been used in the AFC and PSA to define individuals that occur in an area for only a short period of time. However, there is no scientific evidence to support the assumption that any individuals occurring on the Project site would be transients. Such an assumption would have required a detailed occupancy study, which was simply not conducted for this Project.	The survey data to date have indicated that the Plant Site is not occupied or suitable habitat for either species. The documents prepared to date provide evidence as to why. No individuals have been observed on the Plant Site and suitable habitat is not present. However, the Applicant has taken a conservative approach in considering that there is a low potential for a transient individual from surrounding areas to cross onto the Plant Site near the periphery and has therefore proposed to mitigate for the potential take of those transient individuals.

30	Desert Tortoise and Mohave Ground Squirrel	The PSA Relies on Flawed Habitat Definitions	Pg. 32, V. A. 1. d.	Perhaps more consequential is the notion that "transient" individuals can occur in an area, but that the area does not provide habitat. There is no scientific literature that supports this idea. In fact, Dr. Michael Morrison, one of the foremost experts on wildlife-habitat relationships, is unfamiliar with the term "transient" being applied to a terrestrial organism such as the desert tortoise. Dr. Morrison confirmed the well-defined scientific approach that if an organism occurs in an area, that area provides habitat. Thus, by definition, habitat is defined by the behaviors of an organism. Habitat cannot be defined through subjectively derived expectations. Consequently, the PSA's concept of habitat is fundamentally flawed. Any portions of the Project site where a desert tortoise or Mohave ground squirrel could occur are habitat, and this habitat requires mitigation to offset impacts. The PSA must be revised accordingly.	That Dr. Morrison does not use the term "transient" for terrestrial animals is irrelevant. It is an appropriate term. It is generally true that if an animal is in a particular habitat type, then that habitat is probably that animal's habitat as well. But, if there is a highly disturbed habitat that has no resemblance to the original habitat occupied by that species in that area (as at Beacon), and an animal traverses it, that action does not mean that the highly disturbed habitat becomes the species' habitat. Would the intervener think that SR 14 is desert tortoise habitat, since it intersects known desert tortoise habitat? The intervener is correct that habitat is defined by the behaviors of the species. If an animal spends no time or very little time in a habitat, then this habitat does not represent the species' habitat. No desert tortoises were found or have been found on the Plant Site. By the intervener's own definition, the Plant Site is not habitat. It is highly certain that Dr. Morrison was not presented with the entire situation. Further, Dr. Morrison is correct that if habitat exists in an area, then it follows that that area encompasses some habitat. It does not follow, however, that the entire square footage within that area is habitat.

33	Desert Tortoise and Mohave Ground Squirrel	The PSA has Specific Data Reliability and Validity Issues	Pg. 34, V. A. 1. e. ii.	The PSA also has specific data reliability and validity issues. The PSA relies on the Applicant's fundamentally flawed calculations and unsupported reasoning. First, one of the core premises of the Applicant's calculations is that desert tortoise and Mohave ground squirrel density is positively correlated with habitat quality. A positive correlation between density and habitat quality for a particular species needs to be established before it can be considered valid. Several types of limitations and ecological processes must be considered when density data is used to evaluate habitat quality. For example, higher-quality habitats may be occupied by dominant individuals, forcing subdominants into lower-quality habitat. Thus, higher densities may be present in poorer, not better, habitats. Although behavior studies of Mohave ground squirrels have provided mixed results, there is evidence that the species exhibits some form of territoriality. As a result, the use of density estimates to calculate mitigation is not appropriate without additional consideration and study.	The interveners have previously stated "habitat is defined by the behaviors of an organism" (Comment 31). Better habitat, by definition, has the potential to support more animals; poorer habitat will support fewer. Further, the higher the habitat quality, the smaller the territory that needs to be defended. While tortoises have social hierarchies, defense of territories is highly limited by low mobility. There is no evidence of territoriality in the Mohave ground squirrel. Radiotelemetry and trapping studies have repeatedly shown overlapping home ranges. Furthermore, the citation for the Intervener's statement is the 2005 petition for listing, which is not an appropriate source of scientific information.

