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ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

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In the Matter of:

Beacon Solar, LLC's)
Application for Certification of the)
Beacon Solar Energy Project)
_____)

Docket No. 08-AFC-2

**BEACON SOLAR, LLC'S COMMENTS ON THE
PRELIMINARY STAFF ASSESSMENT**

May 1, 2009

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INTRODUCTION

Beacon Solar, LLC (“Beacon”) hereby submits the following comments on the Preliminary Staff Assessment (PSA) for the Beacon Solar Energy Project (BSEP). Beacon wishes to acknowledge the efforts of the Staff of the California Energy Commission (“Commission”) in putting together such a comprehensive PSA and for facilitating a timely workshop on the PSA, which was held April 14, 2009, in California City. The opportunity to discuss some of the issues raised in the PSA at the workshop was helpful and, Beacon hopes, ultimately conducive to resolving many issues in advance.

Unfortunately, there is a troubling theme that runs through the PSA related to how Staff defines a “significant” impact to certain environmental resources. This is a critical issue because, by law (The California Environmental Quality Act [CEQA] [Pub. Res. Code § 21000 et seq.] and other applicable laws, ordinances, regulations and standards [LORS]), the Commission is only supposed to impose mitigation when it is needed to bring a “significant” impact down to a less-than-significant level. In addition, presumptive thresholds of significance are only supposed to be utilized by a lead agency after completion of a formal adoption process.¹

While the CEQA lead agency (in this case, the Commission) has some discretion in defining the precise criteria for what constitutes a significant impact to a particular resource, that discretion must be exercised within boundaries established in CEQA and relevant LORS. In particular, CEQA defines a “significant effect on the environment” as “a **substantial**, or potentially substantial, **adverse change** in any of the physical conditions within the area affected by the project . . .”²

In defining what constitutes a “substantial” change, CEQA provides a host of guidance, including section 15064(b) of the Guidelines which notes:

The determination of whether a project may have a significant impact on the environment calls for careful judgment on the part of the public agency involved An iron clad definition of significant effect is not always possible because the significance of an activity may vary with the setting.

Section 15064(b) is especially pertinent given the disturbed nature of the site and the setting of the proposed BSEP. This unique site was carefully selected to minimize environmental impacts expected to occur given the scope and nature of the Project.

Unfortunately, some sections of the PSA do not adhere to these requirements and guidance, nor take them into consideration, when evaluating and discussing the environmental impacts of the BSEP. Several technical areas of the PSA evidence a complete disregard for the significance boundaries established in CEQA in favor of imposing mitigation measures regardless of how significant the impact might be. Of course, the only way that Staff can justify doing this is if the significance thresholds are defined in a manner such that Beacon’s impacts exceed those thresholds. The result is that the PSA utilizes several arbitrary significance criteria that are neither technically or legally defensible and, if

¹ Cal. Code Regs., tit. 14, § 15064.7(b).

² Pub. Res. Code § 21068 (emphasis added).

imposed, would hold this ideally-sited renewable energy project to a much higher environmental standard (and, consequently, much more extensive mitigation) than necessary or reasonable.

Beacon provides detailed comments on specific significance criteria under the relevant technical topic; however, the specific topic areas where Beacon believes the significance thresholds chosen by Staff to be particularly problematic are Air Quality, Biological Resources, Soil and Water Resources, and Visual Resources.

Because Beacon disagrees with the significance thresholds presented by the PSA in these areas, Beacon also disputes the level and extent of mitigation that Staff proposes in these areas. As described in more detail herein, Beacon maintains that substantial evidence supports a conclusion that the Project will not have significant environmental effects in these areas. Nevertheless, in an effort to reach settlement with Staff on these issues, Beacon is at this time in the process of either evaluating or implementing additional courses of action that may resolve at least some of these disputes. First, Beacon will be incorporating a partial Zero Liquid Discharge technology that will serve to substantially reduce the size and number of the evaporation ponds proposed for the site. Incorporating a partial ZLD technology will have the additional benefit of reducing the amount of groundwater needed in operations. Consequently, this renders moot some of the points of contention between Beacon and Staff in the areas of Biological Resources and Soil and Water Resources. In addition, Beacon is considering looking at available properties in and around the Koehn Lake area that may have the potential to serve as a source of brackish water to supply at least a portion of the Project's operational water needs. If such a source exists and is attainable, its acquisition would render moot even more of the concerns voiced by Staff in the Soil and Water Resources area. It is important that Staff recognizes that these additional courses of action are not mitigation proposals by Beacon, as Beacon does not believe additional mitigation is necessary to reduce impacts in these resource areas to less than significant levels (given that Beacon maintains they are not significant to begin with). Rather, Beacon is considering them only as potential, environmentally-conservative avenues for resolving some of the disagreements with Staff, enabling the Project to move forward in an expedient and beneficial manner.

Beacon's comments on the PSA are set forth in detail in the sections that follow. Where we are suggesting specific changes, additions or deletions to the wording of the PSA or Conditions of Certification, changes are shown in redline/strikeout/underline text.

EXECUTIVE SUMMARY

Beacon recognizes that, given the overarching nature of the Executive Summary and the fact that many of the summaries of each of the individual topics may change in the FSA, it would not be efficient to provide comments on the entirety of this section. Instead, Beacon would like to propose the following additions to the section addressing the noteworthy public benefits of the Project as proposed.

Requested changes to the Noteworthy Public Benefits Section:

NOTEWORTHY PUBLIC BENEFITS

BSEP offers the benefit of providing nearly 100 percent of its power generation from the sun. The daylight operating hours generally coincide with the normal hours when peaking capacity and energy is needed to support the California ISO transmission grid. In addition, staff has identified the following significant and environmentally important public benefits:

1. BSEP would contribute to meeting goals under California's Renewable Portfolio Standard Program (Senate Bill 1078), which establishes that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2010 must consist of renewable energy;
2. BSEP would contribute to meeting the Governor's Executive Order #S-14-08 which establishes that renewable energy must contribute 33 percent of the supply for meeting total state energy demands by 2020;
3. BSEP would contribute to the state accomplishing its goals for reducing global carbon emissions in accordance with the California Global Warming Solutions Act of 2006 (Assembly Bill 32);
4. BSEP would qualify for federal economic stimulus funds (provided construction began prior to 2010), which would aid state and national economic recovery by facilitating the distribution of such moneys;
5. BSEP would contribute to Kern County's existing profile as a state leader in renewable energy facilities, potentially serving to help attract additional renewable energy businesses, including manufacturing and training facilities;
6. BSEP would be one of the first utility-scale solar power projects built in California in over twenty years, and its construction could have an ancillary benefit of stimulating additional investment in solar energy projects and technologies throughout the State, further helping the State achieve the goals set in Senate Bill 1078, Assembly Bill 32, and the Governor's Executive Order #S-14-08.

Staff has identified additional noteworthy public benefits which would include both short term construction-related and long term operational-related increases in local expenditures and payrolls, as well as sales tax revenues. Please see the Socioeconomics section of the PSA for a more detailed discussion of these project benefits.

PROJECT DESCRIPTION

Requested changes to the Project Purpose and Objectives:

Beacon's proposed changes are presented below.

~~The project purpose is to benefit FPL Energy stockholders by earning a profit on investment while achieving the stated project objectives (BS 2008a and BS 2008i).~~

RATIONALE

Beacon has reviewed both the Application for Certification and Responses to Question Set #2 from Rancho Seco Residents and the statement provided above is not included in either document. Therefore, the references must be removed. Furthermore, we find these types of statements inflammatory and unnecessary in an environmental document such as a Preliminary Staff Assessment. The actual project objectives include "construct, operate and maintain an efficient, economic ... facility," which clearly captures the concept that if a project is not profitable it will not be built.

ALTERNATIVES

Beacon respectfully disagrees with Staff's conclusions concerning alternatives to the BSEP as proposed in the AFC. Specifically, Staff opines that "there are seven feasible project alternatives that are reasonable alternatives" to the proposed Project: five of the alternatives rely on the use of non-potable water in the cooling process, the sixth alternative would utilize dry cooling, and the seventh alternative would switch technology from that proposed to photovoltaic (PV), which does not require a cooling system. Staff also stated that there are possible alternative sites and alternative site layouts that could potentially lessen the purported significant environmental impacts of the proposed Project.

Beacon is concerned about Staff's attempts to redesign the Project by employing different site arrangements, breaking the Project into two separate projects, modifying the cooling system and/or selecting a different technology. Beacon understands Staff believes it is attempting to follow Commission policy by hypothetically redesigning the Project in a manner that would accomplish all objectives while satisfying all of Staff's concerns. Unfortunately, in order for any project to move from the conceptual stage to an operating power plant it must meet engineering, financing and revenue goals. Staff's preferred alternatives of dry cooling or switching to PV technology will not meet these goals. In addition, Beacon is concerned the Staff-identified conceptual alternative water supply necessary to the remaining five alternatives is speculative and not reliable for power plant operations, which would again prevent project objectives from being achieved.

Beacon has at various times explored a version of each of the alternatives presented by Staff, and determined, based on sound research and expert consultation, that these are not in fact feasible alternatives for the proposed BSEP. The basis for Beacon's position is amply set forth both in the AFC and in the responses to data requests and other supplemental filings that Beacon has submitted during this process. Nevertheless, as discussed in its introductory comments, Beacon has committed to undertake another evaluation of whether an off-site source of brackish water could be secured to supply at least a portion of the Project's operational water needs, alleviating and render moot some of the issues raised by Staff. The suggested alternatives of dry cooling and changing technology have been thoroughly evaluated by Beacon and Beacon has submitted substantial evidence to support its determination that these alternatives are infeasible.

Scope of the Alternatives Analysis

At the outset, Beacon would like to note that critically absent from the alternatives analysis is a discussion of what constitutes a "feasible" alternative under CEQA. Without such a definition consistently in mind, any discussion of alternatives is logically flawed.¹ CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."² CEQA does not demand what is not realistically

¹ This is especially true as applied to the PSA's analysis of alternative water sources since, in the 2003 IEPR, when discussing power plant water use and alternatives, the Energy Commission defined "economically unsound" to mean the same as "infeasible", referencing CEQA's definition of feasible. See 2003 IEPR at 41, fn. 64.

² Pub. Res. Code § 21061.2. Cal. Code Regs., tit. 14, § 15364 and Cal. Code Regs., tit. 20, § 1702(f) repeat that definition and add "legal" factors.

possible, given the limitation of time, energy and funds.³ Accordingly, a project alternative would be infeasible if it is determined that there are specific timing, economic, legal, social, technological or other considerations that make the alternative illogical or render the project impossible. In addition, an alternative is infeasible within the meaning of CEQA if the alternative would not actually result in lesser environmental impacts than the project as proposed.⁴ As discussed further herein, each of the alternatives proposed by Staff become infeasible when evaluated under this framework.

The alternatives discussion also fails to take into account whether the proposed alternatives can be implemented within a reasonable period of time and still obtain Project objectives. In presenting its laundry list of alternatives, Staff fails to take into account social, legal and environmental factors that would demonstrate that a delay in bringing solar energy online would negatively affect California's efforts to reduce GHGs. The unreasonable delay that would result from adopting Staff's alternatives and the attendant interference with these societal goals renders the alternatives infeasible on the basis of the timeliness criteria alone.

Beacon Need Not Pursue Every Possible Alternative Put Forth by Staff

A further initial matter that should be observed is that, under CEQA, Beacon need not research or conduct all tests or studies nor investigate every possible alternative put forth by Staff.⁵ At some point, the exploration of alternative sites, layouts, water sources, technologies or cooling methods must cease. CEQA does not require analysis of every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.⁶ A project proponent need not "conduct every test and perform all research, study and experimentation recommended to it to determine true and full environmental impact."⁷ Put another way, an EIR's (or EIR-equivalent) evaluation of a project or a particular impact need not be exhaustive, nor include all information that is available on an issue.⁸ Moreover, under well-established case law, Beacon is not required to prove a negative (such as the lack of alternative water supply). Therefore, Beacon cannot reasonably be expected to pursue, research and evaluate every permutation of an alternative that Staff presents. Beacon maintains that it has provided substantial evidence into the record to support a finding that the options proposed by Staff are not, in fact, feasible alternatives.

The PSA Neither Correctly Nor Fully Analyzes The Economic Feasibility of The Alternatives

While Staff took efforts to evaluate the economic and technological aspects of the proposed dry cooling and PV alternatives, there was no similar economic evaluation of the five alternatives that rely on non-potable water. That analysis should have included a cost-based assessment of whether such water could

³ *Concerned Citizens of South Central Los Angeles v. Los Angeles Unified School Dist.* (2d Dist. 1994) 24 Cal.App.4th 826, 841.

⁴ Cal. Code Regs., tit. 14, § 15126.6.

⁵ Cal. Code Regs., tit. 14, § 15204(a).

⁶ *Concerned Citizens* at 841, emphasis in original, quoting *Rio Vista Farm Bureau Center v. County of Solano*, 5 Cal.App.4th 351, 376.

⁷ *Society for Cal. Archaeology v. County of Butte* (1977) 65 Cal.App.3d 832, 838.

⁸ *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 666; *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 666; and Cal. Code Regs., tit. 14, § 15151.

be purchased or otherwise secured in sufficient quantities to supply the Project's operational needs. The cost of installing an additional pipeline and the potential biological, cultural, etc. compensation costs (not to mention the cost and time needed to conduct the studies to determine what those mitigations would be) should be included in such an analysis. The discussion and analysis of those alternatives that did employ an economic analysis (dry-cooling and PV) is also flawed. In determining whether alternatives are economically feasible, CEQA requires specific "evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed."⁹ Although Beacon is still evaluating the economic analysis conducted by Staff, Beacon disagrees that BSEP can accept an additional \$100 million in costs and remain an economically feasible project.

Beacon further observes that Staff's analysis under the "Power Plant Efficiency" section states: The most significant environmental impacts caused by solar power plants result from occupying large expanses of land. Even in a desert environment, disturbing and shading hundreds or thousands of acres of land can impact environmental resources. The extent of these impacts is likely in direct proportion to the number of acres affected. ... Employing the photovoltaic (PV) technology would result in a lower land use efficiency than the technology proposed for the BSEP. . . . Staff believes the BSEP represents one of the most land use-efficient solar technologies currently available to satisfy the Project objective of using proven solar thermal technology.¹⁰

That statement further demonstrates the infeasibility of Staff's proposed PV alternative. Use of PV technology would actually be more detrimental to the public and environment due to the fact that PV technology, in that particular part of California, is far less efficient than solar thermal and is considered an "unproven" technology on the scale of BSEP. Employing PV equipment reduces the amount of energy that can be extracted from the solar field on a megawatt per acre basis thereby requiring many more acres to produce the same amount of energy as a solar thermal plant would. This, in turn, creates greater impacts to the environment due to the increased footprint of the project. Staff's proposed alternative to use PV technology also neglects to acknowledge the fact that PV has not been proven for large-scale energy development. Currently the largest operating PV plant in the United States is 14 megawatts, less than 10% the proposed size of BSEP. Photovoltaics are more susceptible to cloud cover and affect the grid significantly different than solar thermal, furthering the argument that a PV plant on the proposed BSEP scale would carry inherent risks. Financial institutes view the financeability of a project heavily based on whether or not the technology has a reliable and predictable performance history. As mentioned at the beginning of this section, a project must be financeable to be considered viable and as such, PV on this scale at this particular site is not a feasible alternative.

From a social and legal perspective, solar thermal energy is, at present, the most reliable form of largely untapped renewable energy in California. Given the mandates prescribed in Senate Bill 1078 and Assembly Bill 32, California does not have the luxury of waiting for additional technologies to become more advanced to the point of surpassing solar thermal as an efficient, reliable energy source. Utility scale solar power plants must be built now, utilizing existing technologies and their attendant constraints. It is axiomatic that utility-scale renewable energy projects such as BSEP must optimize the amount of power produced per acre, with a proven technology, in order to provide the greatest reduction in GHGs

⁹ *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336, 1352.

¹⁰ PSA at 5.3-5 and 5.3-9.

and meet RPS goals while minimizing ancillary impacts on the environment. Beacon requests that, in considering alternatives, Staff bear in mind its own assessment that “the BSEP represents one of the most land use-efficient solar technologies currently available to satisfy the Project objective of using proven solar thermal technology.”

In discussing its interpretation of “economically unsound” alternatives to freshwater use to mean “economically infeasible,” the 2003 IEPR itself references the CEQA Guidelines definition of “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.”¹¹ Therefore, in the context of evaluating alternatives for the Project as proposed, the 2003 IEPR affirms Beacon’s position that Staff should be taking into account the benefits to the environmental and societal factors that BSEP will provide, that may not be achieved by Staff’s proposed alternatives and will certainly not be obtained within the same time frame as that posed by Beacon. The failure of the PSA to take into account important environmental, social, technological and legal factors, as well as Staff’s disregard for the unreasonable delay of starting an alternative project anew, show that the PSA’s alternatives analysis is inherently skewed.

Staff Misconstrues the Market Based Approach to Economic Feasibility of PV and/or Dry Cooling Projects

Staff attempts to support its argument that the PV and/or dry cooling alternatives are economically feasible by way of comparison with other proposed or built projects within California that use or propose to use these technologies.¹² Beacon responds that signing a Power Purchase Agreement (PPA) is not an indication of the existence of a viable market. For example, PG&E recently signed a PPA to obtain solar energy from satellites circulating within the Earth’s orbit.¹³ But just because an electric provider signs a PPA does not necessarily mean that there is a market for that type of emerging technology. In fact, electric generation product manufacturers will often take a lower rate of return to demonstrate the capabilities of their technology. By comparison, the electric provider need only commit to pay for those quantities of electricity that are actually produced under the specific terms of the PPA. Consequently, the simple existence of a PPA does not establish the feasibility of a proposed project; rather, it is a form of market speculation in energy futures for both the product manufacturer and the product purchaser. Such mechanisms cannot be considered reliably indicative of what the supply nor the demand side of the market will bear when it comes to existing technologies and projects that are “shovel ready.”

In sum, in order to address certain comments that were made at the PSA Workshop, Beacon maintains that the existence of a PPA does not establish the feasibility of a proposed project. On the contrary, Beacon would argue that obtaining a power purchase agreement before or too early in the permitting process, is meaningless in terms of actually producing power at some fixed cost and may be a liability to the developer by prematurely committing to financial terms beyond their control. The actual economic viability of renewable energy projects using a new technology may not be established for years after it begins operation, not years before. The bankruptcies of the first large scale wind (Kenetec) and solar

¹¹ 2003 IEPR at 41 citing Cal. Code Regs., tit. 14, § 15364 and tit. 20, § 1702(f).