34	Mohave Ground Squirrel	The PSA has Specific Data Reliability and Validity Issues	Pg. 35, V. A. 1. e. ii.	Second, the PSA relies on conclusions that misapplied scientific concepts. For the Mohave ground squirrel, the Applicant concluded that 20 acres would offset impacts to two Mohave ground squirrels. This conclusion was based on a study near the Desert Tortoise Natural Area ("DTNA"), and data from the Coso study site. The Applicant references these studies as providing information on carrying capacity. Subsequently, the Applicant reasons that fencing acquisition land would increase Mohave ground squirrel carrying capacity by 25%. The Applicant's use of carrying capacity is confusing in that it is not consistent with the definition of the term. Specifically, carrying capacity is the maximum number of individuals an area can support, not the estimated density of individuals. Predicting carrying capacity is extremely complicated, and rarely do real-world populations exhibit the dynamics used in carrying capacity models. By definition, use of carrying capacity values to calculate the amount of compensation land results in underestimated acreage.	Carrying capacity of a given area is not a constant but will vary depending on the availability of resources. It is the maximum number of individuals that can be supported in an area given a specific level of resources. It is quite appropriate to use density estimates for protected (high resources) and unprotected (low resources) lands as indications of carrying capacity when calculating the amount of compensation land required for a certain level of impact mitigation.

35	Mohave Ground Squirrel	The PSA has Specific Data Reliability and Validity Issues	Pg. 35, V. A. 1. e. ii.	Third, the PSA's conclusions regarding impacts to Mohave ground squirrel are not based on scientific data. The PSA relies on the Applicant's unsupported assumption regarding the number of Mohave ground squirrel individuals potentially impacted by the Project. For the Mohave ground squirrel, the Applicant alludes that Coso data supports a reasonable estimate of two individuals exposed to possible incidental take on 429.5 acres within the plant site. This estimate needs to be substantiated before it can be considered valid. Burt estimated density at 15 to 20 Mohave ground squirrels per 1 mi2, which is equivalent to 10 to 13.4 individuals per 429.5 acres.	The intervener is incorrect in stating that the Applicant relied on data from Coso study sites for its estimate of two Mohave ground squirrels potentially exposed to incidental take. In view of the intervener's expressed dedication to scientific rigor, it is astonishing that there is a citation of density estimates based on casual observations in 1931 near Palmdale (Burt 1936) as pertaining to the Plant Site. The cited estimate was not derived from trapping mark-recapture studies or any other valid scientific sampling scheme, but simply from squirrels seen along a stretch of dirt road.
36	Mohave Ground Squirrel	The PSA has Specific Data Reliability and Validity Issues	Pg. 35, V. A. 1. e. ii.	In calculating compensation acreage, the Applicant used an estimate of one individual per 10 acres of protected land. The Applicant indicated that this estimate is supported by trapping data, which exhibited comparable results. However, trapping numbers cannot be used to estimate density unless trapping success is incorporated into the estimate. Trapping numbers are further limited unless one incorporates the distinction between the capture of dispersing and resident individuals, which may be impossible without additional study (e.g., radio-telemetry). If dispersing individuals are captured and used in density calculations, the estimate will be inflated.	If trapping success is less that 1.0, the result will be an underestimate of density. This would indicate that protection of habitat would be even more beneficial than estimated in the Applicant's analysis. Dispersal in Mohave ground squirrels involves juvenile animals during May and June of their first year. Since the two studies cited in the Applicant's analysis involved only adult animals, there would be no inflation of density estimates due to capture of dispersing individuals.