¹² PSA at 6-10 and 6-12 to 13.

¹³ Steven Johnson, *PG&E signs deal for solar power from satellites*, San Jose Mercury News, April 14, 2009, at http://www.mercurynews.com/science/ci_12134648 (last visited on April 24, 2009).

(Luz) projects in California would be good examples. While there may be ulterior motives both the developer and the off-taker have in obtaining this piece of paper early in the development of a project, determining the economic viability of the project is not one of them.

If staff wishes to rely upon the existence of a PPA as some type of feasibility test, than it must delve much deeper into both the motives of the developer and the off-taker for entering into such an agreement. Staff's analysis should include how, or if, the long lists of risks associated with developing, constructing, and operating a renewable energy project are actually priced into the PPA.

The PSA Fails to Note the Correlation Between the Use of Dry Cooling and Higher Costs

Based on its comparison of “the marginal cost of the various alternatives to the anticipated revenue stream of the BSEP,” Staff concluded that its suggested alternatives are economically feasible.¹⁴ Staff reached this conclusion by “estimating equipment costs, debt service, and annual operating costs then applied those costs to the revenue model” which yielded 11% internal rate of return (IRR) over 30 years.¹⁵ However, the PSA fails to indicate that there is a direct correlation between the greater energy costs associated with dry cooling and ratepayer costs. The numbers submitted by Beacon demonstrate that there is a notable increased cost associated with dry cooling that would be incorporated into the cost of the power produced by the BSEP. Simply put, as a dry cooled power plant this Project would be priced out of the market and could not be built by an established, credit-worthy company such as NextEra Energy Resources.

Utilizing an Alternative Site is Not a Feasible Alternative

Staff's discussions of alternative sites and alternative site layouts are cursory and do not demonstrate that these are “feasible” alternatives as defined by CEQA. In particular, unless and until Staff presents an alternative site (which Beacon was unable to identify), it cannot be known whether that site could be acquired in a reasonable period of time, and/or that it would not have any economic, environmental, social, or technological ramifications that would make it a less attractive site than the proposed location. A “key question” in considering the feasibility of alternative sites is whether any of the significant effects of the project could be avoided or substantially lessened in an alternate location. Only locations that would achieve such a result should be considered for inclusion in an alternatives analysis.¹⁶ In addition, the lead agency should consider whether the project proponent can reasonably acquire, control, or otherwise gain access to the alternative site.¹⁷ In the desert regions there are often many owners of land where assembling large contiguous blocks can be difficult and expensive if not secured quickly and privately. Unlike the amount of land needed for a gas fired power plant these facilities require large areas for collection of the solar energy. If land is fragmented or difficult to purchase due to the reluctance of a few landowners to sell, the site is not viable. Finally, a new site would require new spring surveys and beginning the permitting process with all of the affected agencies anew. Any of these alternatives would create an infeasible project due to the delays faced by beginning the permitting process from scratch.

¹⁴ PSA at 6-11.

¹⁵ *Id.*

¹⁶ Cal. Code Regs., tit. 14 § 15126.6(f)(2)(A).

¹⁷ *Id.* at § 15126.6(f)(1).

These delays would effectively make the alternative site and alternative technology options infeasible under CEQA because they could not be accomplished “within a reasonable period of time.”¹⁸ Such delays would also negatively impact California’s efforts to reduce GHGs and implement its RPS program under AB 32, SB 1078 and EO S-14-08. These laws necessitate rapid development of renewable energy sources like BSEP in order to meet the mandated deadlines. Any delay caused by the search for alternative sites and/or the start of a new permitting process would render Staff’s alternatives further infeasible under CEQA and Energy Commission regulations due to “social,” “legal” and “environmental factors.”¹⁹ The public, the environment and the California government’s legal efforts would all be harmed by the delayed development of renewable energy resources as that would in turn delay reductions in GHGs.

The Availability of Non-Potable Water is Uncertain and Speculative

Five of the alternatives proposed by Staff rely on the ready availability of non-potable or “brackish” water, as defined by SWRCB. Staff appears to conclude, without analysis, that Koehn Lake could provide brackish water in a sufficient quantity to meet the approximately 1,600 acre/feet per year that will be used during operation of the BSEP. It is Beacon’s understanding that Staff has obtained confidential well data from the Koehn Sub-basin in the vicinity of Koehn Lake to support their conclusions regarding the availability of a long-term source of brackish water. Accordingly, Beacon requests that Staff provide this information so that these data can be considered. However, with the information available to Beacon, our evaluation has concluded that there is not a significant supply of brackish water in the vicinity of Koehn Lake in quantities to support project supply requirements over a period of 30 years (see further discussion of this issue below).

The PSA concluded (page 4.9-1) that there was no compelling evidence that there is *not* an economically viable source of brackish water available in the area of Koehn Lake. Under this conclusion there would have to be a source of brackish water in the area of Koehn Lake that could supply the project for a period of 30 years, at the construction and operational volume and rate requirements, and that this water would remain “brackish” (herein interpreted to be total dissolved solids [TDS] concentrations above 1,000 parts per million) for the term of the project. Beacon believes that sufficient information is available and that analyses completed within the requirements of CEQA developed a reasonable conclusion that there is not a continuous source of brackish water that could be reliably be produced for the Project period (i.e., 30 years) in the area of Koehn Lake.

It is important to emphasize that it is not enough to have a well with scattered TDS concentrations over time above 1,000 ppm to qualify the area as a source of brackish water. To be a realistic source of brackish groundwater one would expect to see TDS concentrations consistent over time, not variable as has been shown for wells southwest of Koehn Lake. Further, though the well may show a TDS concentration above 1,000 ppm, it must also provide water at a rate sufficient to support project requirements. For this to be, it is reasonable to assume that the well would have to be located in the alluvial valley fill materials and not constrained by hydraulic barriers such as the Garlock and Randsburg-Mojave Faults and bedrock. Wells sandwiched between these features north and south of Koehn Lake are not likely to produce water at volumes sufficient to meet project requirements. The only location that

¹⁸ Pub. Res. Code § 21061.2.

¹⁹ See Pub. Res. Code § 21061.2; Cal. Code Regs., tit. 14, § 15364; and Cal. Code Regs., tit. 20, § 1702(f)

would be situated in the valley fill without significant hydraulic impairment and with historic data with TDS concentrations above 1,000 ppm is southwest of Koehn Lake and east and northeast of the Honda Test Track. Even at this location, water pumping would be influenced by the low-permeability sediments below Koehn Lake.

The most recent available water quality data from this area shows that there is not a consistent trend in the TDS data above 1,000 ppm suggesting a reliable source of poor-quality water southwest and west of Koehn Lake. For example, historic groundwater samples from wells immediately west of Koehn Lake have reported very low TDS concentrations (see Figures DR-96a through DR-96d, October 2008 Data Response). Groundwater samples from water supply wells southwest of Koehn Lake show only scattered wells with concentrations over 1,000 ppm TDS. While historically having TDS values above 1,000 ppm, the wells with available data in this area have shown a decline (i.e., trend toward lower TDS concentrations) in recent years (e.g., 30S/38E-32D03 northeast of the Honda Test Track). An improvement in water quality (i.e., lowering of TDS concentrations over time) for these wells suggest influence from ongoing recharge to the groundwater basin as indicated in the PSA and shown on Figure 5.17-5 in the AFC. As the PSA concluded, the source of water to the groundwater basin from Pine Tree Creek and Jawbone Canyon on the west side of the groundwater basin is infilling the cone of depression that developed during the period of significant agricultural development which generally ended in the mid-1980's. It is apparent that water migrating northeast toward Koehn Lake from these sources has low TDS concentrations and is migrating to the eastern and northeastern portions of the Koehn Sub-basin. As this water continues to in fill this area the water quality is going to improve (i.e., TDS concentrations will continue to go down). This is evident in wells east of the Honda Track where concentrations spiked in the mid-1980's and have been in decline since(e.g., 30S/38E-32D03).

As predicted by the numerical groundwater model, and provided for in data response DR-96W2 (December 2008), any pumping in the vicinity of the southwest corner of the lake would ultimately draw some of the water preferentially from higher quality groundwater southwest of the lake and northeast of the Honda Test Track due to the permeability contrast between the lake sediments and surrounding more porous (i.e., higher permeability) aquifer materials. Further, even if there were limited supplies of high TDS water in this area, drawing water from a well(s) in this area would only provide a mixed source of both high TDS water and lower TDS water, as water is drawn from the more permeable valley fill sediments preferentially over the lower permeability sediments below Koehn Lake. This mixed source would likely produce a net TDS concentration below 1,000 ppm.

It is also important to note that the feasibility of finding non-potable water in an area southwest of Koehn Lake is highly questionable with no guarantee of success, as shown by the available water quality and demonstrated by the model simulation. Exploration of this nature is beyond what is reasonable under CEQA guidance. Section 15126.6(f)(3) of the CEQA Guidelines states: "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (*Residents Ad Hoc Stadium Committee v. Board of Trustees* (1979) 89 Cal. App.3d 274)." Further, Section 15126.6(f)(1) states that lead agencies should take into account whether the project proponent can reasonably acquire, control, or otherwise gain access to an alternative resource when determining whether the alternative is feasible. As discussed in Section A, above, the PSA considered none of these things. Staff also fails to evaluate whether the alternative of using imported non-potable water would in fact result in lesser environmental impacts than the project as proposed.

In sum, Beacon cannot be expected to verify the non-existence of a non-potable water source for the project. To do so is to ask Beacon to prove a negative and this is not permitted under CEQA. Pursuant to *Arizona Cattle Growers' Ass'n v. USFWS*: "It would be improper to force [the Cattle Growers' Association] to prove that the species *does not exist* on the permitted area, as the Fish and Wildlife Service urges . . . because it would require [the Cattle Growers' Association] to . . . prove a negative."²⁰ Staff did not identify any other feasible source of non-potable water for the Project. Accordingly, without an identified, reliable source of non-potable water, these five alternatives are not attainable.

Summary of PSA Alternatives Analysis

Beacon disagrees with Staff's analysis and conclusions that each of the seven alternatives proposed by Staff are feasible alternatives. Beacon finds that these alternatives fail to meet the requirements contained in the Commission's regulations or CEQA regarding feasibility. Accordingly, these alternatives should not be adopted in place of the BSEP as proposed.

²⁰ Emphasis added. 273 F.3d 1229, 1244 (9th Cir. 2001).

AIR QUALITY

Method and Thresholds for Determining Significance

According to the PSA (page 4.1-17), Staff used two main significance criteria in evaluating this Project.

1. All project emissions of nonattainment criteria pollutants and their precursors (NO_x, VOC, PM₁₀ and SO₂) are considered significant cumulative impacts that must be mitigated.
2. Any violation of an ambient air quality standard (AAQS) or any contribution to any AAQS violation caused by any project emissions is considered to be significant and must be mitigated.

However, the Kern County Air Pollution Control District (KCAPCD)¹ uses the following significance criteria. If a project's impacts are below these levels, KCAPCD does not consider the project's impacts to be significant.

Operation of the project will:

1. Emit (from all project sources subject to KCAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3. of KCAPCD's Rule 210.1 (New and Modified Source Review Rule);
2. Emit less than 137 pounds per day of NO_x or Reactive Organic Compounds from motor vehicle trips (indirect sources only);
3. Not cause or contribute to an exceedance of any California or National Ambient Air Quality Standard;
4. Not exceed the District health risk public notification thresholds adopted by the KCAPCD Board; and
5. Be consistent with adopted federal and state Air Quality Attainment Plans.

As an initial matter, Beacon disagrees with both of the "main significance criteria" utilized by Staff in the PSA. Beacon notes that the first significance criterion presented by Staff is inconsistent with the first KCAPCD criterion, as Staff views **any** emissions of nonattainment pollutants/precursors as significant, while KCAPCD only considers emissions in excess of their offset thresholds to be significant. The KPACD criterion is the proper significance threshold. The PSA asserts that since the BSEP will emit some amounts of nonattainment pollutants/precursors that its impacts are cumulatively significant under CEQA. In essence, the PSA contends that any additional emissions of a pollutant in a nonattainment area are a *per se* significant impact. This, however, is not a correct statement of the law. As stated in *Communities For a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, when considering additional incremental effects of a project in an already impacted area, the relevant question is whether any additional amount of emissions should be considered significant in light of the existing nonattainment situation in the region. *Id.* at 118, 120. Importantly, the court went on to clarify: "This does not mean, however, that *any* additional effect in a nonattainment area for that effect *necessarily* creates a significant

¹ Guidelines for Implementation of the California Environmental Quality Act (CEQA) of 1970, as amended. Adopted by the KCAPCD Board of Directors July 11, 1996; Amended: July 1, 1999.

impact; the ‘one additional molecule rule’ is not the law.” *Id.* at 120 (emphasis in original). Unfortunately, it appears that the one additional molecule rule is exactly what the PSA is using as its significance threshold when it states on page 4.1-17 that emissions of nonattainment criteria pollutants “are” significant impacts that “must” be mitigated. Notably, at the PSA Workshop, Staff correctly paraphrased the law when it was stated that additional emissions in a nonattainment area are “potentially significant” and must be analyzed; unfortunately, the crucial qualifier – “potentially” – was omitted from the PSA.

The CEQA Guidelines specifically contemplate that “an ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area”, and vice versa. 14 C.C.R. 15064(b). Here, the current status of this part of the Mojave Desert Air Basin as nonattainment for PM10 and ozone are due to the natural conditions, i.e., high winds and transport rather than local industrial sources.

Therefore, Beacon does not accept that simply because BSEP will emit nonattainment pollutants means it will have a significant air quality impact. Beacon does agree, however, that an analysis is needed to determine if it is likely to cause or contribute to a violation of an AAQS. Although the area is currently designated nonattainment for PM10, Beacon asserts that the BSEP will reduce existing wind blown fugitive emissions that are the source of the current air quality problems. Beacon’s modeling of the Project’s PM10 emissions shows that the Project does not cause an exceedance of the applicable AAQS. It is only when added to the background concentrations, which currently exceed the standards, that the result is over the standards. Therefore, the fact that the background concentrations will be lower once the Project is operating is relevant. A discussion is provided below that attempts to quantify the potential reduction in the baseline emissions that contribute to this existing background.

Discussion of Baseline Conditions

Beacon’s AFC states that it is expected that post-project conditions will be an improvement in the area with respect to naturally occurring wind blown dust, since particulate emissions from the solar field will be carefully controlled. The current conditions reflect a largely exposed surface area, which is currently used by some off-road vehicles (ORVs). The sand dunes that have accumulated near some of the local residences attest to the fact that there is currently significant baseline emission in the area. Beacon looked for methodologies to calculate wind erosion over disturbed open areas. Two emission methodologies/factors were found. Clark County Department of Air Quality and Environmental Management has a wind erosion factor of 1.66 lb/acre/day (0.3 ton/acre/year) for wind erosion of disturbed areas. Even if only 5% of the 1,266 acre solar field area was disturbed at any given time, annual emissions due to wind erosion of this area would be estimated to be 19 tons per year (tpy). The Mojave Desert Air Quality Management District (MDAQMD)² also provides methodologies for estimating wind erosion from disturbed open areas. This guidance provides factors ranging from 8 tons/acre/year for actively disturbed areas, to more complex calculations that take into effect surface friction, vegetative cover, moisture content, and

² Mojave Desert Air Quality Management District, Emissions Inventory Guidance for Mineral Handling and Processing Industries, April 2000.

other factors. Based on various assumptions for these inputs, emission factors on the order of 0.2 to 0.3 ton/acre/year are derived. As shown below, total BSEP PM10 emissions, using very conservative assumptions, are expected to be on the order of 18 tpy, and hence can be considered to be offset by the control or the current disturbed area wind erosion.

Review of Operational Support Vehicle Emissions Calculations

Staff has suggested some changes to the emissions calculated in the AFC for maintenance vehicles and water trucks in the solar field. Emissions were recalculated based on Staff's suggested 15% silt content, use of smaller ½ ton pickup trucks for most of the maintenance activities, use of 2011 or later model year vehicles, and application of a soil binder to the paths where the vehicles drive. It was also determined that the AFC had incorrectly applied a heavy duty vehicle emission factor to the light duty maintenance vehicles/trucks, causing the exhaust emissions to be overestimated by more than a factor of 100. The revised emissions are shown in the table below. The 15% silt content is considered very conservative, and use of an 11% silt content default factor from the MDAQMD guidance would indicate PM10 emissions of 12.3 tpy. The vehicle miles traveled are also considered conservative. Beacon notes that it will be necessary to have some ¾ ton trucks for welding rigs and some other uses, however, these trucks will only be a small percentage of the fleet and would not materially increase the emissions.

Vehicle	Distance Miles/yr	Emissions (tpy)							
		CO	VOC	NOx	SOx	Exh. PM10	Fug. PM10	Exh. PM2.5	Fug. PM2.5
Mirror Wash Truck	3000	0.003	0.001	0.006	0.000	0.000	0.97	0.000	0.21
Maintenance Vehicles	96000	0.058	0.002	0.004	0.000	0.000	15.03	0.000	3.19
Weed Abatement	340	0.000	0.000	0.001	0.000	0.000	0.11	0.000	0.02
Soil Stabilizer Application	340	0.000	0.000	0.001	0.000	0.000	0.11	0.000	0.02
Total		0.062	0.003	0.012	0.001	0.001	16.22	0.001	3.44

Staff expressed a concern in the PSA (p 4.1-16) that emissions from equipment and vehicles needed to move HTF contaminated soil to the bio-remediation area, to mix the soils and treatment mixtures, and to remove the treated soils has been underestimated. The BSEP will be a state of the art facility, and it is expected that HTF leaks and spills will be minimal. In most cases, a small amount of soil will easily be transported in one of the pickup trucks shown in the "maintenance vehicle" category in the table above. Therefore, these emissions are reflected in the estimates provided.

Given the conservative nature of the estimates, Beacon believes that it is reasonable to conclude that the PM10 emissions during operation of BSEP would be comparable or less than the existing wind erosion of the land disturbed by some ORV use. Likewise, the corrected vehicle exhaust

emissions are negligible, and would not be expected to contribute to ozone formation in this remote area. Therefore, Beacon concludes that BSEP's contribution to air quality during operation would not be significant.

Modeling Files Review

As noted in the PSA, Staff performed air quality modeling for both construction and operation using some different emissions data and also changes to the modeling assumptions. Staff provided a copy of Staff's PSA modeling was provided at the PSA Workshop on April 14, 2009. Beacon's consultants reviewed the modeling files provided by Staff related to a revised impact assessment during construction and operation.

The primary changes to the construction modeling involved the shape, size, elevation and location of the portion of the site assumed to be active for the purpose of the modeling assessment. Beacon agrees with the changes to the elevation of the area source for modeling. For the AFC, an area source was configured as a 548 m by 110 m (60,280 m² or 15 acres) rectangle to represent the grading pattern identified by the engineering firm, and representative of the largest area that would be graded in a 10-hour day. The configuration and inputs are described in the BSEP modeling protocol submitted with the AFC (Appendix E.3). The construction modeling for the AFC was intended to represent the maximum area that would be disturbed in a day during the activities that lead to the maximum daily emissions, and was performed for all criteria pollutants.

In its NO₂ modeling, Staff changed the construction area source to a 300 m by 300 m (22.2 acres) square, and centered the source over the power block. For the PM10 model runs, Staff used a very large source, 1,425 m by 690 m (243 acres), and moved it up against the western fence line. Given that this area is more than 10 times the maximum area that was assumed to be disturbed in a day, the size of the construction source for PM10 effectively results in PM10 emissions that are 10 times greater than the maximum they could be on a given day. Beacon does not agree with Staff's changes related to the size and shape of the area source(s) used for modeling PM10 and NO₂. Beacon also disagrees with Staff's use of different sized areas for the two pollutants, since the modeling should represent the same construction activities. No explanation was provided with the modeling files so it is unknown why these differences were chosen.

For the operational impact assessment, Staff used the same rectangular area source of roughly 243 acres that was adjacent to the western boundary and extended over the power block, to model the PM10 impact of the maintenance vehicles. While Beacon believes that the area source size used by Staff for construction was too big, this size area source during operation is too small. Staff assumed that all of the emissions from on-site maintenance vehicles would occur in this area (243 acres) which is less than 20% of the solar field area (1,266 acres). Placing all of the emissions into an area one fifth of the area in which the emissions will occur (since the vehicles will operate throughout the solar field in any given day) will greatly overestimate the Project impacts.

Requested Changes to the Conditions of Certification for Air Quality

The PSA contains Air Quality Conditions of Certification that are based in part on the significance findings and analyses performed by Staff. Beacon's proposed changes to several Conditions are

presented below. A *rationale* is provided below the condition to explain why the specific changes are requested.

As a general comment, the number of air quality conditions (87 conditions) for BSEP, which generally has less than 5 tpy of non-fugitive emissions for all pollutants, does not seem commensurate with the fact that combined-cycle projects with over 100 tpy of emissions of several pollutants generally have about the same or fewer requirements. Beacon asks Staff to consider whether the number of requirements could be reduced to reflect the very low emissions expected from the Project.

- AQ-SC3** Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report that demonstrates compliance with the following mitigation measures for the purposes of ~~minimizing preventing all~~ fugitive dust plumes ~~due to construction activities~~ from leaving the project ~~site~~. Any deviation from the following mitigation measures shall require prior CPM notification and approval.
- A. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**. The frequency of watering can be reduced or eliminated during periods of precipitation.
 - B. No vehicle shall exceed 10 miles per hour within the construction site.
 - C. Visible speed limit signs shall be posted at the construction site entrances.
 - D. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.
 - E. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.
 - F. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.
 - G. All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the District.
 - H. Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.
 - I. All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.
 - J. At least the first 500 feet of any paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff resulting from the construction site activities is visible on the public paved roadways.
 - K. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds.

- L. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- M. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

Verification: The AQCMM shall provide the CPM a monthly compliance report to include:

- A. a summary of all actions taken to maintain compliance with this condition;
- B. copies of any complaints filed with the District in relation to project construction; and
- C. any other documentation deemed necessary by the District and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

RATIONALE

It will be impossible for Beacon to prevent dust plumes from leaving the site when construction activities occur near the site boundary. It is also unnecessary to prevent plumes from leaving the Project site as the residences are located more than a mile away and the dust plumes will dissipate quickly.

AQ-SC4

Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (1) within 100 feet upwind of any regularly occupied structures not owned by the project owner off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities ~~or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner~~ indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if Step 1, specified above, fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the specific construction activity causing the emissions if Step 2, specified above, fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes as described above in (1) and (2)

will not result upon restarting the shutdown source. The owner/operator may appeal to the District any directive from the AQCMM or Delegate to shut down an activity, if the shutdown shall go into effect within one hour of the original determination, unless overruled by the District before that time.

Verification: The AQCMM shall provide the CPM a monthly compliance report to include:

- A. a summary of all actions taken to maintain compliance with this condition;
- B. copies of any complaints filed with the District in relation to project construction; and
- C. any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

RATIONALE

The rationale here is the same as that provided for the revisions to AQ-SC3. It will be impossible for Beacon to prevent dust plumes from leaving the site when construction activities occur near the site boundaries. Control of plumes that could impact actual residential receptors should be sufficient.

AQ-SC6 The project owner shall use gasoline powered light trucks, equivalent of the Ford F150 model, for ~~parabolic mirror washing activities and~~ facility maintenance, except for welding operations, mirror washing or other activities requiring a larger vehicle. Only new trucks meeting California on-road vehicle emission standards shall be purchased for use at the site. In addition, ~~only electrical powered all-terrain vehicles only light duty vehicles~~ shall be used to support the maintenance crew within the facility.
Electric or alternative vehicle/fuel types may be allowed assuming that the emission profile for alternative fuel vehicles, including fugitive dust generation emissions, is comparable to the vehicles types identified above.

Verification: At least 60 days prior to the start commercial production, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site electric and fossil-fueled vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report.

RATIONALE

The hauling capacity of ½ ton trucks is not sufficient for some activities such as the welding rigs. Likewise, the use of 4,000 gallon water trucks that have been especially designed for mirror washing will be more efficient than using a smaller truck hauling a trailer. The smaller trucks could only carry about 1,000 gallons of water, and hence would need to make four times the number of trips to a central water supply area. The fugitive PM10 emissions from the 4,000 gallon water trucks are less than 1 tpy and would increase to 2.7 tpy with the use of the smaller trucks making 4 times as many trips. While it might be possible to install water piping throughout the solar field to deliver the deionized water to more locations and cut down on the number of trips, a piping system would be significantly more costly, would likely require some pumping, would not be as efficient and would only reduce PM10 emissions by less than 2 tpy. Likewise, past experience with using electric all terrain vehicles in the existing solar fields has shown that they need to be replaced

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and record keeping to document maximum daily emission rate) each day the source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 210.1 and 209)

Verification: As part of the Annual Compliance Report the project owner shall include information on operating emission rates to demonstrate compliance with this condition. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

RATIONALE

KCAPCD staff has provided revised limits, reviewed Beacon's information, and agrees with these corrections.

AQ-70 The project owner shall maintain **weekly**-VOC readings of bio-remediation area during any period it is operated **as required by an approved protocol**. The project owner shall provide protocol for VOC readings, soil acidity (pH), soil moisture content (% weight), soil temperature (°F), and Nutrient Ration (C:N:P) to be approved by District staff. (Rule 210.1)

Verification: The project owner shall provide a protocol for measuring bioremediation soil VOC content to the District for approval and the CPM for review prior to use of the bio-remediation operation area. The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

RATIONALE

The frequency of the reading should also be defined by the protocol, as weekly readings may not be necessary if only small amounts of contaminated soil are treated.

AQ-77 Emissions rate of each air contaminant from this unit shall not exceed the following emissions limits:
Volatile Organic Compounds (VOC): 0.10 lb/day
(as defined in Rule 210.1) 0.02 ton/yr
(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)
Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of three years. (Rules 209 and 210.1)

Verification: As part of the Annual Compliance Report the project owner shall include information **on operating emission rates that demonstrates that the bio-remediation area has been operated using good engineering practices. Such operation shall be deemed** to demonstrate compliance with this condition. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

RATIONALE

Demonstration of specific daily and annual emission rates for a bio-remediation area is infeasible and the District agrees that showing good housekeeping techniques have been applied will be sufficient to show compliance with this condition.

BIOLOGICAL RESOURCES

Recognizing the sensitivity of natural resources in the desert, Beacon worked diligently to select a location for its proposed solar project that would minimize biological impacts. The selected site for the BSEP is located on previously farmed lands that remain substantially disturbed today. The Plant Site would be located entirely within this disturbed area that is predominantly devoid of vegetation and does not provide suitable habitat for special status listed species.

Beacon has identified several areas of concern in the biological resources section of the PSA regarding Staff's interpretation of the level of significance of an impact, particularly with respect to vegetation, non-special status wildlife, and Waters of the State. Beacon has identified specific references within the Staff assessment that reflect potentially misinterpreted information and a number of discrepancies. In particular, with respect to the desert wash, Staff has taken the position that because the wash is a Water of the State, its removal and relocation will have significant biological impacts. There does not exist any substantial evidence, however, supporting a conclusion that the wash has biological functions such that its removal will have a substantial adverse impact on special status species, other wildlife species, or their habitat. Further, there is no basis in law or regulation supporting Staff's position that an impact to a Water of the State is a *per se* significant impact to biological resources under CEQA. As a result of these discrepancies and potential misinterpretations of information and significance standards, Beacon disagrees with some of Staff's conclusions regarding required mitigation. Beacon respectfully requests that Staff review the recommended changes and the rationale for the proposed revisions provided below, and reconsider the PSA's recommendations regarding significance of certain impacts and the required mitigation.

Requested Changes to the Conditions of Certification for Biological Resources

Beacon's proposed changes to several Conditions are presented below.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-7 The project owner shall develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and submit two copies of the proposed BRMIMP to the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate impact avoidance and minimization measures described in final versions of the Raven Management Plan, the Burrowing Owl Mitigation and Monitoring Plan, and the Closure Plan.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include the following:

1. all biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. all biological resources conditions of certification identified as necessary to avoid or mitigate impacts;
3. all biological resource mitigation, monitoring, and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Low-Effect Habitat Conservation Plan/Implementing Agreement (LEHCP/IA);
4. all sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;
5. all required mitigation measures for each sensitive biological resource;

6. a detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;
7. all locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
8. aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report;
9. duration for each type of monitoring and a description of monitoring methodologies and frequency;
10. performance standards to be used to help decide if/when proposed mitigation is or is not successful;
11. all performance standards and remedial measures to be implemented if performance standards are not met;
12. a discussion of biological resources-related facility closure measures including a description of funding mechanism(s);
13. a process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and
14. copies of all biological resources-related permits obtained.

Verification: The project owner shall submit the BRMIMP to the CPM at least 60 days prior to start of any project-related site disturbance activities. The CPM, in consultation with other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No ground disturbance may occur prior to the CPM's approval of the final BRMIMP.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with appropriate agencies to ensure no conflicts exist. Implementation of BRMIMP measures (construction activities that were monitored, species observed) will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying which items of the BRMIMP have been completed; a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases; and which mitigation and monitoring items are still outstanding.

RATIONALE

The project has qualified for and was approved for a federal incidental take permit and associated coverage under a Low Effect Habitat Conservation Plan (LEHCP), pursuant to Section 10 of the federal Endangered Species Act (ESA). The Applicant has prepared and submitted an LEHCP to the USFWS. An Implementing Agreement (IA) is not necessary under the LEHCP process.

IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-8

The project owner shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to biological resources:

1. Limit Disturbance Area. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities in consultation with the Designated Biologist. Spoils shall be stockpiled in disturbed areas lacking native vegetation and which do not provide habitat for special-status species. Parking areas, staging and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat. All disturbances, vehicles, and equipment shall be confined to the flagged areas.
2. Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the flagged impact area as described above. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g. new spur roads associated with both transmission line options) or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.
3. Minimize Traffic Impacts. Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour within the project area, on maintenance roads for linear facilities, or on access roads to the BSEP site.
4. Monitor During Construction. The Designated Biologist or Biological Monitor shall be present at the construction site during all project activities that have potential to disturb soil, vegetation, and wildlife. The biologist shall walk immediately ahead of equipment during brushing and grading activities that occur outside areas that have been fenced with tortoise exclusion fencing and cleared of tortoises.
5. Minimize Impacts of Transmission Lines, Roads, Staging Areas. Transmission lines, access roads, pulling sites, and storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) Suggested Practices for Avian Protection on Power Lines (APLIC 2006) and Mitigating Bird Collisions with Power Lines (APLIC 2004) to reduce the likelihood of large bird electrocutions and collisions.
6. Avoid Use of Toxic Substances. Road surfacing and sealants as well as soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.
7. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat.
8. Avoid Vehicle Impacts to Desert Tortoise. Parking and storage shall occur within the desert tortoise exclusion fencing to the extent feasible. ~~If a~~No vehicles or construction equipment ~~parks for longer than two minutes parked~~ outside the fenced area, will be moved prior to an inspection of the ground beneath the vehicle ~~shall be inspected~~ for the presence of desert tortoise ~~before it is moved~~. If a desert tortoise is observed, it will be left to move on its own. If it does not move within 15 minutes, a Biological Monitor may remove ~~and relocate~~ the animal to a safe location in accordance with the approved

~~Beacon Desert Tortoise Removal Plan, a copy of which is included as Attachment BIO-1 if temperatures are within the range described in the USFWS protocol (Desert Tortoise Council 1994).~~

9. Avoid Wildlife Pitfalls. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the permanently fenced area have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with tortoise-proof fencing. All trenches, bores, and other excavations outside the permanently fenced area shall be inspected periodically throughout and at the end of each workday by the Designated Biologist or a Biological Monitor. Should a tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall remove ~~and relocate~~ the individual to a safe location. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.
10. Avoid Entrapment of Desert Tortoise. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches above ground and within desert tortoise habitat (i.e., outside the permanently fenced area) for one or more ~~days~~/nights, shall be inspected for tortoises before the material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks. These materials would not need to be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed.
11. Minimize Standing Water. Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract desert tortoises and common ravens to construction sites. A Biological Monitor shall patrol these areas to ensure water does not puddle and attract desert tortoise, common ravens, and other wildlife to the site and shall take appropriate action to reduce water application where necessary.
12. Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the project Hazardous Materials Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil properly disposed of at a licensed facility. Servicing of construction equipment shall take place only at a designated area. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.
13. Worker Guidelines. During construction all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. Workers shall not feed wildlife or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.
14. Avoid Spread of Noxious Weeds. The project owner shall implement the following Best Management Practices during construction and operation to prevent the spread and propagation of noxious weeds:
Limit the size of any vegetation and/or ground disturbance to the absolute minimum and limit ingress and egress to defined routes; Prevent spread of non-native plants via vehicular sources by implementing Trackclean™ or other methods of vehicle cleaning for

vehicles coming and going from construction sites. Earth-moving equipment shall be cleaned prior to transport to the construction site; Use only weed-free straw, hay bales, and seed for erosion control and sediment barrier installations, and Avoid using invasive non-native species in landscaping plans and erosion control.

15. Implement Erosion Control Measures. Standard erosion control measures shall be implemented for all phases of construction and operation where sediment run-off from exposed slopes threatens to enter "Waters of the State". Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into the stream. All disturbed soils and roads within the project site shall be stabilized to reduce erosion potential, both during and following construction. Areas of disturbed soils (access and staging areas) with slopes toward a drainage shall be stabilized to reduce erosion potential.
16. Monitor Ground Disturbing Activities Prior to Site Mobilization. If ground-disturbing activities are required prior to site mobilization, such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

RATIONALE

The Plant Site does not include suitable desert tortoise habitat and no tortoises have been detected within the Plant Site during surveys conducted to date. Nevertheless, a clearance survey will be conducted on the Plant Site to insure no transient desert tortoises are present after installation of desert tortoise exclusionary fencing around the perimeter of the Plant Site. In addition, all burrows found within the fenced Plant Site will be inspected and collapsed after installation of the fencing and prior to initiation of ground disturbing activities. While the Applicant agrees to provide a Biological Monitor during ground disturbing activities after installation of the exclusionary fence, the Applicant does not believe it is appropriate or necessary to have a Biological Monitor precede all equipment operating activities because it is highly improbable that any desert tortoises will be present on the site. The proposed language change reduces the level of effort expected for construction phase monitoring within the Plant Site following completion of the desert tortoise exclusionary fence.

DESERT TORTOISE CLEARANCE SURVEYS AND FENCING

BIO-9 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid or minimize impacts to desert tortoise. Methods for clearance surveys, fence installation, tortoise handling, artificial burrow construction, egg handling and other procedures shall be consistent with those described in the Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999) or more current guidance provided by USFWS. The project owner shall also implement terms and conditions developed as part of the Section 10 Low-Effect Habitat Conservation Plan process with USFWS. These measures include, but are not limited to, the following:

1. Fence Installation. Prior to ground disturbance, the entire plant site (east of the railroad tracks) shall be fenced with permanent desert tortoise-proof fence. To avoid impacts to

desert tortoise during fence construction, the proposed fence alignment shall ~~be flagged and the alignment surveyed within 24 hours prior~~ be monitored during all fence installation activities by a Biological Monitor that is authorized to handle desert tortoises ~~to fence construction. Surveys shall be conducted by Designated Biologist using techniques approved by the USFWS and CDFG. Biological Monitors may assist the Designated Biologist under his or her supervision. These surveys shall provide 100 percent coverage of all areas to be disturbed during fence construction and an additional transect along both sides of the proposed fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 30 feet apart.~~ All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises. All burrows that would be disturbed by fence construction will be fully examined and collapsed to ensure that no tortoises are inside. Any tortoises found will be and handled in accordance with USFWS-approved protocol and moved per the Beacon Desert Tortoise Removal Plan.