37	Desert Tortoise and Mohave Ground Squirrel	The PSA has Specific Data Reliability and Validity Issues	Pg. 36, V. A. 1. e. ii.	The Applicant's "conservative" approach to calculating mitigation uses the value of 0.8 animal/10 acres, which the Applicant terms a "generous estimate" for baseline conditions at unprotected land subject to off-highway vehicle ("OHV") use and livestock grazing. However, this value does not appear consistent with the Applicant's assertion that trapping data from mitigation land purchased for desert tortoise and Mohave ground squirrel strongly indicate that the "population density of the species on this parcel is currently very low, possibly approaching zero." The trapping data was derived from land in the vicinity of the DTNA, similar to land being proposed for Mohave ground squirrel mitigation by the Applicant. An assumption of 0.8 animal/10 acres was a fundamental part of the Applicant's compensation land calculations, and undoubtedly the use of an estimate obtained from trapping data near the proposed compensation site (i.e., almost 0.0 animal/10 acres) would have yielded very different results.	As suggested by this comment, the Applicant's approach to calculating an appropriate amount of compensation acreage is extremely conservative and will provide a very high level of assurance that impacts are adequately offset. The very low Mohave ground squirrel density cited in the Intervener's comment referred to a recently acquired CDFG parcel near the DTNA that had been impacted by livestock and OHV activity. If the Applicant had used these data, rather than the "generous" density estimate of 0.8 animal / 10 acres for potential compensation land, much less conservation land would be acquired. Thus, this comment supports the Applicant's position that the amount of compensation land proposed to be acquired will fully mitigate any impacts through incidental take.

38	Desert Tortoise	The PSA has Specific Data Reliability and Validity Issues	Pg. 36, V. A. 1. e. ii.	Fourth, the PSA relies on the Applicant's assumption regarding the number of desert tortoise individuals potentially impacted by the Project, which is based on a poorly conducted habitat assessment and inadequate surveys. Moreover, the number of individual desert tortoises that the compensation area is expected to support is purely conjecture. The Applicant has used desert tortoise density estimates (i.e., one individual per 10 acres) from the DTNA to infer that acquisition and enhancement of 20 acres will offset impacts to two tortoises. This inference is not reliable without a comparison of baseline conditions present at the two sites, and a demonstration that the compensation area will undergo the same management regime as the DTNA. The DTNA was established in 1976 and has subsequently been managed specifically for the benefit of the desert tortoise as both a research natural area and an Area of Critical Concern. It also has one of the highest known densities of desert tortoises per square mile in the species' geographic range. Consequently, applying density estimates obtained from the DTNA to land that has been subject to grazing and OHV use will likely underestimate the amount of compensation land required to support two tortoises.	The Applicant's assessment of tortoise presence and of habitat was thorough and based on comprehensive and well-collected data. This is explained in previous responses. The compensation lands will be assessed for their ability to support and assist in the recovery of the desert tortoise, including lands that have high carrying capacity or the potential for high carrying capacity but currently have lowered densities due to drought and other factors. Use of the DTNA for comparative purposes is appropriate because lands are anticipated to be near or adjacent to the DTNA, including in the area targeted by the DTPC for acquisition. It is anticipated that lands outside the DTNA may currently have a lower carrying capacity than the protected DTNA; protecting and enhancing those lands will raise carrying capacity sufficiently to support two tortoises. Previous land uses (one of several criteria used to assess potential compensation lands) must not have degraded the lands such that habitat recovery is limited. The DTNA, prior to fencing, was also used for grazing and recreation, so these are not sufficient criteria to reject a property. Management of the lands is assumed to be high quality as ownership of all lands will be turned over to the CDFG or DTPC for management.

39	Desert Tortoise and Mohave Ground Squirrel	The PSA has Specific Data Reliability and Validity Issues	Pg. 36, V. A. 1. e. ii.	Fifth, the PSA relies on a baseline assessment, impact analysis, and compensation package that apply different units of analysis, which makes it impossible to evaluate the ability of mitigation to offset impacts. Specifically, the Applicant used habitat as the unit of analysis for baseline conditions and proposed mitigation, and individual animals as the unit of analysis for impact assessment. Units of analysis must be comparable to achieve an accurate assessment of Project impacts.	The mitigation is not based on habitat, nor is habitat the baseline for Plant Site impacts as discussed in responses to other comments. Habitat baseline conditions indicate the potential for lands to support the species. Areas where habitat was present results in impact acreages to habitat and mitigation is calculated accordingly. For areas where no habitat exists, a different method was used to determine impacts and mitigation. The Applicant's documents, including the draft CESA Section 2081 application and the draft LEHCP, explain this approach for each respective area (Plant Site versus west of SR-14).
40	Desert Tortoise, Mohave Ground Squirrel, and Burrowing Owl	The PSA has Specific Data Reliability and Validity Issues	Pg. 37, V. A. 1. e. ii.	Also, the Applicant's selection of an unquantified variable (i.e., number of individuals potentially impacted) over a quantified one (i.e., acres of potential habitat) introduces an additional level of uncertainty to the mitigation plan and its capability of success. That is, if Mohave ground squirrel surveys have not been conducted (and it appears desert tortoise and burrowing owl surveys were not conducted according to protocol), it is not possible to conclude the presence of target organisms at the compensation site offsets impacts that occurred.	The number of individuals potentially impacted is the appropriate metric for mitigation in this situation. As explained, there is no suitable habitat on the Plant Site for the Mohave ground squirrel or desert tortoise, so there will be no impact to habitat.