- a. Timing, Supervision of Fence Installation. The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoises present.
 - b. Fence Material and Installation. The permanent tortoise exclusionary fencing shall consist of galvanized hard wire cloth 1 by 2-inch 4-em mesh sunk 15 cm into the ground, and between 46 to 61 cm above ground (USFWS 2008a, Appendix D).
 - c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. Gates will remain closed except during specific vehicle entry and ~~The gates~~ may be electronically activated to open and close immediately after vehicle(s) have entered or exited ~~to prevent extended periods with open gates, which might lead to a tortoise entering. Cattle grating shall be installed at the gated entries to discourage tortoises from gaining entry. No gates will remain open unless monitored to prevent tortoise entry.~~
 - d. Utility Corridor Fencing. Utility corridors and tower locations shall be temporarily fenced with tortoise exclusion fencing to prevent desert tortoise entry during construction. Temporary fencing must follow guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity.
 - e. Fence Inspections. Following installation of both the permanent site fencing and temporary fencing in the utility corridor, the fencing shall be inspected. Permanent fencing shall be inspected monthly and during/following all major rainfall events. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within two days of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing must be inspected weekly and, where drainages intersect the fencing, during and immediately following major rainfall events. All temporary fencing will be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, then the utility corridor or tower site will be inspected for tortoises.
2. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusion ~~ary fences~~ fencing around the Plant Site, all fenced areas shall be cleared of tortoises by the Designated Biologist, who may be assisted by Biological Monitors. A minimum of two

clearance surveys, with negative results, must be completed, and these must coincide with heightened desert tortoise activity from late March through May and during October. ~~In order to see the ground from different angles, the~~ The second clearance survey shall be walked at 90 degrees to the orientation of the first clearance survey.

3. ~~5.~~ Burrow Inspection. All potential desert tortoise burrows within the fenced area shall be searched for presence. ~~In some cases, a fiber optic scope may be needed to determine presence or absence within a deep burrow.~~ To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined. Tortoises excavated from burrows shall be relocated to unoccupied natural or artificial burrows a location immediately following excavation in an area approved by the Designated Biologist, using methods described in the approved Beacon Desert Tortoise Removal Plan.
4. ~~6.~~ Burrow Excavation. Burrows inhabited by tortoises shall be excavated by the Designated Biologist using hand tools, and then collapsed or blocked to prevent re-occupation. If excavated during May through July, the Designated Biologist shall search for desert tortoise nests/eggs, ~~which are typically located near the entrance to burrows.~~ All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist in accordance with the service-approved protocol (Desert Tortoise Council 1999) and per the approved Beacon Desert Tortoise Removal Plan.
- ~~3.~~ Relocation for Desert Tortoise West of SR 14. ~~If desert tortoises are detected during clearance surveys within the project impact area west of SR 14, the Designated Biologist shall move the tortoise the shortest possible distance, keeping it out of harm's way but still within its home range. Any relocation efforts shall be in accordance with techniques described in the Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999) or more current guidance on the USFWS website.~~
5. ~~4.~~ Translocation Removal Plan for Desert Tortoise East of SR 14. To address desert tortoise encountered during clearance surveys within the project impact area ~~east of SR 14 or at any time during project operations,~~ the project owner shall develop and implement a ~~desert~~ Desert tortoise Tortoise Translocation Removal Plan. The Translocation Removal Plan shall be ~~consistent with current USFWS approved guidelines, and shall be~~ approved by Energy Commission staff in consultation with USFWS and CDFG. The Translocation Removal Plan shall designate sites adjacent to the project area that a translocation site as close as possible to the project, and which provides suitable conditions for long-term survival of the ~~relocated removed~~ desert tortoise.
6. ~~7.~~ Monitoring During Clearing. Following ~~the desert~~ tortoise clearance and translocation removal, heavy equipment shall be allowed to enter the project site to perform earth work such as clearing, grubbing, leveling, and trenching. A Biological Monitor authorized to handle desert tortoises shall be onsite during monitor initial clearing and grading activities. ~~to find and move handle tortoises missed during the initial tortoise clearance survey process.~~ Should a desert tortoise be discovered, it shall be relocated removed as described in the approved Beacon Desert Tortoise Removal Plan. ~~Any pre-activity tortoise surveys for other construction areas shall be performed within 72 hours of ground disturbing activities.~~
7. ~~8.~~ Reporting. The Designated Biologist shall record the following information for any desert tortoises handled: a) the locations (narrative and maps) and dates of observation;

b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (~~i.e., identification numbers or marked lateral scutes~~); e) ambient temperature when handled and released; and f) digital photograph the carapace, plastron, and fourth costal scute; and (g) follow-up monitoring of each handled desert tortoise as described in the paragraph below. Desert tortoise removed from within project areas shall be temporarily marked for future identification as described in the Beacon Tortoise Removal Plan, described in Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999) or more current guidance on the USFWS website approved by the USFWS. Digital photographs of the carapace, plastron, and fourth costal scute shall be taken. ~~Scutes shall not be notched for identification.~~

Verification: Within 30 days of completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to the CPM, USFWS, and CDFG describing how mitigation measures described above have been satisfied. The report shall include the desert tortoise survey results, capture and release locations of any relocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above. This written report will identify which items of the Beacon Desert Tortoise Removal Plan have been completed, and a summary of all modifications to measures made during implementation.

Prior to publication of the Final Staff Assessment the project owner shall submit to Energy Commission Staff, USFWS and CDFG a draft ~~Translocation~~ Desert Tortoise Removal Plan. At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of ~~the Translocation~~ Removal Plan that has been approved by Energy Commission staff in consultation with USFWS and CDFG. The CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved ~~translocation~~ Removal Plan must be made only after approval by the Energy Commission staff, in consultation with USFWS and CDFG. The project owner shall notify the CPM no fewer than five (5) working days before implementing any CPM-approved modifications to the ~~Translocation~~ Removal Plan.

~~Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.~~

RATIONALE

Condition Point No. 1 & 2: A Biological Monitor authorized to handle desert tortoises will be present onsite during all fencing activities and will implement appropriate clearance measures. This is consistent with typical requirements for protection of the desert tortoise during fencing installation.

Condition Point No. 5 and 6 have been moved up and are now reflected as Condition Points Nos. 3 and No. 4.

Condition Point No. 3 & 4: Original Condition No. 3 was deleted and all removal activities have been combined into one modified measure (now Condition Point No.5). A translocation plan will not be necessary because any desert tortoises removed from the project area will still be within their home range. Removal procedures were provided previously on December 30, 2008. In addition, a more

detailed procedure, entitled the Beacon Desert Tortoise Removal Plan, is provided as Attachment BIO-1 to this comment letter.

Condition Point No. 6 (Original Condition Point No. 7) and Verification: Translocation is not proposed for the Project. The first sentence has been modified to reflect removal as described above under Condition Point No. 5. In addition, after completion of the desert tortoise clearance surveys and removal of any desert tortoise found in the project area, Biological Monitors should not be required inside desert tortoise exclusionary fencing except during ground disturbance activities (see response to BIO-8 above).

MOHAVE GROUND SQUIRREL CLEARANCE SURVEYS

BIO-10 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid or minimize impacts to Mohave ground squirrel. These measures include, ~~but are not limited to, the following:~~

1. Clearance Survey. After the installation of the exclusion fence and prior to any ground disturbance, the Designated Biologist(s) or Biological Monitors shall inspect and excavate all potential burrows within the Plant Site fenced area for Mohave ground squirrel in coordination with the desert tortoise burrow inspection and excavation. All excavations will be conducted by the Designated Biologist or Biological Monitor using hand tools, and burrows will then be collapsed or blocked to prevent re-occupation. In addition to preconstruction activities, a Biological Monitor will be onsite during ground disturbing activities to monitor construction activities. shall examine the area to be disturbed for Mohave ground squirrels and their burrows. The survey shall provide 100 percent coverage of the Project limits. The use of specialized equipment (e.g. fiber optics) may be necessary to thoroughly inspect all potential Mohave ground squirrel burrows. Potentially occupied burrows shall be fully excavated by hand by the Designated Biologist(s).
2. Translocation Plan Mohave Ground Squirrel Removal. ~~If Mohave ground squirrels are captured during the burrow search, they will be relocated by a qualified biologist to an adjacent offsite area with potential Mohave ground squirrel habitat. The project owner shall develop and implement a Mohave ground squirrel translocation plan to address the handling and disposition of any Mohave ground squirrels encountered during the clearance surveys. The Translocation Plan shall be approved by Energy Commission staff in consultation with CDFG. The Translocation Plan shall designate a translocation site as close as possible to the project, and which provides suitable conditions for long-term survival of the relocated Mohave ground squirrel.~~
3. Records of Capture. If Mohave ground squirrels are captured via trapping or burrow excavation, the Designated Biologist shall maintain a record of each Mohave ground squirrels handled, including: a) the locations (Global Positioning System [GPS] coordinates and maps) and time of capture and/or observation as well as release; b) sex; c) approximate age (adult/juvenile); d) weight; e) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and f) ambient temperature when handled and released.

Verification: Within 30 days of completion of Mohave ground squirrel ~~clearance surveys burrow inspections and excavations,~~ the Designated Biologist shall submit a report to the CPM and CDFG describing how mitigation measures described above have been satisfied. The report shall include the Mohave ground squirrel burrow survey results, capture and release locations of any relocated squirrels (if any), and any other information needed to demonstrate compliance with the measures described above.

~~Prior to publication of the Final Staff Assessment the project owner shall submit to Energy Commission Staff, USFWS and CDFG a draft Mohave Ground Squirrel Translocation Plan. At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of a Mohave Ground Squirrel Translocation Plan that has been approved by Energy Commission staff in consultation with USFWS and CDFG. The CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved translocation must be made only after approval the Energy Commission staff in consultation with CDFG. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Translocation Plan.~~

Within 30 days after initiation of translocation removal activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

RATIONALE

CEC Condition BIO-10 requires the implementation of clearance surveys and translocation protocols for the Mohave ground squirrel (MGS). The Plant Site does not include MGS habitat and is not anticipated to support populations of MGS. The Applicant has sought coverage through the state incidental take permit (ITP) process for the potential take of transient MGS that may occur temporarily on the Plant Site during construction and operation and has agreed to fully mitigate the potential loss of two transient MGS with the acquisition of 115 or 117.4 acres of offsite MGS habitat.

Condition BIO-10 requires the Applicant to conduct a clearance survey of the Plant Site subsequent to the construction of the desert tortoise exclusionary fence and prepare a translocation plan for any MGS found during the clearance survey. The Applicant has consulted with its MGS expert regarding this requirement and confirmed that this measure does not provide realistic mitigation, particularly given that the site does not support MGS habitat. In addition, the exclusionary fence is not intended to exclude MGS from the project site and any MGS that may be present are only anticipated to consist of transient individuals from surrounding areas with potential habitat, which is why the Applicant sought ITP authorization. The Applicant has modified this condition to more accurately reflect mitigation measures for the project area.

DESERT TORTOISE AND MOHAVE GROUND SQUIRREL COMPENSATORY MITIGATION

BIO-11 To fully mitigate for habitat loss and potential take of desert tortoise and Mohave ground squirrel, the project owner shall acquire, in fee or in easement, no less than 115 acres (for transmission line Option 1) or no less than 117.4 acres (for transmission line Option 2) of land suitable for these species and shall provide funding for the enhancement and long-term management of these compensation lands. The responsibilities for acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to Mojave Desert habitat conservation, subject to approval by the CPM, in consultation with CDFG and USFWS prior to land acquisition or management activities. If habitat disturbance exceeds that described in this analysis, the project owner shall be responsible for acquisition and management of additional compensation lands or additional funds required to compensate for any additional habitat disturbances. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat. The acquisition and management of compensation lands ~~shall~~ may include the following elements:

1. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:
 - a. be in the western Mojave Desert;
 - b. provide moderate to good quality habitat for Mohave ground squirrel and desert tortoise with capacity to improve in quality and value for these species;
 - c. be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;
 - d. be adjacent to, or in close enough proximity to, larger blocks of lands that are already protected such that there is connectivity between the acquired lands and the already protected lands;
 - e. be connected to, or in close proximity to, lands ~~currently~~ historically occupied by desert tortoise and Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;
 - f. not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;
 - g. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; and
 - h. not encumbered by easements or uses that would preclude fencing of the site or preclude management of the site for the primary benefit of the species for which mitigation lands were secured.
2. Review and Approval of Compensation Lands Prior to Acquisition. A minimum of ~~two~~ three months prior to acquisition of the property, the project owner, or a third-party approved by the CPM, in consultation with CDFG and USFWS, shall submit a formal acquisition proposal to the CPM, CDFG, and USFWS describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise and Mohave ground squirrel in relation to the criteria listed above. Approval from the CPM, in consultation with USFWS and CDFG, shall be required for acquisition of all parcels comprising the 115.0 acres (117.4 acres if Option 2 is adopted) in advance of purchase.
3. Mitigation Security for Compensation Lands and Avoidance/Minimization Measures. The project owner or an approved third party shall complete acquisition of the proposed compensation lands prior to initiating ground-disturbing project activities. If Security is provided, the project owner, or an approved third party, shall complete the proposed compensation lands acquisition within 12 months of the start of project ground-disturbing activities. The project owner shall also provide financial assurances to the CPM, with copies of the document(s) to CDFG and USFWS, to guarantee that an adequate level of funding is available to implement all impact avoidance, minimization, and compensation measures described in Conditions of Certification BIO-9 through BIO-12. Financial assurance shall be provided to the CPM in the form of an irrevocable letter of credit or another form of security ("Security") approved by the CPM, prior to initiating ground-disturbing project activities. If necessary to draw on these funds, such funds shall be used solely for implementation of the measures associated with the project. Prior to ~~submittal to the CPM initiation of ground-disturbance~~, the Security shall be approved by the CPM, in consultation with CDFG, to ensure funding in the amount of \$529,000.00 (if transmission line Option 1 is adopted) or \$540,040.00 (if transmission line Option 2 is adopted). These Security amounts were calculated as follows and may be

revised upon completion of a Property Analysis Record (PAR) or PAR-like analysis of the proposed compensation lands:

- a. land acquisition costs for compensation lands, calculated at \$3,000/acre for 115 acres (117.4 acres if Option 2 is adopted): \$345,000.00; or \$352,200.00 (if Option 2 is adopted);
- b. costs of enhancing compensation lands, calculated at \$250/acre for 115 acres (117.4 acres if Option 2 is adopted): \$28,750; or \$29,350 (if Option 2 is adopted); and
- c. costs of establishing an endowment for long-term management of compensation lands, calculated at \$1,350/acre for 115 acres (117.4 acres if Option 2 is adopted): \$155,250 or \$158,490 (if Option 2 is adopted).

~~If Security is provided, the project owner, or an approved third party, shall complete the proposed compensation lands acquisition within 12 months of the start of project ground-disturbing activities.~~

4. Compensation Lands Acquisition Conditions. The project owner shall comply with the following conditions relating to acquisition of compensation lands after the CPM, in consultation with CDFG and USFWS, has approved the proposed compensation lands and received Security, if any, as described above.
 - a. Preliminary Report: The project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary documents for the proposed 115 acres (117.4 acres if Option 2 is adopted [and/or a conservation easement]). All documents conveying or conserving compensation lands and all conditions of title/easement are subject to a field review and approval by the CPM, in consultation with CDFG and USFWS, California Department of General Services and, if applicable, the Fish and Game Commission and/or the Wildlife Conservation Board.
 - b. Title/Conveyance: The project owner shall transfer fee title or a conservation easement to the 115 acres (117.4 acres if Option 2 is adopted) of compensation lands to CDFG under terms approved by CDFG. Alternatively, a non-profit organization qualified to manage compensation lands (pursuant to California Government Code section 65965) and approved by CDFG and the CPM may hold fee title or a conservation easement over the habitat mitigation lands. If the approved non-profit organization holds title, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG. If the approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If a Security is provided, the project owner or an approved third party shall complete the proposed compensation lands acquisition within 12 months of the start of project ground-disturbing activities.
 - c. Enhancement Fund. The project owner shall fund the initial protection and enhancement of the 115 acres (117.4 acres if Option 2 is adopted) by providing the enhancement funds to the CDFG. Alternatively, a non-profit organization may hold the enhancement funds if they are qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if they meet the approval of CDFG and the CPM. If CDFG takes fee title to the compensation lands, the enhancement fund must go to CDFG.
 - d. Endowment Fund. ~~Prior to ground-disturbing project activities, t~~Ihe project owner shall provide to CDFG a capital endowment in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis that will be conducted for the

115 acres (117.4 acres if Option 2 is adopted) of compensation lands. Alternatively, a nonprofit organization may hold the endowment fees if they are qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if they meet the approval of CDFG and the CPM. If CDFG takes fee title to the compensation lands, the endowment must go to CDFG, where it will be held in the special deposit fund established pursuant to California Government Code section 16370. If the special deposit fund is not used to manage the endowment, the California Wildlife Foundation shall manage the endowment for CDFG and with CDFG guidance.

- e. The project owner and the CPM shall ensure that an agreement is in place with the endowment holder/manager to ensure the following conditions:
- Interest. Interest generated from the initial capital endowment shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action designed to protect or improve the habitat values of the compensation lands.
 - Withdrawal of Principal. The endowment principal shall not be drawn upon unless such withdrawal is deemed necessary by the CDFG or the approved third-party endowment manager to ensure the continued viability of the species on the 115 acres (117.4 acres if Option 2 is adopted). If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established pursuant to Government Code section 16370. If the special deposit fund is not used to manage the endowment, the California Wildlife Foundation will manage the endowment for CDFG with CDFG guidance.
 - Pooling Endowment Funds. CDFG, or a CPM- and CDFG-approved non-profit organization qualified to hold endowments pursuant to California Government Code section 65965, may pool the endowment with other endowments for the operation, management, and protection of the 115 acres (117.4 acres if Option 2 is adopted) for local populations of desert tortoise and Mohave ground squirrel. However, for reporting purposes, the endowment fund must be tracked and reported individually.
- f. Reimbursement Fund: The project owner shall provide reimbursement to the CDFG or approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other state agency reviews; and overhead related to providing compensation lands.

The project owner is responsible for all compensation lands acquisition/easement costs, including but not limited to, title and document review costs, as well as expenses incurred from other state agency reviews and overhead related to providing compensation lands to the department or approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures.

Verification: A minimum of three months prior to acquisition of the property, the project owner, or a third-party approved by the CPM, in consultation with CDFG and USFWS, shall submit a formal acquisition proposal to the CPM, CDFG, and USFWS describing the parcel(s) intended for purchase.

Draft agreements to delegate land acquisition to CDFG or an approved third party and agreements to manage compensation lands shall be submitted to Energy Commission staff for review and approval (in consultation with CDFG) prior to ~~publication of the Final Staff Assessment~~ land acquisition. Such agreements shall be mutually approved and executed at least 60 days prior to start of any project-related ground disturbance activities. The project owner shall provide written verification to the CPM that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient(s). Alternatively, before beginning project ground-disturbing activities, the project owner shall provide Security in accordance with this condition. Within 90 days after the land or easement purchase, as determined by the date on the title, the project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG, for the compensation lands and associated funds.

Within 90 days after completion of project construction, the project owner shall provide to the CPM verification that disturbance to Mojave creosote scrub habitat west of State Route 14 did not exceed 5.0 acres (for Option 1) or 5.8 acres (for Option 2), and that construction activities at the plant site and along the gas pipeline alignment did not result in impacts to Mojave creosote scrub habitat adjacent to work areas. If habitat disturbance exceeded that described in this analysis, the CPM shall notify the project owner of any additional funds required or lands that must be purchased to compensate for any additional habitat disturbances at the adjusted market value at the time of construction to acquire and manage habitat.

RATIONALE

The Applicant will seek to acquire lands that provide the best compensation for identified impacts. All relevant factors should be considered for the lands to be acquired; however, there may be a select number of variables that make a particular location a more redeeming option as mitigation land. Therefore, the Applicant requests that the “shall include” be replaced with “may include.”

The Applicant also requests that the language in Condition Point No. 1 be modified to “historically occupied” because it is not feasible to confirm current occupancy of compensation lands. To determine currently occupied lands, the Applicant would need to conduct intensive trapping studies on proposed mitigation lands, which is unreasonable and economically burdensome.

In addition, changes have been requested to accurately reflect more appropriate timing for the implementation of certain measures with respect to the proposed condition and project phase.

DESERT TORTOISE AND MOHAVE GROUND SQUIRREL COMPLIANCE VERIFICATION

BIO-12 The project owner shall provide staff, CDFG, and USFWS with reasonable access to the project site and mitigation lands under the control of the project owner and shall otherwise fully cooperate with the Energy Commission’s efforts to verify the project owner’s compliance with, or the effectiveness of, mitigation measures set forth in the conditions of certification. The project owner shall hold harmless the Designated Biologist, the Energy Commission and staff, and any other agencies with regulatory requirements addressed by the Energy Commission’s sole permitting authority for any costs the project owner incurs in complying with the management measures, including stop work orders issued by the CPM or the Designated Biologist. The Designated Biologist shall do all of the following:

1. Notification. Notify the CPM, CDFG, and USFWS at least 14 calendar days before initiating ground-disturbing activities. Immediately notify the CPM, CDFG, and USFWS in writing if the project owner is not in compliance with any conditions of certification, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods specified in the conditions of certification. CDFG shall be notified at their Central Region Headquarters Office, 1234 E. Shaw Avenue, Fresno, CA 93710; (559) 243-4005. USFWS shall be notified at their Ventura office at 2493 Portola Road, Suite B, Ventura, CA 93003; (805) 644-1766
2. Monitoring During Grading. Remain on site daily while grubbing and grading are taking place to avoid or minimize take of listed species, to check for compliance with all impact avoidance and minimization measures, and to check all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protected zones.
3. Fence Monitoring. During construction maintain and check desert tortoise exclusion fences on a daily basis to ensure the integrity of the fence is maintained. The Designated Biologist shall be present on site to monitor construction and determine fence placement during fence installation. Fence inspections shall occur at least once per month throughout the life of the project, and more frequently after storms or other events that might affect the integrity and function of desert tortoise exclusion fences. Fence repairs shall occur within ~~one~~ two days of detecting problems that affect the functioning of the desert tortoise exclusion fencing.
4. Monthly Compliance Inspections. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and submit a monthly compliance report to the CPM. All observations of listed species and their sign shall be reported to the Designated Biologist for inclusion in the monthly compliance report.
5. Annual Listed Species Status Report. No later than January 31 of every year the BSEP facility remains in operation, provide the CPM an annual Listed Species Status Report, which shall include, at a minimum: 1) a general description of the status of the project site and construction/operation activities, including actual or projected completion dates, if known; 2) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts, and 4) recommendations on how effectiveness of mitigation measures might be improved.
6. Final Listed Species Mitigation Report. No later than 45 days after initiation of project operation provide the CPM a Final Listed Species Mitigation Report that shall include, at a minimum: 1) a copy of the table in the BRMIMP with notes showing when each of the mitigation measures was implemented; 2) all available information about project-related incidental take of listed species; 3) information about other project impacts on the listed species; 4) construction dates; 5) an assessment of the effectiveness of conditions of certification in minimizing and compensating for project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the listed species; and 7) any other pertinent information, including the level of take of the listed species associated with the project.
7. Notification of Injured, Dead, or Relocated Listed Species. In the event of a sighting in an active construction area (e.g., with equipment, vehicles, or workers), injury, kill, or relocation of any listed species, the CPM, CDFG, and USFWS shall be notified

immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine if further actions are required to protect listed species. Written follow-up notification via FAX or electronic communication shall be submitted to these agencies within two calendar days of the incident and include the following information as relevant:

- a. Injured Desert Tortoise. If a desert tortoise is injured as a result of project-related activities during construction, the Designated Biologist shall immediately take it to a CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Any veterinarian bills for such injured animals shall be paid by the project owner. Following phone notification as required above, the CPM, CDFG, and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, location, circumstances of the incident, and the name of the facility where the animal was taken.
 - b. Desert Tortoise/Mohave Ground Squirrel Fatality. If a desert tortoise or Mohave ground squirrel is killed by project-related activities during construction or operation, or if a desert tortoise or Mohave ground squirrel is otherwise found dead, submit a written report with the same information as an injury report. These desert tortoises shall be salvaged according to guidelines described in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise (Berry 2001). The project owner shall pay to have the desert tortoises transported and necropsied. The report shall include the date and time of the finding or incident.
8. Stop Work Order. The CPM may issue the project owner a written stop work order to suspend any activity related to the construction or operation of the project to prevent or remedy a violation of one or more conditions of certification (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. The project owner shall comply with the stop work order immediately upon receipt thereof.

Verification: No later than two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a listed species, the project owner shall deliver to the CPM, CDFG, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, injury, kill, or relocation of a listed species, identifying who was notified and explaining when the incidents occurred. In the case of a sighting in an active construction area, the project owner shall, at the same time, submit a map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to the CPM, CDFG, and USFWS. No later than January 31 of every year the BSEP facility remains in operation, provide the CPM an annual Listed Species Status Report as described above, and a summary of desert tortoise exclusion fence inspections and repairs conducted in the course of the year.

RATIONALE

The timing for fence repair was clarified to be consistent with measure BIO-9. In addition, the Applicant would like to reiterate that subsequent to installation of the desert tortoise exclusionary fencing, a biologist should not be required to precede all grading or ground disturbance activities within the fenced Plant Site. The Applicant will have one biological monitor onsite during ground disturbing activities within the Plant Site to monitor the general area for biological compliance and be available to respond to potential species encounters.

EVAPORATION POND DESIGN, MONITORING, AND MANAGEMENT PLAN

BIO-14 The project owner shall design and implement an Evaporation Pond Design, Monitoring, and Management Plan (Evaporation Pond Plan) that meets the requirements of the USFWS, RWQCB, CDFG and CPM. The Evaporation Pond Plan shall include: a discussion of the objectives of the Evaporation Pond Plan; a description of project design features such as side slope specifications, freeboard and depth requirements; avian, pond, and water quality monitoring, management actions such as bird deterrence/hazing and water level management and triggers for those management actions; and reporting requirements. Evaporation pond monitoring and reporting shall continue for the life of the project.

Verification: At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM, USFWS, RWQCB, and CDFG with the final version of the Evaporation Pond Plan that has been reviewed and approved by the CPM in consultation with USFWS, RWQCB, and CDFG. The CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved Evaporation Pond Plan may be made by the CPM after consultation with USFWS, RWQCB, and CDFG. The project owner shall notify the CPM no less than five working days before implementing any CPM-approved modifications to the Evaporation Pond Plan.

Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval a report identifying which items of the Evaporation Pond Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and as-built drawings of the evaporation ponds.

RATIONALE

No comment on this condition. NOTE: Beacon is proposing a Partial Zero Liquid Waste Discharge (Partial-ZLD) system that would result in a smaller surface area of evaporation ponds. This alternative system is discussed in the alternatives section of this submittal. The same proposed minimization, avoidance, and mitigation measures are expected to apply to evaporation ponds regardless of size; however, this design modification is expected to reduce the level of potential impacts to birds from the evaporation ponds due to reduced potential exposure.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE MEASURES FOR MIGRATORY BIRDS

BIO-15 Pre-construction nest surveys shall be conducted if construction activities will occur from February 1 through August 1. The Designated Biologist or Biological Monitor shall perform surveys in accordance with the following guidelines:

1. Surveys shall cover all potential nesting habitat in the project site and within 500 feet of the boundaries of the plant site and linear facilities;
2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys needs to be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks in any given area, an interval during which birds may establish a nesting territory and initiate egg laying and incubation;
3. If active nests are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFG and USFWS) and monitoring plan shall be developed. Nest locations shall be mapped using GPS technology and submitted, along with a weekly report stating the survey results, to the CPM; and

4. The Designated Biologist shall monitor the nest until he or she determines that nestlings have fledged and dispersed; activities that might, in the opinion of the Designated Biologist, disturb nesting activities, shall be prohibited within the buffer zone until such a determination is made.

Verification: At least 10 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed. If active nests are detected during the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest.

RATIONALE

No changes are proposed for this condition; however, the Applicant would like to reiterate that the project would not result in significant impacts to migratory birds. Because no significant impacts will occur to migratory birds, mitigation measures are not required to reduce any significant impacts to "less than significant."

AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-16 To avoid direct impacts to American badgers and desert kit fox, pre-construction surveys shall be conducted for these species concurrent with the desert tortoise clearance surveys. Surveys shall be conducted as described below:
Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the project area, including areas within 250 feet of all ~~project facilities~~, utility corridors, and access roads. If dens are detected each den shall be classified as inactive, potentially active, or definitely active.
Inactive dens shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox. Potentially and definitely active dens shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den.

Verification: The project owner shall submit a report to the CPM and CDFG ~~at least within 30 days prior to the start of any project-related site disturbance activities that describes of completion of when~~ badger and kit fox surveys ~~were completed, observations, mitigation measures implemented, and the results of the mitigation.~~

RATIONALE

The Applicant would like to reiterate the previous clarification that the requested surveys are not independent of DT clearance surveys. In addition, this understanding needs to be consistent with the timing in the verification, to make sure that the requirement to submit survey results 30 days prior to site

disturbance does not prevent the Applicant from conducting the requested surveys as part of the DT clearance surveys. As the condition is currently written, surveys for the kit fox and badger would be triggered by fence installation, which would occur prior to desert tortoise clearance surveys.

BURROWING OWL IMPACT AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

BIO-17 The project owner shall implement the following measures to avoid and offset impacts to burrowing owls:

1. Artificial Burrow Installation. ~~At least one year prior to construction,~~ Prior to any ground disturbing activities, the project owner shall install four artificial burrows, or at least two burrows for each owl displaced by the project, in the proposed ~~translocation~~ relocation area, a ~~6-acre area within a~~ 14.39-acre parcel owned by Beacon Solar, LLC, (APN 469-14-011). Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 1995). The Designated Biologist shall survey the site selected for artificial burrow construction to verify that such construction will not affect desert tortoise or Mohave ground squirrel. The design of the burrows shall be approved by the CPM in consultation with CDFG and USFWS. The Designated Biologist shall survey the ~~translocation-relocation site for one year following completion of the passive relocation effort at least monthly~~ relocation site for one year following completion of the passive relocation effort at least monthly to assess use of the artificial burrows by owls. The surveys shall follow the Phase II and Phase III Burrowing Owl Consortium Guideline protocols. ~~, s-~~ The project owner will conduct ongoing maintenance and monitoring of the 6-acre relocation area for exotic weed control starting upon completion of artificial burrow construction and continuing for at least five years.
2. Protect Translocation-Relocation Area in Perpetuity. The project owner shall provide a mechanism to protect 6 acres of the 14.39-acre ~~translocation relocation~~ relocation area in perpetuity as habitat for burrowing owls, either in fee title or as a conservation easement-deed restriction. ~~The terms and conditions of this acquisition or easement shall be as described in BIO-11.~~
3. Pre-Construction Surveys. Concurrent with desert tortoise clearance surveys, the Designated Biologist shall conduct pre-construction surveys for burrowing owls within the project site and along all linear facilities in accordance with CDFG guidelines (California Burrowing Owl Consortium 1993). If burrowing owls are detected within the impact area or within 500 feet of any proposed construction activities, the Designated Biologist shall prepare a Burrowing Owl Monitoring and Mitigation Plan in consultation with CDFG. This plan shall include detailed measures to avoid and minimize impacts to burrowing owls in and near the construction areas and shall be consistent with CDFG guidance (CDFG 1995).
4. Acquire 20 Acres of Burrowing Owl Habitat. The project owner shall acquire, in fee or in easement, 20 acres of land suitable to support a resident population of burrowing owls and shall provide funding for the enhancement and long-term management of these compensation lands. The responsibilities for acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to Mojave Desert habitat conservation, subject to approval by the CPM, in consultation with CDFG and USFWS prior to land acquisition or management activities. ~~Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat. Agreements to delegate land acquisition to CDFG or an approved~~

~~third party and to manage compensation lands shall be implemented within 12 months of the Energy Commission's decision.~~

- a. Burrowing Owl Mitigation Criteria. ~~The terms and conditions of this acquisition or easement shall be as described in BIO-11, with the additional criteria to include: 1) the 20 acres of mitigation land must provide suitable habitat for burrowing owls, and 2) the acquisition lands must either currently support burrowing owls or be no farther than 5 miles from an active burrowing owl nesting territory.~~ The conservation acreage must provide suitable habitat for burrowing owls. The 20 acres of burrowing owl mitigation lands may be included with the 115 acres (117.4 acres for Option 2) of desert tortoise and Mohave ground squirrel mitigation lands ONLY if these two burrowing owl criteria are met.
- b. Security. If the 20 acres of burrowing owl mitigation land is separate from the 115 acres (117.4 for Option 2), the project owner or an approved third party shall complete acquisition of the proposed compensation lands prior to initiating ground-disturbing project activities. Alternatively, financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating ground-disturbing project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG, to ensure funding in an amount determined by a Property Analysis Record (PAR) or PAR-like analysis of the proposed compensation lands.

Verification: ~~At least six months prior to initiation of ground-disturbing construction activities~~ Within 30 days of artificial burrow construction the project owner shall provide a report to CDFG, USFWS, and the CPM documenting completion ~~of artificial burrow construction. Every month thereafter for a period of five years~~ † The Designated Biologist shall submit a report describing use of the passive relocation site by burrowing owl following completion the Phase II and III burrowing owl surveys.

At least 30 days prior to the start of any project-related site disturbance activities the Designated Biologist shall provide to CDFG, USFWS, and the CPM the Burrowing Owl Monitoring and Mitigation Plan described above and shall report monthly to CDFG, USFWS, and the CPM for the duration of construction on the implementation of avoidance and minimization measures described in the plan. Within 30 days after completion of construction the project owner shall provide to the CDFG and CPM a written construction termination report identifying how measures have been completed.

Prior to start of any project-related ground disturbance activities the project owner shall provide written verification to the CPM that the 20 acres of compensation lands or conservation easements have been acquired and recorded in favor of the approved easement holder(s). Alternatively, before beginning project ground-disturbing activities, the project owner shall provide Security to the CPM in accordance with this condition. Within 90 days of the land or easement purchase, as determined by the date on the title, the project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG, for the compensation lands and associated funds.

RATIONALE

It is unreasonable to expect artificial burrows to be installed at least one year prior to construction. Burrows will be installed per recommendation by the Designated Biologist and the BUOW consortium

guidelines and burrow installation and owl relocation will be summarized and scheduled in the relocation plan.

The conservation area was proposed to be surveyed for one year following installation, during spring and winter seasons, to evaluate use of artificial burrows. Surveys will follow the protocol survey methodology for surveys (to include Phase II and III) identified in the Burrowing Owl Consortium Guidelines. In addition, Beacon will conduct ongoing maintenance and monitoring of the conservation area for exotic weed control only for a 5-year period following construction of the burrows.

In addition, the PSA indicated that the 6-acre relocation area would be held in a conservation easement and managed by a third party; however, the Applicant did not agree to have a third party establish and manage a conservation easement for the 6-acre burrowing owl passive relocation area. The Applicant has agreed to place a permanent deed restriction on the 6-acre passive relocation area and will only name a third party conservation organization to manage the area in the event that the Applicant does not properly manage the site. The Applicant has agreed to define the management measures proposed for the 6-acre passive relocation area and the criteria under which management may be deemed unacceptable and would trigger transfer of management to a third-party beneficiary. A summary of these conditions is provided as an attachment to this comment letter, Attachment BIO-2, Burrowing Owl Passive Relocation Area Management Plan.