53	Burrowing Owl	The PSA Relies on a Resource Assessment that does Not Satisfy CBOC Guidelines	Pg. 41, V. A. 2. a.	The AFC indicates that CBOC protocol surveys were conducted for the burrowing owl.218 CBOC survey protocol consists of four phases.219 Phase 4 of the protocol requires preparation of a resource report that describes and discusses the results of the other three phases of the survey protocol. The Applicant did not provide a Phase 4 report or otherwise provide the content required therein. This constitutes a significant deviation from the protocol. How data is collected strongly affects the reliability and validity of ecological conclusions that can be made. Understanding the quality of data being used to make management decisions helps to separate the philosophical or value-based aspects of arguments from the objective ones, thus helping to clarify the decisions and judgments that need to be made. Therefore, without a Phase 4 report, it is difficult to determine the Applicant's adherence to the other three phases of the protocol, and the extent to which the PSA's proposed mitigation compensates for impacts to burrowing owls.	The Applicant has prepared western burrowing owl survey summary reports for the project, which contain information that would be included in a Phase 4 report. As the CDFG and CEC have been provided these reports as part of the original AFC submittal, and subsequent supplemental data submittals, the requirement for preparing a Phase 4 report has been effectively completed.

54	Burrowing Owl	The PSA Relies on Survey Results and an Impact Assessment that do Not Satisfy CBOC Guidelines	Pg. 42, V. A. 2. b.	The Applicant conducted burrowing owl surveys in 2007 and 2008. During 2007, 27 burrows with burrowing owl sign were detected, 14 of which were within the survey area (as opposed to the buffer area). Five of these burrows had recent sign of burrowing owl use. During 2008, the applicant reported results as follows: Of the potential WBO burrows observed, nine were active (recent WBO sign) and two were inactive (WBO burrows but without recent sign). Eleven animal burrows with potential WBO sign were observed and six of these burrows showed recent WBO sign (active) and five had degraded WBO sign (inactive). These results are confusing (i.e., unknown whether there were 6 or 9 active burrows, and whether there was "potential" or "recent" sign detected). Nonetheless, the Applicant's survey results indicate the presence of between five and nine active burrows within the survey area (possibly more due to a discrepancy in survey areas between the two years) and additional active burrows within the buffer zone.	In 2008, surveys for western burrowing owl were conducted on the additional locations added to the original BRSA (i.e., Supplemental Survey Areas for the Plant Site and pipeline route). These locations included an 80-acre area in the north-central portion of the Plant Site, a 14-acre area in the western portion of the Plant Site (north of the dirt access road), and along the pipeline route (with associated buffer out to 1,000 feet per CEC Draft Guidelines). GIS GPS survey data were referenced to assist with clarifying the results of the 2008 burrowing owl surveys which are presented below: Plant Site (within 80-acre Supplemental Survey Area) = one active burrow with owl sign. Plant Site (in buffer of 14-acre Supplemental Survey Area) = one inactive owl burrow with owl sign Plant Site Buffer area = one owl individual; two inactive owl burrows, one of which had owl sign. Natural Gas Pipeline CEC 1,000-ft Buffer = one individual owl in flight; one active burrow with owl present; five inactive burrows with sign; two inactive owl burrows without sign; and nine owl sign observations. In Summary: The 2008 burrowing owl surveys detected three individual owl observations, one of which was associated with an owl burrow; two active burrows, one with sign only and one with owl present; seven inactive burrows with sign; three inactive burrows without sign; and nine observations of owl sign.

62	Sensitive Plant Species	Impacts to Special Status Plants Must be Disclosed and Analyzed	Pg. 45, V. A. 3.	The PSA identifies six special-status plant species as having the potential to occur in the Project area. The PSA states that the Applicant's 2008 surveys were adequate for determining the presence or absence of these plant species. The PSA concludes that "[g]rading of the entire 2,012-acre BSEP plant site would not impact sensitive plant communities or rare plants…" However, in forming its conclusion, the PSA relies on flawed floristic surveys. The Project must adhere to one or more of the field survey protocols established by the resource agencies. The Applicant's rare plant surveys did not adhere to an established protocol. Thus, the PSA has no substantial evidence upon which to base its conclusion that impacts would not occur.	Rare plant surveys were conducted according to guidelines established by the U.S. Fish and Wildlife Service (USFWS) (Revised July 2002), the California Department of Fish and Game (CDFG) (Revised May 8, 2000), and the California Native Plant Society (CNPS) (Revised June 2, 2001). A sample from each of the agency guidelines is provide below: The USFWS guidelines state that ..."...surveys should not target a single species but should aim to identify any and all rare species and rare plant communities in the area." The CNPS guidelines state that ..."Botanical Surveys should be ... (d.) Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas. All habitats within the project site must be surveyed thoroughly in order to properly inventory and document the plants present. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity." The CDFG guidelines state that..."When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey."

63	Sensitive Plant Species	Impacts to Special Status Plants Must be Disclosed and Analyzed	Pg. 46, V. A. 3.	The Applicant's 2008 survey report indicates that rare plant surveys followed survey guidelines provided by the CEC, USFWS, CDFG, and California Native Plants Society ("CNPS"). The AFC and associated 2008 plant survey report do not provide any specific information on how rare plant surveys were conducted. The rare plants identified as having potential to occur in the Project area have received special-status listing from CDFG or CNPS. As a result, the Applicant's surveys should have adhered to the protocol guidelines issued by one or both of these agencies. To adhere to the protocol issued by the CDFG, the less restrictive of the two protocols, the Applicant should have: (1) visited reference sites to determine that target species were identifiable at the time of surveys; (2) provided a detailed description of survey methodology; (3) provided the specific dates of field surveys and total person-hours spent surveying; and, (4) provided a description of the reference site(s) visited and phonological development of target plant species.	At a minimum, EDAW conducted rare plant surveys according to guidelines provided by the USFWS, CDFG, and CNPS. EDAW also conducted surveys for rare plants out to one mile from the edge of the Plant Site boundary as recommended by the California Energy Commission (CEC). (1) EDAW used the most practical reference site available (Red Rock Canyon State Park) to track the developmental progress of specific target rare plant species that were growing at the reference site [specifically, Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) and Red Rock tarplant (*Deinandra arida*)]. The general development of other plant species that happened to be in the same genus as other target rare plant species for the project was also tracked. For example, one of the project target rare plant species, creamy blazing star (*Mentzelia tridentata*), was not at the reference site; however, other *Mentzelia* species such as solitary blazing star (*Mentzelia eremophila*) which are known to have similar blooming periods were present. The reference site covered approximately an acre and included desert wash scrub and creosote bush scrub. (2) Survey Methodology: EDAW performed rare plant surveys at the appropriate time of year for each target rare plant species that had the potential to occur within or near the Plant Site (generally March–July), as well as other non-target species that have a potential of occurring as indicated in the California Natural Diversity Database (CNDDB). EDAW verified that all habitats within the Plant Site were thoroughly surveyed by conducting pedestrian transects spaced 15 feet to 150 feet apart, or when no live vegetation could be detected, by driving slowly and scanning the landscape for flowers or living vegetation (some areas of the proposed Plant Site were completely barren of vegetation as discovered by walking miles of transects during previous surveys). Meandering transects were walked by surveyors, with more focused attention applied in areas supporting annual species. All plants were identified to