STREAMBED IMPACT MINIMIZATION AND COMPENSATION MEASURES

BIO-18 The project owner shall prepare and implement a Desert Wash Mitigation and Monitoring Plan (Plan) to compensate for permanent impacts to 10,900 feet of Pine Tree Creek (loss of 14.96 acres of state waters) and 2,150 feet of an unnamed desert wash (loss of 1.04 acres of state waters). The overall objectives of the Plan shall be to replicate the hydrological and biological functions of the drainages that will be eliminated by the project. The specific elements of the Plan cannot be developed until the channel design and bank stabilization methods have been finalized, which in turn depends on the results of hydrological and hydraulic studies currently underway. The project owner shall implement the following measures:

1. Proposed Channel Requirements: The proposed channel design shall address at least the following requirements:
 - a. The proposed channel shall be designed to be geomorphically **stable equivalent to a typical desert wash system** and to maintain existing hydrological connections and levels of sediment transport;
 - b. The channel stabilization approach shall include bioengineering methods using native plant species **to the extent feasible** for bank protection if the hydraulic analysis of the channel indicates that such methods are viable;
 - c. **The proposed channel shall be designed to result in 4.8 acres of vegetated desert wash habitat as mitigation at a 2:1 ratio for impacts to the 2.4 acres of existing vegetated desert wash scrub, in addition to 13.6 acres of unvegetated channel to mitigate at 1:1 for impacts to existing unvegetated waters of the state;**
 - d. The proposed channel design shall provide conditions that would support recruitment and maintenance of native vegetation, provide wildlife habitat, and maintain the biological functions and values of a natural desert wash ecosystem;

- e. The proposed channel shall be designed, constructed and maintained such that it would not create a movement barrier or hazard for desert tortoise or other wildlife; and
 - f. Monitoring and maintenance of the channel and mitigation/revegetation areas shall continue for the life of the project.
2. Review and Submittal of Plan: Prior to ~~any ground disturbance activities in waters of the State, publication of the Final Staff Assessment~~ the project owner shall submit to Energy Commission Staff and CDFG a draft Desert Wash Mitigation and Monitoring Plan that incorporates the final channel design, bank stabilization recommendations and proposed maintenance.
 3. Equipment Laydown Plan: The project owner shall develop an ~~an~~ Storm Water Pollution Prevention Plan for construction activities that includes an engineered plan for the proposed equipment laydown area within the existing wash which describes protective structures, procedures for moving equipment, fuels and materials, and plan for conveyance of stormflows, during a rainfall event. Prior to initiation of any project activities in jurisdictional areas, and at least no later than 3060 days after publication of the Energy Commission Decision prior to ground disturbing activities, the project owner shall submit this plan for review and approval by the CPM in consultation with CDFG.
 4. Right of Access and Review for Compliance Monitoring: The CPM reserves the right to enter the project site or allow CDFG to enter the project site at any time to ensure compliance with these conditions. The project owner herein grants to the CPM and to CDFG employees and/or their representatives the right to enter the project site at any time, to ensure compliance with the terms and conditions and/or to determine the impacts of storm events, maintenance activities, or other actions that might affect the restoration and revegetation efforts. The CPM and CDFG may, at the CPM's discretion, review relevant documents maintained by the operator, interview the operator's employees and agents, inspect the work site, and take other actions to assess compliance with or effectiveness of mitigation measures.
 5. Security for Implementation of Mitigation: A security in the form of an irrevocable letter of credit, pledged savings account, or certificate of deposit for the amount of all mitigation measures pursuant to this condition of certification shall be submitted to, and approved by, the CPM, in consultation with CDFG, prior to commencing project activities within waters of the state. ~~This amount shall be based on an estimate that reflects all costs associated with creating the engineered channel, and shall be submitted to CDFG for review and to the CPM for approval within 60 days of the Energy Commission Decision's publication and prior to commencing project activities within waters of the state.~~ The security shall be approved by the CPM, in consultation with CDFG's legal advisors, prior to its execution, and shall allow the CPM at its discretion to recover funds immediately if the CPM, in consultation with CDFG, determines there has been a default.
 6. Reporting of Special-Status Species: If any special-status species are observed on or in proximity to the project site, or during project surveys, the project owner shall submit California Natural Diversity Data Base (CNDDDB) forms and maps to the CNDDDB within five working days of the sightings and provide the regional CDFG office with copies of the CNDDDB forms and survey maps. The CNDDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five days to: California Department of Fish and Game, Natural Diversity Data Base, 1807 13th

Street, Suite 202, Sacramento, CA 95814, (916) 324-3812. A copy of this information shall also be mailed within five days to CDFG and the CPM.

7. Notification: The project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of project activities in jurisdictional areas as noted and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM and CDFG of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of a proposed project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed project. The notifying report shall be provided to the CPM and CDFG no later than seven days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project as defined below. A copy of the notifying change of conditions report shall be included in the annual reports.
 - a. Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.
 - b. Physical Conditions: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream.
 - c. Legal Conditions: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.
8. Code of Regulations. The project owner shall provide a copy of the Energy Commission Decision to all contractors, subcontractors, and the applicant's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the project owner and the CPM, if the CPM in consultation with CDFG, determines that the project owner has breached any of the terms or conditions or for other reasons, including but not limited to the following:
 - a. The information provided by the applicant regarding streambed alteration is incomplete or inaccurate;
 - b. New information becomes available that was not known to it in preparing the terms and conditions;
 - c. The project or project activities as described in the Final Staff Assessment have changed; or

- d. The conditions affecting biological resources changed or the CPM, in consultation with CDFG, determines that project activities will result in a substantial adverse effect on the environment.
9. Stop Work Provisions: The following provisions are not subject to amendment or arbitration. ~~The CPM CDFG~~ may issue a stop work order at any time ~~in consultation with the CPM~~ if ~~the CPM CDFG~~ determines that the project owner or any person acting on its behalf, including its agents, officers, and employees, agents, representatives, or contractors and subcontractors, is not in compliance with these terms and conditions, as provided herein.
- a. The CPM shall, in advance, provide the project owner written notice that it intends to suspend work. The notice shall state the reasons for the proposed suspension and provide the project owner an opportunity to correct any deficiency. In the interim, the project owner shall comply with any instructions in the notice. Within seven days of receiving a suspension notice, the project owner shall notify CDFG and the CPM in writing by certified or registered mail either that it will correct any deficiency, and state how it intends to do so, or that it objects to the suspension, and state the reasons for the objection.
- b. If the project owner notifies the CPM ~~and CDFG~~ that it will correct the deficiencies identified in the suspension notice, within seven days of receiving the project owner's response, the CPM, ~~in consultation with CDFG~~, shall direct the project owner verbally or in writing on how to proceed to correct the deficiencies and the date by which the deficiencies must be corrected.
- c. If the CPM, ~~in consultation with CDFG~~, determines ~~in consultation with the CPM~~ that the deficiencies have been corrected in accordance with its instructions to the project owner, the CPM shall inform the project owner in writing that it no longer intends to suspend, in which case the project owner may restart any ceased activity.
- d. If the CPM determines that the deficiencies have not been corrected in accordance with its instructions to the project owner, the CPM shall consult with the project owner ~~CDFG~~ to determine further actions.
- e. If the project owner notifies the CPM that it objects to the suspension, within 14 days of receiving the project owner's response, the CPM shall notify the project owner in writing of its decision regarding the proposed suspension.
- f. If the CPM, ~~in consultation with CDFG~~, decides not to suspend, the CPM, ~~in consultation with CDFG~~, shall provide a scope of work to correct the deficiencies.
- g. After correcting the deficiencies and receiving the CPM's approval to proceed with the original scope, the project owner may restart any ceased activity.
- h. If the CPM, ~~in consultation with CDFG~~, decides instead to suspend, the project owner shall cease all work immediately upon receipt of the decision, unless ~~CDFG and~~ the CPM specifies otherwise.
10. Construction Schedule: Pine Tree Creek and the unnamed desert wash shall not be altered until the new channel is constructed and ready to accept stormwater flows.
11. Best Management Practices: The applicant shall also comply with the following conditions:
- a. The project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter a lake or flowing stream or be placed in locations that may be subjected to high storm flows.

- b. The project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the operator to ensure compliance.
 - c. Spoil sites shall not be located within a drainage or locations that may be subjected to high storm flows, where spoil shall be washed back into a drainage or lake.
 - d. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from project-related activities, shall be prevented from contaminating the soil and/or entering waters of the state. These materials, placed within or where they may enter a drainage or lake, by project owner or any party working under contract or with the permission of the project owner shall be removed immediately.
 - e. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the state.
 - f. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any drainage.
 - g. No equipment maintenance shall occur within or near any stream channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.
12. Acquire Off-Site Desert Wash: The project owner shall acquire, in fee or in easement, ~~a parcel of~~ land that includes ~~a at least 16 acres of~~ desert wash ~~with at least 16 acres of~~ state jurisdictional waters if onsite mitigation is determined to be infeasible at any time prior to or during construction or unsuccessful as determined by the success criteria defined in the mitigation plan. The responsibilities for acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to Mojave Desert habitat conservation, subject to approval by the CPM, in consultation with CDFG and RWQCB prior to land acquisition or management activities. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat. ~~Agreements to delegate land acquisition to CDFG or an approved third party and to manage compensation lands shall be implemented within 12 months of the Energy Commission's decision.~~ The terms and conditions of this acquisition or easement shall be as described in BIO-11, with the additional criteria that the desert wash mitigation lands: 1) include at least 16 acres of state jurisdictional waters; 2) be characterized by similar soil permeability and hydrological and biological functions as the impacted wash; and 3) be within the same watershed as the impacted wash. The desert wash mitigation lands may be included with the 115 acres (117.4 acres for Option 2) of desert tortoise and Mohave ground squirrel mitigation lands ONLY if the above three criteria are met.

Verification: ~~No fewer than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall implement the mitigation measures described above.~~ No fewer than 30 days prior to the start of work potentially affecting waters of the state, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management

practices will be implemented and provide a discussion of work in waters of the state in Compliance Reports for the duration of the project. Compliance reports shall be monthly for the first **five years** following construction of the re-routed wash, and **annually** thereafter ~~shall be submitted every six months~~. No fewer than 30 days prior to the start of work potentially affecting waters of the state, ~~and no later than 60 days after publication of the Energy Commission Decision~~ the project owner shall submit a final Desert Wash Mitigation and Monitoring Plan that has been reviewed and approved by the CPM in consultation with CDFG.

RATIONALE

References to desert wash scrub habitat in Pine Tree Creek and the unnamed dry wash need to accurately reflect the amount of vegetation in those two washes. Not all 60 acres of desert wash scrub habitat on the Project site is located within State jurisdictional areas. A total of 16.0 acres of Waters of the State are present onsite. Within the 16.0 acres of Waters of the State, 2.4 acres are vegetated desert scrub habitat. The remaining 13.6 acres are unvegetated waters.

The significance criteria used in the PSA suggest a significant impact exists if there is a substantial adverse biological impact resulting from rerouting Pine Tree Creek and the unnamed desert wash. The Applicant does not concur that there is a substantial adverse biological impact from loss of the rerouted washes. There is a recognized impact to the hydrological function of the washes; however, the washes are substantially degraded and consist of sparse, highly disturbed habitat resulting from historical agricultural operations in the area that covered much of the wash area. Accordingly, there does not appear to be any substantial evidence in the record supporting a conclusion that the existing wash presently has biological functions, such that its removal will have a significant adverse effect on biological resources. Because there is no biological evidence to suggest that biological impacts to the washes are substantial, mitigation for replacing biological functions and values should not be required.

At times, the PSA appears to be taking the position that any impact to the wash, because it is a Water of the State, is a per se significant impact. This position is not supported in the law. For instance, on page 4.2-24 of the PSA, Staff asserts that “permanent loss of 16 acres of jurisdictional state waters and 13,050 linear feet of desert wash is considered a significant impact according to CEQA guidelines,” but the particular guidelines are not cited, nor can Beacon find any guidelines supporting this assertion. In the event that Beacon overlooked some applicable law, ordinance, or regulation that authorizes such a significance standard, Beacon requests that Staff provide the(se) citation(s).

Through BIO 18, Staff is requiring Beacon to undertake mitigation measures that Staff ostensibly believes would lessen the impacts to biological resources caused by the removal of the desert wash. However, nowhere in the PSA does Staff articulate what those impacts are. Without a clear identification of the purported substantial adverse impacts, it cannot be determined what mitigation measures will be effective in lessening those impacts. Beacon respectfully reiterates its position that there is no substantial evidence in the record to support a finding that rerouting the wash will have a significant impact on biological resources because the wash currently has limited biological function and does not support special status species, substantial populations of wildlife, or wildlife habitat. At the PSA Workshop, Staff at certain times asserted that the biological value of the wash was not in its present state, but rather in its potential to support biological resources in the indeterminate future if it were left untouched. In essence, Staff is asserting that the project would be disrupting the wash’s “recovery potential” and is requiring mitigation for this lost potential. This position is legally insupportable. Section 15126.2 of the CEQA Guidelines provides that when assessing the impact of a proposed project, the lead agency “should

normally limit its examination to changes in the existing physical conditions in the affected area as they exist . . . at the time environmental analysis is commenced.” 14 C.C.R. § 15126.2; see also County of Amador v. El Dorado County Water Agency (1999) 76 Cal.App.4th 931, 952; (an “EIR must focus on impacts to the existing environment, not hypothetical situations.”); Riverwatch v. County of San Diego (1999) 76 Cal.App.4th 1428, 1451-53.

*Further, to address comments that were made at the PSA Workshop, the fact that CDFG may require a Streambed Alteration Agreement (SAA) for changes to the wash under Fish & Game Code § 1603 does not mean that rerouting the washes will have significant impacts to biological resources for purposes of CEQA. CDFG is compelled to require a SAA whenever a proposed activity **may** have a substantial adverse affect on a fish or wildlife resource. Fish & Game Code § 1603(a). The subsequent analysis determines whether a substantial adverse impact **would** in fact occur from the proposed action. Therefore, requiring an SAA simply means the impacts of the work to the streambed need to be fully evaluated in order to comport with the requirements of the Fish & Game Code, not that a per se adverse impact exists under CEQA.*

The proposed mitigation as described in the current proposal by the Applicant (in the Desert Wash Mitigation and Monitoring Plan (Mitigation Plan) and subsequent success criteria) reflects an approach to achieve appropriate mitigation for a highly disturbed wash system. Staff has not established that the biological functions are such that additional mitigation is necessary beyond what has been proposed by the Applicant. The Applicant’s proposed Mitigation Plan was reviewed with CDFG during a field visit with Julie Means on June 12, 2008. This collaboration and concurrence included the monitoring approach for the mitigation plan. The approach was discussed at length with the CDFG during ongoing discussions on appropriate mitigation for impacts to Waters of the State.

The proposed design for the rerouted washes is in the process of being analyzed at greater detail in response to concerns raised by Staff regarding potential design deficiencies. Both hydrologic and hydraulics models are being used to more accurately assess existing conditions and proposed conditions to facilitate a successful design and achieve replacement functions and values equivalent to or better than the existing desert wash. The mitigation plan will be commensurate with the level of effort required to mitigate for impacts to Waters of the State.

Condition Point No. 4. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared to comply with the National Pollutant Discharge Elimination System (NPDES) requirements for construction activities. The SWPPP will include detailed discussion of best management practices (BMPs) to protect Waters of the State during construction activities. A separate plan for the washes is not recommended as it adds confusion as to the guiding document in implementation of appropriate mitigation measures and potential inconsistencies in proposed management practices. The requested information will be provided as part of the SWPPP.

Condition Point No. 5. The project owner is required in Condition Point No.10 to construct the rerouted wash prior to removal of the existing washes. Because the rerouted wash must be constructed prior to impacts to the existing washes, basing the value of a security on total costs to construct the engineered channel is unnecessary and excessive.

Condition Point No. 6 and 8. The Applicant does not have proposed changes to these points in this condition; however, they appear to be more appropriate in a different section.

Condition Point No. 12. The Applicant has not proposed to acquire offsite lands for mitigation because mitigation is being implemented onsite. The Applicant has acknowledged that offsite land being acquired for impacts to special status species and habitat may include wash habitat; however, it is not currently being acquired for the purpose of mitigating impacts to Waters of the State. Offsite mitigation should be considered an alternative for onsite mitigation, but should not be an additional condition.

Other General Comments

Significance Determinations

Several paragraphs in the Staff's analysis suggest that there are direct impacts to various biological resources for which proposed mitigation measures reduce impacts to a less than significant level; however, the Applicant does not agree that there are significant impacts in these areas from the proposed project. These impacts include impacts to vegetation and non-special status wildlife during construction (PSA Biological Analysis page 4.2-23), nesting birds (PSA Biological Analysis 4.2-29), and impacts from noxious weeds (PSA Biological Analysis page 4.2-24). There are no identified significant impacts to vegetation or non-special status wildlife, nesting birds, or from noxious weeds from the Project. Mitigation measures for these potential impacts are proposed by Staff to reduce impacts to a less than significant impact. It is requested that references to these impacts accurately reflect the current less than significant impact and not imply that mitigation measures are required to reduce significant impacts "...to less than significant levels..." Rather, the measures are intended to merely further reduce impacts.

Mohave Ground Squirrel and Desert Tortoise Mitigation

The Project is seeking incidental take authorization for incidental take of MGS and desert tortoise, including (1) loss of habitat and individuals west of SR-14 and (2) for incidental take of two transient individuals of each species on the Plant Site. This is not reflected in the language provided in the PSA (page 4.2-31 and 4.2-34). The language needs to be clear that the compensation acreage to be acquired compensates for habitat and the take of MGS and desert tortoise for the area west of SR-14, and for take of two transient MGS and desert tortoise on the Plant Site, during construction and operation.

REROUTED WASH – DESIGN STATUS

The Project Applicant has met with the CEC to discuss concerns regarding the level of detail provided on the design of the rerouted wash and analysis of the existing and proposed hydrology and flooding conditions at the Project Site. As a result of discussions with the CEC, additional analysis of hydrology and drainage at the Plant Site has been initiated to better evaluate existing and proposed conditions. The analyses being conducted include the following elements:

- New aerial topography of surrounding off-site lands to extend to appropriate reference reaches upgradient and down-gradient from the Plant Site.
- Hydrology and hydraulics analyses of existing conditions including Kern County hydrology guidelines, HEC-RAS, MIKE 21, and FLO-2D models to more accurately characterize existing site conditions and develop a corrected effective map for preparation of the FEMA CLOMR application submittal.
- Hydrology and hydraulics analyses of the current proposed channel as included in project submittals to date using Kern County hydrology guidelines and HEC-RAS to evaluate proposed conditions on downstream properties and channel stability.
- Development of a modified channel design to accommodate potential changes to the rerouted wash necessary to control channel erosion/scour, control flow velocities and depths, and minimize potential increased flooding on offsite properties.
- Hydrology and hydraulics analyses of a modified channel design including Kern County hydrology guidelines and HEC-RAS to address offsite flooding and channel stabilization conditions. If necessary, based on HEC-RAS results and best-professional judgment, additional models (MIKE 21 and FLO-2D) may be utilized to evaluate proposed site conditions (flow rates and depths).
- Scour analyses and associated channel stabilization conditions to facilitate a design that will provide a dynamic wash system that successfully mitigates for loss of the functions and values of the existing washes.

The information contained in these analyses will be discussed with the CEC in mid-May and ultimately consolidated into a site drainage study that presents the results and recommendations resulting from the detailed evaluation. This information will also be used to prepare and submit the CLOMR application to FEMA.

Upon completion of the redesign, the mitigation plan will also be updated to reflect revisions to the rerouted wash. The goal of onsite mitigation is being incorporated into the analysis and redesign of the wash by including an integrated approach in developing design recommendations.

ATTACHMENT BIO-1

BEACON SOLAR ENERGY PROJECT DESERT TORTOISE REMOVAL PLAN

Alice E. Karl, Ph.D.

April 2009

1.0 Background

Based on the quality of the vegetation cover and the 2007 survey results (EDAW 2007 and Beacon Solar, LLC, 2008), it is anticipated that no or very few desert tortoises will require removal from the Beacon Solar Energy Project (“Beacon” or “Project”) Plant Site, and that a few tortoises may need to be removed from harm’s way on the utility construction sites. For both the Plant Site and utilities, it is anticipated that any tortoises removed would not be “translocated” or “relocated” in the biological sense of putting an animal in a location outside its home range. Instead, any tortoise would simply be removed to another part of its home range. For instance, while unlikely, any tortoises found on the Plant Site probably would be near the site’s border abutting native vegetation, either travelling in the open or associated with the poor quality shrub vegetation on the site (i.e., the northwestern area or the extreme southern extension of the wash). A tortoise found in these areas would be assumed to be a transient (i.e., travelling between segments of its home range) or in a peripheral part of its home range, certainly outside its core use areas or parts of its home range that could support its survival. By moving such a tortoise to a location immediately adjacent to its capture site outside the plant boundary, the Project would be maintaining the tortoise within its home range, not translocating it. The tortoise merely would be excluded from undesirable areas. For utility corridors and fence construction, tortoises would be removed a short distance from the construction zone. Hence, this plan describes tortoise removal, not translocation.

This plan first addresses desert tortoise removal during Project construction and operations activities (fence construction, Plant Site clearance, utility construction, re-routed wash construction, Project operations) and then describes general procedures applicable to all tortoise removals (data collected on all tortoises, temperature considerations, tortoise transportation, authorized handlers, monitoring). This plan does not discuss other actions associated with tortoise removal (clearance, fence monitoring, nest removal, reporting) that are discussed in other documents (Beacon Solar, LLC, 2008 and Beacon Solar, LLC, 2009).

2.0 Removal During Specific Project Activities

2.1 Construction Activities

Tortoise removal that is necessary during the Project construction phase may occur during fence construction, utilities construction, Plant Site clearance, re-routed wash construction or initial grading on the Plant Site. For any fence construction or construction of the transmission line and pipeline, tortoises that need to be removed from construction zones would be placed outside the

construction zone but on the Beacon right-of-way (ROW)¹. In all instances, tortoises would be placed in the deep shade of a large shrub or a known burrow for that tortoise, and monitored as described in Section 3.6, below.

It is possible that a tortoise might attempt to re-enter an unfenced construction zone (for example, during fence construction), in which case a temporary fence could be erected to exclude the tortoise and increase its safety.

For the Plant Site tortoise clearance or during site grubbing or grading, any tortoise found would be placed on Beacon-owned land immediately outside the Project's exclusion fence from the capture location, where it is anticipated that the tortoise would seek a familiar burrow. All tortoises would be placed in the deep shade of a large shrub, and monitored as described in Section 3.6, below.

2.2 Tortoises Found During Operations

On the Plant Site, it is unlikely that even a small tortoise would not be highly visible following initial site grubbing and grading. Any tortoise found during Project operations therefore is most likely to have entered the site through a gate or breach in the fence. It is likely, although not impossible, that any tortoise found during Project operations would not yet have constructed a burrow and would have only recently entered the site. Any such tortoise would be removed to the nearest native habitat outside the fence (on Beacon-owned land) and monitored as identified in Section 2.1, above.

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

3.0 Procedures Applicable to all Removals

3.1 Data Gathered on Removed Tortoises

Each captured tortoise will be processed prior to removal. The gender, carapace length, distinguishing morphology, clinical signs of disease, capture site location and description, release site location and description, and the amount of void, if any, will be recorded and the tortoise photographed and drawn. All tortoise handling will be accomplished by approved techniques (e.g., Desert Tortoise Council, 1994), incorporating newer research for minimization of disease

¹ It is generally appropriate that any tortoise removed from utility ROWs or fence construction areas be placed 100-200 feet away or outside a known or suspected burrow for that tortoise (it is anticipated that the Biological Monitors would have found and mapped most burrows close to the ROWs). This distance would be within the home range of any tortoise found on the ROW but sufficiently far from construction activity for minimal disturbance to the tortoise from construction activities. It would also be close enough that if the tortoise had been placed on the wrong side of the ROW, it would not be too far for the tortoise to travel to reach its normal activity areas. However, unless permission can be obtained to place tortoises on private or public lands, they must be removed only as far as the edge of the ROWs.

transmission (e.g., Brown 2003). Each tortoise will be assigned an individual number. Marking techniques will be approved by USFWS, but temporary marks using very small epoxy numbers with a project-specific identifier are suggested. Such numbers will last for several years, long enough to be able to identify specific tortoises if observed during Project construction activities.

3.2 Temperature Considerations

In general, it is unwise to translocate tortoises in seasons when daily ground temperatures exceed 43°C (mid-April through early October) because tortoises must find new refuges in unfamiliar areas, with the added pressure of lethal daily temperatures. (Karl [1992] and Zimmerman *et al.* [1994] observed that 43°C was the approximate surface temperature at which tortoises must go underground to escape heat.) However, at Beacon, tortoises will be moved to familiar areas within their home ranges, where burrows are well-known, so tortoises could be moved during periods when lethal temperatures are reached during the day, under certain conditions:

- If a tortoise is found under a shrub in a construction zone or during a clearance survey and the ground temperature is $\geq 43^{\circ}\text{C}$, the tortoise will be avoided until temperatures subside in the late afternoon/early evening, at which time the tortoise can be moved or will move of its own accord. As necessary, to increase safety for this tortoise or to hold it during the Plant Site tortoise clearance, a temporary pen can be erected around the tortoise and shrub. The pen would be removed later in the day when the tortoise can be safely moved. All penned or avoided tortoises must be monitored to ensure their safety.
- If a tortoise is captured in a burrow at ground temperatures $\geq 43^{\circ}\text{C}$ or if it is either impractical to pen it or it cannot be avoided by construction activities, then it should be held in a climate-controlled location (e.g., Beacon office) and released in the early evening after temperatures fall below 43°C.
- During fence construction, re-routed wash construction, along the utility corridor or on the Plant Site next to the exclusion fence, if a tortoise is found under a shrub at temperatures $\geq 43^{\circ}\text{C}$, at the Authorized Biologist's discretion it may be moved to another shrub or known burrow for that tortoise. During any such releases, monitoring would proceed as discussed in Section 3.5, below, to ensure tortoise safety. (Note: Moving a tortoise at this temperature must be approved by USFWS as their protocols state that tortoises shall not be handled when air temperatures at 5 cm above the ground surface exceed 35°C (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt).

Adult tortoises held temporarily due to ambient temperatures will be released in the evening, but juvenile tortoises, which are highly subject to depredation by canids, badgers, and ravens, will be released in the early morning to minimize depredation.

3.3 Tortoise Transportation

Most tortoises will be sufficiently near the fence or release site to be hand-carried to the release site. Each tortoise that is hand-carried will be kept upright and the handler, wearing disposable gloves (one pair per tortoise), will move the tortoise as quickly and smoothly as possible. Tortoises

kept in a holding area due to temperature considerations or captured further from the release site will be transported to their release sites in individual, sterilized tubs with taped, sterilized lids. If transported by vehicle, the tortoise tub will be kept shaded during transport and the tub will be placed on a well-padded surface, not over a heated portion of the vehicle floor.

3.4 Authorized Handlers

USFWS (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt) describes a single designation for biologists who can be approved to handle tortoises - "Authorized Biologist." Such biologists have demonstrated to USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately. Authorized Biologists are permitted to then approve specific monitors to handle tortoises, at their discretion. The California Department of Fish and Game (CDFG) must also approve such biologists, potentially including individual approvals for monitors approved by the Authorized Biologist. Notwithstanding that the California Energy Commission (CEC) only has designations for "Designated Biologist" and "Biological Monitor," only those biologists authorized by USFWS and CDFG, presumably including the Designated Biologist and certain Biological Monitors, can handle desert tortoises.

3.5 Post-Release Monitoring

All tortoises moved, whether during initial fence construction, from the Plant Site, during construction for linear facilities, or later, will be monitored sufficiently to ensure their safety. This is especially critical for juvenile tortoises, which are highly subject to depredation. Any tortoise moved will be watched for at least two hours to determine if it is behaving safely or if it is likely to try and re-enter the construction area (during fence construction or for utility corridors). Should a removed tortoise continually re-enter an unfenced construction area, then a temporary exclusion fence may need to be installed to assist with keeping the tortoise safe. In addition to the initial monitoring at release, in any instance where a tortoise is removed outside a tortoise exclusion fence, that release location will be visited for at least the next two days during tortoise activity temperatures (i.e., <43°C ground surface temperature [Karl 1992, Zimmerman *et al.* 1994]) to ensure that the tortoise is not fence-walking. The latter would suggest that the release site had been incorrectly chosen and that release outside a different fence should be attempted (outside the opposite side of the fenced utility corridor, for example).

Tortoises released in the evening due to temperature considerations will be monitored until dark with a resumption of monitoring at dawn. Such tortoises will be watched until they found and entered an adequate burrow, ensuring that the tortoise was seeking thermal relief appropriately.

4.0 Literature Cited

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ATTACHMENT BIO-2

BURROWING OWL PASSIVE RELOCATION AREA MANAGEMENT PLAN

Management measures proposed for the 6-acre burrowing owl passive relocation area and the criteria under which management may be deemed unacceptable and would trigger transfer of management to a 3rd party beneficiary are outlined below by means of management goals, maintenance and monitoring activities, and reporting.

Management Goals:

- Manage and maintain weed species (i.e. thistles and Saharan mustard [*Brassica tournefortii*]), excluding non-native grasses, at a low density, less than 10 percent total vegetation cover.
- Maintain functionality of artificial burrows for five years.

Monitoring and Maintenance Activities:

- Rodent control methods such as poisoning, trapping, or shooting will be prohibited in the relocation area.
- For the entire 6-acre site, vegetation monitoring will be carried out semi-annually (twice a year) for a 5-year period following construction of the burrows to assess the habitat quality for burrowing owl. Data will be taken two times a year on: overall vegetative cover, plant species present (native and non-native), percent cover of distinct vegetation types such as shrubs, grasses, and invasive weeds. These quarterly assessments will be conducted in addition to the protocol surveys (Phase II and III; Burrowing Owl Consortium Guidelines) for burrowing owl that will be conducted within the first year after installation of artificial burrows. Optimal vegetation parameters are identified herein; however the sampling regime for cover and species will be up to the discretion of the Designated Biologist.
- Rodent activity will be recorded during the monitoring visits as well as any sign or sightings of burrowing owls. The approximate number and location of rodents or other suitable burrow concentrations will be mapped. Observations of predators will also be noted.
- Weedy species such as thistles and mustard can create dense cover that is not suitable for burrowing owls. If weed species other than non-native grasses become established at a density greater than 10 percent total vegetation cover for the 6-acre relocation area, an eradication program will be developed and implemented for control. Manual methods shall be used to the extent feasible. Invasive weeds will be maintained at a level below 10 percent total vegetation cover for five (5) years or further remedial action and continued monitoring will be necessary.
- During vegetation management site visits, artificial burrows will be inspected for functionality and maintenance conducted. Any burrow collapses, debris or soil build up within burrows or at the entrance will be removed as part of the maintenance regime.

Reporting:

- For five years, an annual report will be prepared for submittal to the agencies summarizing the monitoring results, maintenance activities, remedial actions needed and documentation of remediation follow-through. At the end of the 5 year monitoring period, if management goals are not met and maintained as outlined above, transfer of management to a 3rd party beneficiary will occur. Reports will be submitted by January 31st of the following year for the previous calendar year.

CULTURAL RESOURCES

Beacon provides the following requested revisions to the Conditions of Certification proposed by Staff in the PSA. Additional comments on information provided by CEC Staff relating to proposed cultural resource mitigation measures are provided as two attachments. Attachment CUL-1 addresses issues raised in the PSA; specifically, the eligibility and potential impacts to some of the cultural resource sites. The other attachment (Attachment CUL-2) provides comments on docketed email that provided proposed language for the Final Staff Assessment (FSA), as well as items discussed at the April 14, 2009 Workshop.. Attachment CUL-2 addresses the potential mitigation options of preconstruction geophysical investigations in Landform Hf2 (referred to by Staff as Archaeological Zone 1), the level of effort for data recovery in Hf2, areas of construction monitoring, preparation of a district nomination, and types of public and professional outreach.

Requested Changes to the Conditions of Certification for Cultural Resources

Beacon's proposed changes to several Conditions are presented below.

CUL-3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."
2. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A mitigation plan shall be prepared for any CRHR-eligible (as determined by the CPM) resource, impacts to which cannot be avoided. A prescriptive treatment plan may be included in the CRMMP for limited data types.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground disturbance and post-ground–disturbance analysis phases of the project.
4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.
5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.
6. A description of all impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during project-related ground disturbance, construction, and/or operation, and identification of areas where these measures are to be implemented. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related effects.
7. A statement that all encountered cultural resources over 50 years old (excluding hearth features) shall be recorded on Department of Parks and Recreation (DPR) 523 forms and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum.
8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.
9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during ground disturbance and cannot be treated prescriptively.
10. A description of the contents and format of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

Verification

1. Upon approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.
2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.
3. At least 30 days prior to the start of ground disturbance, a letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, monitoring, testing, data recovery).

RATIONALE

If the Applicant conducts geotechnical investigations (or preconstruction grading if the geotechnical investigations are not successful) and completes small exposure and block excavations of a sample of buried hearths in Landform Hf2 any additional hearths encountered during construction will not require mitigation, including recordation on DPR forms.

CUL-5

Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, laydown area, and along the linear facilities routes. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video or other presentation format. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes. The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;
5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt project-related ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;
6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
7. An informational brochure that identifies reporting procedures in the event of a discovery;
8. An acknowledgement form signed by each worker indicating that they have received the training; and
9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification

1. At least 30 days prior to the beginning of ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval, and the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.
2. On a monthly basis, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training

Acknowledgement forms of workers at the project site and on the linear facilities who have completed the training in the prior month and a running total of all persons who have completed training to date.

RATIONALE

In order to maintain conformity with the WEAP training requirements of the Biological Resources and Paleontological Resources, BSEP will utilize either CPM-approved in-person training, electronic media, or a combination of the two.

CUL-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor **full-time** all ground disturbance at the project site **for the upper 2 meters within landforms Hf1 and Hf1d, and the upper 4 meters within Hf4,** along the linear facilities routes, and at laydown areas, roads, and other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner.

Full-time Archaeological monitoring for this project shall be the archaeological monitoring of all ground-disturbing activities on the project site **for the upper 2 meters within landforms Hf1 and Hf1d, and the upper 4 meters within Hf4,** at the laydown area, along the linear facility routes, and at roads or other ancillary areas, for as long as the activities are ongoing. Full-time archaeological monitoring shall require at least one monitor per excavation area where machines are actively disturbing native soils. ~~If an excavation area exceeds 1,000 square meters, one additional monitor shall be retained to observe each additional 1,000 square meter excavation area.~~

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered. On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of noncompliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS or alternate CRS shall report daily to the CPM on the status of cultural resources-related activities at the project site, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered ([landforms Hf1, Hf1d and Hf4](#)). Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

Verification

1. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log. While monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.
2. Daily, as long as no cultural resources are found, the CRS shall provide a statement that “no cultural resources over 50 years of age were discovered” to the CPM as an email, or in some other form acceptable to the CPM. If the CRS concludes that daily reporting is no longer necessary, a letter or e-mail providing a detailed justification for the decision to reduce or end daily reporting shall be provided to the CPM for review and approval at least 24 hours prior to reducing or ending daily reporting.
3. At least 24 hours prior to implementing a proposed change in monitoring level, documentation justifying the change shall be submitted to the CPM for review and approval.
4. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records and any comments or information, provided in response by the Native Americans.

RATIONALE

If the Applicant selects the option for mitigation in landform Hf2 that would first identify additional hearth features and then perform data recovery on a sample of these prior to construction, the need for monitoring is eliminated in landform Hf2.

Based on the geomorphological investigations, monitoring for archaeological deposits or Native American resources at depths greater than 2 meters in landform Hf1 and greater than 4 meters in Hf4 is not likely to identify cultural material due to the age of the sediments.

CUL-7

The project owner shall grant authority to halt project-related ground disturbance to the CRS, alternate CRS, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that cultural resources over 50 years of age are found, or, if younger, determined exceptionally significant by the CPM, or impacts to such resources can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to determine the nature of the discovery. If the discovery is something other than a hearth feature, the work shall be halted or redirected to ensure that the resource is protected from further impacts. Monitoring and daily reporting as provided in CUL-6 shall continue during all ground-disturbing activities elsewhere on the project site. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery (excluding hearth features), and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery (excluding hearth features) occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for mitigation of any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.
2. If the discovery is prehistoric or ethnographic (excluding hearth features), the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form (excluding hearth features). Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM.
4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery (excluding hearth features) and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.

Verification

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt project-related ground disturbance in the vicinity of a cultural resources discovery (excluding hearth features), and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.
2. Within 48 hours of the discovery of an archaeological or ethnographic resource (excluding hearth features), the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. Unless the discovery (excluding hearth features) can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the

notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.

RATIONALE

If the Applicant chooses to conduct mitigation in landform Hf2 that would first identify additional hearth features and then perform data recovery on a sample of these prior to construction, hearths would not be treated as discoveries based on data collected during the mitigation efforts.

ATTACHMENT CUL-1

COMMENTS AND AMENDMENTS TO CULTURAL RESOURCES CONCLUSIONS

(PAGE 4.3-34 OF PSA)

Results

As a result of the intensive pedestrian cultural resources survey, 57 new archaeological sites and 59 archaeological isolates were found (Apple and Glenny 2008, pp. 31-32, 54). The new archaeological sites consisted of 38 prehistoric, 12 historical, and 7 multiple-component archaeological sites. The archaeological isolates consisted of 55 prehistoric, 3 historical, and 1 multiple-component resources. The prehistoric archaeological site types include lithic scatters of stone tools and stone tool manufacturing and maintenance debris, fire-affected rock scatters, potential campsites, and a trail. The historical archaeological site types consist principally of debris and refuse scatters. The multiple-component sites include a combination of lithic scatters and historic refuse scatters. The isolate types include prehistoric lithics and historic refuse, with one isolate representing both lithics and historic refuse. Cultural Resources Table 6 summarizes the previously known and newly identified archaeological sites.