					species and recorded for inclusion into final reports. If any of the target species had been detected, a GPS point with submeter accuracy would have been recorded, followed by completion of a CNDDB Field Survey Form. (3) During 2007, approximately 150 hours were spent specifically performing surveys (2007 Project Beacon Botanical Survey Report). Botanical surveys in 2007 occurred on May 4, May 15–17, and June1. During 2008, approximately 400 hours were spent specifically performing surveys (Beacon Solar Energy Project Botanical and Wildlife Special Status Species 2008 Spring Survey Report, Kern County, California). Botanical surveys in 2008 occurred from March 24–28, April 22–25, May 27–30, and July 1–3. (4) Several potential reference sites were visited in the immediate vicinity (within 1 mile) of the Plant Site; however, none of these sites had target species growing to use as a reference. The closest and best reference site was Red Rock Canyon State Park. Several historical locations of rare plants were searched in the vicinity of the Park and the only location that yielded plants to view was near the entrance of the Park at Abbot Drive and State Route 14. There are several desert washes traversing the area with shallowly to deeply cut drainages that interconnect with the washes. The Red Rock poppy and Red Rock tarplant were both observed on the east side of SR 14 in a desert wash and up along an adjacent hillside (growing within aeolian/alluvial deposits, i.e. sandy soils) that was sparsely populated with vegetation, rocky, and south-facing. Both the Red Rock poppy and tarplant were in full bloom during March and April survey events.

64	Sensitive Plant Species	Impacts to Special Status Plants Must be Disclosed and Analyzed	Pg. 46, V. A. 3.	*Eschscholzia munutiflora* [sic] ssp. *minutiflora* and *E. minutiflora* ssp. *twisselmannii* are two of three subspecies of *E. minutiflora*. According to the Applicant, *Eschscholzia munutiflora* [sic] ssp. minutiflora was detected during 2008 surveys. *E. minutiflora* ssp. *twisselmannii* is one of the six special-status plant species identified in the PSA as having the potential to occur in the Project area. The distinction between the two subspecies appears to be very subtle. The most diagnostic characteristic of Red Rock poppy (*E. minutiflora* ssp. *twisselmannii*) relative to the other two subspecies of *E. minutiflora* is that it is diploid with six chromosomes, whereas ssp. covillei and ssp. minutiflora have 12 and 18 chromosomes, respectively. Thus, in order to distinguish the subspecies, and thus conclude the presence or absence of the listed *E. minutiflora* ssp. *twisselmanni*, the Applicant would have had to perform genetic testing. Otherwise, the Applicant would have to assume presence of *E. minutiflora* ssp. *twisselmanni*. The Applicant did not assume presence of this subspecies, and it appears that the Applicant did not perform genetic testing.	It is true that the distinction between the two subspecies can be very subtle; however, in the majority of reported observations, Red Rock poppy (*E. minutiflora* spp. *twisselmannii*) is reported as having larger petals than pygmy poppy (*E. minutiflora* spp. *minutiflora*). It is also true that performing genetic analysis on plant material can assist with distinguishing between subspecies that are known to overlap in their morphological expression. Based on the fact that botanical/rare plant surveys resulted in the discovery of a single Eschshcolzia individual throughout 2007/2008 surveys, the Applicant's botanical team used best professional judgment to determine that the individual was *E. minutiflora* spp. *minutiflora*. Their reasoning was based on the following factors. (1) Petal length was 10 millimeters. (2) The single poppy found on the Plant Site was very different morphologically than the hundreds of Red Rock poppy observed at the reference site. (3) Cal Flora website has documented two occurrences of Red Rock poppy that are within five miles of the Plant Site boundary; one is NW of the site, within Jawbone Canyon, and the other is NE of the site (0.5 mile east of intersection of Pappus Rd./Gail Rd.) near the town of Cantil, CA. If either one of these individuals detected was to produce seed that fell, or was blown, into an adjacent desert wash, then the seed would have to ultimately travel upstream to become established on the Plant Site. It is possible that heavy winds may have produced enough force to pick up the seeds and carry them to the Plant Site as well. However, the likely explanation is that the nearby pygmy poppy occurrence (eight miles SW of the Plant Site, and west of SR 14; Calflora.org) was historically part of a few to several plants that produced seed during an average rain year, thereby, releasing propagules into the series of drainages situated near the observation point. These drainages lead to a larger drainage that runs parallel to SR 14 and then northward where it crosses under SR 14 and ultimately flows onto the Plant Site. (4) The poppy observed on the Plant Site was growing at the margin of a shallow wash

					dominated by saltbush shrubs (*Atriplex* sp.), further suggesting that the specimen originated from upstream (no Red Rock poppy have been documented within 10 miles upstream of the Plant Site). In consideration of biological factors that would affect the presence or absence of Red Rock poppy on-site, the Applicant's botanical team remains confident, without genetic analysis, that the individual observed on the Plant Site was pygmy poppy.
65	Sensitive Plant Species	Impacts to Special Status Plants Must be Disclosed and Analyzed	Pg. 47, V. A. 3.	Furthermore, although a species' reported range should not be the sole diagnostic characteristic used in identification, it can be used to make an inference. We recommend that Staff consider that ssp. minutiflora has not been reported as occurring in Kern County, whereas ssp. twisselmannii has. Thus, the PSA has no substantial evidence upon which to base its conclusion that impacts to rare plants would not occur.	The intervener's statement that *E. minutiflora* spp. *minutiflora* has not been reported in Kern County is incorrect. According to the CalFlora website (Calflora.org; http://www.calflora.org/app/zmapview), the UC Riverside Herbarium has a confirmed Kern County specimen (UCR-112988) that was incidentally observed (and then vouchered) in April 2000 on the eastern edge of the Tehachapi Mountains in creosote bush scrub at an elevation of approximately 950 feet, west of SR 14 and southwest of the Plant Site. This is not the only confirmed specimen of *E. minutiflora* spp. *minutiflora* collected in Kern County.

68	Desert Washes	The PSA Must Appropriately Characterize the Wash	Pg. 47, V. A. 4. b.	The PSA states that vegetation in the Pine Tree Creek wash has been highly degraded by past agricultural activities. However, this statement appears to conflict with another portion of the PSA, which characterizes Pine Tree Creek wash vegetation as typical of washes in the Mojave Desert. A diligent search of the citation provided by the Applicant to substantiate the occurrence of barren sections within the wash did not reveal any information to support the assertion that such extensive barren sections exist. To the contrary, imagery available through Google Earth shows vegetation throughout Pine Tree Creek Wash, albeit in relatively low abundance in portions of the wash. As a result, references to Pine Tree Creek's degraded condition should be qualified or omitted from the PSA.	The Pine Tree Creek Wash is highly degraded and consists of low cover and homogeneous vegetation, with high invasive species dominance and without the diversity of a healthy desert wash ecosystem. The wash discharges to an area characterized predominantly by Russian thistle and does not provide connectivity due to the large expanses of barren land on either side of the wash due to previous agricultural land uses. The PSA should be made consistent in references to the quality of the system.

69	Desert Washes	The PSA Must Appropriately Characterize the Wash	Pg. 48, V. A. 4. b.	In calculating impacts to desert washes, the Applicant concluded, and Staff accepted, that 2.4 acres were vegetated and 13.6 acres were unvegetated. According to the Applicant's Streambed Alteration Agreement application, methods used to make these calculations were as follows: To ascertain relative cover of established scale-broom occurring within (or dependent on) the ephemeral washes, seven random reaches (totaling 2,990 linear feet) in the Pine Tree Creek Wash were mapped using sub-foot GPS equipment (Figure 3). A weighted arithmetic mean was calculated by taking into account the differences of sampling effort of scale-broom occurring in Pine Tree Creek Wash. The results were then extrapolated to estimate total cover for nonmapped areas resulting in an overall estimate of scale-broom occurring within both washes. The results of the scale-broom sampling for Pine Tree Creek Wash are located in Table 1. Very little additional information was provided, although one of the footnotes shows the total weighted mean, 0.16, was multiplied by proposed impacts to Pine Tree Creek Wash, 14.96 acres, to conclude that 2.4 acres of the wash are vegetated. The Applicant's proposed mitigation, including proposed mitigation ratios and the extent to which the rerouted wash will be revegetated, reflects these calculations.	Based upon the method of utilizing a weighted average, the information provided is comprehensive for ascertaining the overall estimate of absolute cover for scalebroom occurring in Pine Tree Wash (see comment below).

70	Desert Washes	The PSA Must Appropriately Characterize the Wash	Pg. 48, V. A. 4. b.	The method used by the Applicant to calculate acreage of vegetated wash is confusing and does not appear to be a valid statistical technique. In particular, the Applicant does not explain or cite the statistical process for calculating weighted means. To substantiate the sampling procedure's validity, the Applicant needs to explain: 1) how weighted means were calculated; 2) how sampling units were selected; 3) the appropriateness of using weighted means given the potential for spatial auto-correlation and a modifiable areal unit problem; 4) the transformation of sampling units measured in linear feet to impacts measured in acres; and 5) how vegetative cover was measured.	1) A weighted arithmetic mean was calculated where the estimate of absolute cover (χ) equals the sum of each sample of absolute cover (χi) multiplied by the area of each sample, or the weight (ωi), divided by the sum of all weights. The formula used was: $\chi = \sum\omega i(\chi i)/\sum\omega i$ OR $X = \omega 1(\chi 1) + \omega 2(\chi 2) + \omega 3(\chi 3)\ldots / \omega 1 + \omega 2 + \omega 3\ldots$ 2) Sampling units were selected using reaches containing the most representative characteristics of the entire wash as a whole. 3) Each of the seven reaches, or samples, is from the same wash and therefore they are not independent. There are many descriptive statistics that can be used to estimate an average for a population based on sampling. However, in this case a weighted arithmetic mean is appropriate because samples within the wash are of unequal sizes. Thus the weighted mean calculation described above takes into consideration the unequal sampling effort so areas where a greater length of wash was sampled are not overrepresented in the final estimate. 4) The linear feet called out in Table 1 is a labeling error and did not affect overall outcome. The weighted arithmetic mean was actually calculated using acres of each reach as the weighting unit to result in an estimate unit of acres. This has been corrected in the table.

71	Desert Washes	The PSA Must Appropriately Characterize the Wash	Pg. 49, V. A. 4. b.	The Applicant's current proposal for mitigating impacts to Pine Tree Creek Wash is equally confusing. Specifically, the Applicant appears to have confused the term coverage with the ecological concept of cover, and consequently has misapplied them throughout the mitigation plan. As a result, the Applicant proposes to revegetate only 4.8 acres of the 18.4-acre rerouted wash. This is clearly not proportional to the extent of impacts proposed to the wash, which according to satellite imagery has at least some vegetation and cover continuity throughout. If, as the Applicant's incidental take permit application claims, large expanses of barren areas are likely inhospitable for desert tortoise travel because of their size and lack of cover, then leaving 13.6 acres of created wash unvegetated would adversely affect future corridor use by the species.	The impacts were calculated based on vegetated and unvegetated waters, a standard approach. The SAA and mitigation plan provided by the Applicant, as well as subsequent submittals in response to Data Requests and the PSA (most recently on June 19, 2009), all state that mitigation is based on impacts to 2.4 acres of vegetated waters at a 2:1 replacement ratio, for 4.8 acres of vegetated compensation land, and to 13.6 acres of unvegetated waters at 1:1 (13.6 acres of unvegetated compensation land) for a total of 18.4 acres of mitigation compensation lands for impacts to waters. Mitigation for impacts to waters will provide the same quality of habitat as the habitat that will be impacted by the project. The term "cover" is used to describe the percentage of an area occupied by a plant species. "Coverage" is a term used to describe the plant species abundance.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE BEACON SOLAR ENERGY PROJECT	DOCKET NO. 08-AFC-2

PROOF OF SERVICE
(Revised 4/28/09)

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Declaration of Service

I, Shawn Prentiss, declare that on July 20, 2009, I served and filed copies of the following:

1. Responses to Select Cure Comments at CEC's Request
2. Responses to Air Quality Questions from Workshop
3. Response to Request Regarding BSEP Subsurface Investigations
4. Response to Request for Predictive Sensitivity Groundwater Analysis
5. Response to Rerouted Wash Information Request from Workshop.

The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: www.energy.ca.gov/sitingcases/beacon. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service List) and to the Commission's Docket Unit, in the following manner:

(check all that apply)

For Service to All Other Parties

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

__X__ by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service List above.

For Filing with the Energy Commission

__X__ sending an original paper copy mailed, to the address below;

OR

____ depositing in the mail an original and 12 paper copies as follow:

California Energy Commission
Attn: Docket No. 08-AFC-2
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

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

/s/
Shawn Prentiss