The applicant sought to identify standing structures that would be 45 years of age or older in 2010, ultimately recognizing 15 standing structures and one linear built-environment resource within the main plant site, or project site, along the transmission line alternatives, and along the natural gas pipeline (Hirsch 2008, p. 20). Of the 15 standing structures, only one structure was initially considered potentially significant and documented. This house was known historically as "Rancho Cantil" (Hirsch 2008, p. 20). The other 14 standing structures that were documented were located within one-half mile of the natural gas pipeline route. The linear built-environment resource is the Jawbone Branch of the Southern Pacific Railroad, a segment of which forms the western boundary of the BSEP project site. Cultural Resources Table 6 summarizes the previously known and newly identified built-environment resources.

Summary of Field Inventory Results

The present cultural resources inventory for the project area includes 57 archaeological sites, 15 standing structures, and one historic railroad (see Cultural Resources Table 6, above). Background research and Native American consultation did not reveal the presence of ethnographic resources in the project area of analysis. The archaeological resources inventory is tentative pending the results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above).

California Register of Historical Resources Evaluations

Evaluation Phase (Phase II) Investigation of Prehistoric and Historical Archaeological Sites

The applicant originally made a determination that the proposed project had the potential to impact 18 of the 57 archaeological sites found as a result of the intensive pedestrian cultural resources survey (Apple, Cleland, and Glenny 2008:v) (see also "Intensive Pedestrian Cultural Resources Survey" subsection, above). The applicant, in consultation with Energy Commission staff (CEC 2008a), developed a program to evaluate the historical significance of each of the 18 archaeological sites. The program provides for the evaluation of a subset of the subject sites on the basis of surface observations where the applicant is able to use such observations to support defensible evaluation arguments. The applicant made

recommendations on the historical significance of 6 of the 18 archaeological sites in this manner. Subsequent to the applicant and Energy Commission staff consultation on the evaluation program, but prior to the implementation of the program, the applicant made the determination that the proposed project would avoid four additional archaeological sites (Apple, Cleland, and Glenny 2008:v). The balance of eight archaeological sites were each subject to additional surface documentation, one was subject to additional archival research, and six were subject to limited excavation to gather the minimum amount of information necessary to conclude historical significance recommendations (Apple, Cleland, and Glenny 2008). Subsequent to the implementation of the evaluation program, the applicant made the further determination that the proposed project would avoid 1 of the 8 archaeological sites that had been subject to additional fieldwork, leaving the present total number of archaeological sites that the proposed project may impact at 13. The results of the evaluation program identify which of the above 13 archaeological sites in the project area are historical resources under CEQA and require further consideration in the present analysis.

Methods

The archaeologists for the applicant conducted the field phase of the evaluation program from July 30 through August 14, 2008. Each of the eight archaeological sites that were part of the field investigation (Sites 3, 8-13, and 59) was first subject to a narrow-interval survey where survey intervals were 3 meters in width. Surface artifacts and archaeological features were marked with pin flags to facilitate the refinement of the surface boundary that had been delimited for each site during the intensive pedestrian cultural resources survey and to facilitate the mapping of intrasite artifact and feature distributions, of individual surface-collected artifacts, and of evaluation phase excavation units. Mapping data were gathered electronically with a hand-held Trimble GeoXT submeter GPS unit.

Upon completion of the additional surface documentation, excavation was conducted on six (Sites 8-13) of the eight archaeological sites that were part of the field investigation. Sites were subject to different hand and mechanical excavation methods depending on the degree of prior landscape disturbance at each site and on the character of the archaeological deposits. Mechanical excavation was used on most sites in former agricultural fields to efficiently gauge and remove displaced plow zone sediments, and to assess the potential presence of intact archaeological features beneath the plow zone. Mechanical excavation was also thought to be particularly useful and appropriate for sites where the primary constituent of the material culture assemblage is fire-affected rock. The applicant and Energy Commission staff thought that there was a high likelihood that buried, intact fire features were present on such sites, and mechanical excavation was seen as an efficient method to verify that supposition. Hand excavation was used on archaeological sites where no prior landscape disturbance was apparent in order to document the intact stratigraphy of part of the project site, or, where the surface frequency of artifacts is relatively low, to ascertain the approximate depth of an archaeological deposit and to verify that a subsurface assemblage of artifacts on a site is consistent with its surface assemblage.

The archaeologists for the applicant mechanically excavated a pair of cross-trenches on each of four archaeological sites (Sites 8, 9, 11, and 12). A backhoe was used to excavate each trench to a length of approximately 10 meters and a depth never greater than 1 meter. Trenches were placed to capture cross-sections where the frequency of fire-affected rock is greatest. One profile drawing and a photograph was made of at least one wall of each trench. A plan-view drawing and a photograph was made for each archaeological feature exposed in each trench.

Hand excavation was done on two archaeological sites (Sites 10 and 13) using two different types of excavation units. Shovel test pits (STP) were excavated through Site 10 along perpendicular axes. The STPs were approximately 30 centimeters in diameter, were excavated in 10 centimeter increments, and typically reached a depth of 30 to 40 centimeters below the present surface of the site. All of the excavated sediments were dry-screened through 1A-inch hardware cloth.

Test excavation units (TEU) were employed to investigate Site 13. Sixteen, 0.5-x-1-meter TEUs were excavated in a cross-trench configuration through the site's fire-affected rock concentration. One trench was 12 meters in length, and the other was 3.5 meters in length. One profile drawing and a photograph was made of at least one wall of each trench.

Results

The applicant argues, on the basis of archival research and prior surface observation, that 6 (BSPL-H-1, CA-KER-5264H, Site 16-19) of the 13 archaeological sites that the proposed project may impact are not eligible for listing in the CRHR. Archival research and further field observation of Site 3 and further field observation of Site 59 led the applicant to recommend neither site as being eligible for listing in the CRHR. The field investigation of five sites that include surface concentrations of fire-affected rock (Sites 8, 9, and 11-13) led to the discovery of six buried, intact hearth features, three of which were found, on the basis of radiocarbon assays, to range in age from 150 to 595 years old, and to the further discovery of charcoal-containing deposits that are approximately 810 years old. The discovery of the intact hearth features and the charcoal-containing deposits at Sites 8, 9, and 11-13 demonstrates the presence of buried archaeological deposits on the project site, and the absence of fire-affected rock on the present ground surface above many of the hearths indicates that buried archaeological deposits in the project area may often not manifest at the surface. These factors elevated staff concern about the extent of the distribution of buried archaeological deposits across the project area and was a significant factor in the development of Supplement to Data Request 34. The known presence and potential presence of intact features at Sites 8, 9, and 11-13 make the deposits historically significant in the context of Mojave Desert prehistory and have led the applicant to recommend them as being eligible for listing in the CRHR.

Archaeological Resources Evaluations

At this time, it appears that the proposed project may impact 18 archaeological resources. The resources include 13 archaeological sites in the project area that would be subject to direct impacts and 5 further archaeological sites in the project area that the applicant may need to actively avoid. Eleven of the 18 subject resources are prehistoric archaeological sites, 5 are historical archaeological sites, and 2 are multiple component archaeological sites that include both prehistoric and historic components.

Descriptions and evaluations of the historical significance of the 18 archaeological sites that the proposed project may impact are presented below, where the available information for each resource is sufficient. The information for the descriptions and evaluations is drawn from (Apple and Glennly 2008 and attachment 2 (DPR 523 series forms); Apple, Cleland, and Glennly 2008 and attachment 4 (DPR 523 series forms)). The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) ~~promise to~~ provide more reliable information on the physical contexts of the known archaeological sites in the project area, information critical to the interpretation of the historical significance of the surface expressions of these deposits. The study ~~may~~ also ~~add~~ identified an additional archaeological sites (a buried hearth FWARG-1), that adds to the cultural resources inventory of the proposed project site.

Prehistoric Archaeological Sites

Site 8

Site 8 is a prehistoric deposit of fire-affected rock¹ that includes one subsurface fire feature. The fire-affected rock and the feature occur in both surface and subsurface contexts. The site is on the floor of Fremont Valley in the east-central portion of the project site in a former agricultural field, now devoid of vegetation, which appears to have been subject to plowing.

The surface component of the site measures approximately 32 meters from northwest to southeast and 19 meters from northeast to southwest, and includes two concentrations of what are reported to be fire-affected rock and one “volcanic” stone flake. The concentrations are reported to be round and subangular clasts² of granite and basalt that are predominantly of cobble and pebble size. Some of the stone is noted to be cracked. Concentration 1, in the western half of the site, consists of approximately 350 pieces of fire-affected rock and measures approximately 12 meters from north to south and 10 meters from east to west. Concentration 2, approximately 3 meters east of Concentration 1, consists of approximately 150 pieces of fire-affected rock and measures approximately 5 meters from north to south and 7 meters from east to west. The archaeologists for the applicant attribute the apparently rather diffuse distribution of the fire-affected rock to past agricultural plowing.

The sedimentary deposits beneath the present surface of the site were examined using a pair of mechanically-excavated cross-trenches through Concentration 1. There was a 10.25-meter long, north-to-south trench through the concentration, and an 8.6-meter long, east-to-west trench that intersected the first trench at a 90 degree angle in the approximate center of Concentration 1. The trenches were approximately 1 meter wide and 1 meter deep.

The subsurface component of the site, now known as a result of the excavation of the cross-trenches, includes a single, partially intact archaeological feature, an apparent hearth. Hearth 1, found in the eastern wall of the north-to-south trench through Concentration 1 and apparently later exposed in plan, was made up of 67 fire-affected rocks that measured 79 centimeters from north to south and 84 centimeters from east to west. The top of the feature was found 70 centimeters below the present surface of the project site and the base of the feature was 85 centimeters below that surface. Charcoal fragments of unreported size were found in the sediments directly above the feature. Charcoal (3.9 grams) is reported to have been gathered from the feature. An assay of that sample yielded a calibrated radiocarbon date of approximately 595 years before present (1950).

The physical context for Hearth 1 is unclear, because the broader stratigraphy of the project site is also presently unclear. Hearth 1 is reported to have been found in tan layers of silty sand and fine silty sand, apparently with no gravel, that are referred to respectively as “Root Zone” and “Lake Bed” deposits. The archaeologists for the applicant believe that agricultural plowing destroyed the original top 10 centimeters of the feature, but the pit for the feature nonetheless appears to have been originally dug from a former

¹ Fire-affected rock is rock that has been thermally altered by exposure to fire. Thermal alteration of rock may manifest as orange to red patches of oxidation and sporadic black traces of charcoal on the exterior faces of rocks, and angular rock edges that may result from heat-induced cracking.

² Clasts are rock fragments produced by physical processes.

land surface now buried in the Root Zone deposits. The results of the geoarchaeology study (see “Geoarchaeology Study” subsection, above) may provide a more informative physical context for Hearth 1 and facilitate the association of the feature with other buried archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 8 be found eligible for listing in the CRHR. The discovery of a buried, partially intact fire feature on the site and its association with the surface scatter of fire-affected rock make it likely that more such features are present at the site. Intact fire features are important units of archaeological analysis, because they have the potential to preserve organic residues that may inform our understanding of prehistoric patterns of natural resource selection and use, because they inform our understanding of prehistoric resource preparation technology, and because they provide datable material that places such information in time. The investigation of such features may also offer the opportunity to identify and document the former land surfaces that once surrounded the features and the contemporary material assemblages that may be present on those surfaces, and thereby inform our understanding of the broader behavioral contexts of which the fire features are a part. The above considerations, in combination with the relative general scarcity of buried, intact archaeological deposits in the Mojave Desert, lead staff to recommend that Site 8 is eligible for listing in the CRHR under Criterion 4, because the resource has yielded and has the potential to yield information important to the Late Prehistoric period prehistory of the western Mojave Desert.

Site 9

Site 9 is a prehistoric deposit of fire-affected rock that includes one subsurface fire feature. The fire-affected rock and the feature occur in both surface and subsurface contexts. The site is on the floor of Fremont Valley in the northeastern portion of the project site in a former agricultural field, now devoid of vegetation, which appears to have been subject to plowing.

The surface component of the site, a scatter of fire-affected rock, measures approximately 10 meters from north to south and 10 meters from east to west. No other cultural material was found in or near the scatter. The fire-affected rock is reported to include approximately 150 rounded, subangular, and angular, fire-blackened clasts of granitic rock that range from large pebbles to small cobbles in size. The archaeologists for the applicant partially attribute the distribution of the fire-affected rock to past agricultural plowing, and partially to forces of erosion which appear to have transported some of the rock downslope and toward the north.

The sedimentary deposits beneath the present surface of the site were examined using a pair of mechanically-excavated cross-trenches through the approximate center of the site. There was a 7.2-meter long, north-to-south trench through the rock scatter, and an 8.2-meter long, east-to-west trench that intersected the first trench at a 90 degree angle. The trenches were approximately 1 meter wide and 1 meter deep.

The subsurface component of the site, now known as a result of the excavation of the cross-trenches, includes a single archaeological feature, an apparent hearth. Hearth 1, found in the western wall of the north-to-south trench, is a shallow earthen pit the outline of which is made more apparent by a discontinuous band of charcoal-stained, pinkish, oxidized sediments. The interior of the pit is filled with a deposit of medium brown, charcoal-stained, silty sand. The top of the feature was found 25 centimeters below the present surface of the project site and the base of the feature was 35 centimeters below that

surface. The diameter of the feature, in the trench wall, was 1.9 meters. No charcoal or flotation samples were taken from the feature or the feature fill.

The physical context for Hearth 1 is unclear, because the broader stratigraphy of the project site is also presently unclear. Hearth 1 is reported to have been found in tan layers of silty sand, apparently with no gravel, that are referred to respectively as “Plow Zone” and “Root Zone” deposits. The feature pit appears to have been originally dug from a former land surface now buried in the Plow Zone deposits down into the upper portion of the Root Zone deposits. The results of the geoarchaeology study (see “Geoarchaeology Study” subsection, above) may provide a more informative physical context for Hearth 1 and facilitate the association of the feature with other buried archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 9 be found eligible for listing in the CRHR. The discovery on the site of a buried fire feature that retains good integrity and its association with the surface scatter of fire-affected rock make it likely that more and potentially different types of fire features are present at the site. Intact fire features are important units of archaeological analysis, because they have the potential to preserve organic residues that may inform our understanding of prehistoric patterns of natural resource selection and use, because they inform our understanding of prehistoric resource preparation technology, and because they provide datable material that places such information in time. The investigation of such features may also offer the opportunity to identify and document the former land surfaces that once surrounded the features and the contemporary material assemblages that may be present on those surfaces, and thereby inform our understanding of the broader behavioral contexts of which the fire features are a part. The above considerations, in combination with the relative general scarcity of buried, intact archaeological deposits in the Mojave Desert, lead staff to recommend that Site 9 is eligible for listing in the CRHR under Criterion 4, because the resource has yielded and has the potential to yield information important to the prehistory of the western Mojave Desert.

Site 10

Site 10 is a prehistoric lithic deposit that includes four partial bifaces³, one utilized flake, one core, one handstone or mano fragment, and approximately 32 stone flakes. The lithic artifacts were found in both surface and subsurface contexts. The site is on the higher surface to the southeast of the Garlock Fault in the east-central portion of the project site. The present surface of the site is reported to have a shallow slope gradient that drops toward the north, and remnant plow furrows along that axis attest to the former use of the land for agriculture. The archaeologists for the applicant report that erosive forces have redistributed artifacts downslope. The site surface is said to be deflated and of a “sandy, clayey soil.” Almost no vegetation was apparent on the site in August, 2008.

The surface component of the site is a sparse (-1 piece/62 square meters) scatter of prehistoric lithics, stone tools and stone tool manufacturing debris. The scatter measures approximately 60 meters from northeast to southwest and 38 meters from northwest to southeast.

The surface lithic assemblage on the site includes four partial bifaces, one utilized flake, one core, one handstone or mano fragment, and approximately 30 stone flakes or pieces of lithic debitage. The

³ A biface is a stone tool that exhibits two shaped surfaces.

fragmentary bifaces are all of cryptocrystalline silicate⁴ (CCS), three of the four fragments are reported to be yellow, and they appear to represent different stages of manufacture. The archaeologists for the applicant interpret three of the four bifaces to have been broken prior to completion and the fourth to have been broken during maintenance work on that piece. The fragments range in size from 2.5 to 5.7 centimeters in length. The debitage on the site surface is of CCS. The further character of the debitage is unreported. The character of the utilized flake, the core, and the mano fragment are unreported.

The sedimentary deposits beneath the present surface of the site were examined using two intersecting rows of 11 hand-excavated STPs through the approximate center of the site. Six STPs were excavated in a north-to-south row at 20-meter intervals and a row of four STPs were excavated in 20-meter intervals in an east-to-west row that intersected the approximate middle of the north-to-south row. An eleventh STP was excavated between two of the STPs along the north-to-south row. The STPs were approximately 30 centimeters in diameter, were excavated in 10 centimeter increments, and typically reached a depth of 30 to 40 centimeters below the present surface of the site.

The subsurface component of the site, now known as a result of the excavation of the STPs, includes two stone flakes. Both flakes came from the same STP in the approximate center of the site. One was found from 10 to 20 centimeters below the present surface, and the other was from 20 to 30 centimeters below the surface. The flakes are of CCS and of unreported color. The archaeologists for the applicant interpret both flakes to be biface thinning flakes.

The physical contexts for the two subsurface flakes are unclear, because the broader stratigraphy of the project site is also presently unclear. The stratigraphic contexts for the flakes are unreported. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide more informative physical contexts for the flakes and facilitate the association of the artifacts with other buried archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 10, interpreted by the archaeologists to have been a campsite, be found ineligible for listing in the CRHR. The sparse character of the surface component of the site and the apparent relative absence of a subsurface component in combination with the apparent absence of cultural material that would facilitate the placement of the deposit in time indicates that the site does not have the potential to yield information important to prehistory. The above considerations lead staff to recommend that Site 10 is not eligible for listing in the CRHR.

Site 11

Site 11 is a prehistoric deposit of fire-affected rock that includes three subsurface fire features and one bone fragment. The features and the bone were found in both surface and subsurface contexts. The site is on the floor of Fremont Valley in the northeastern portion of the project site in a former agricultural field which appears to have been subject to plowing. The vegetation on the site in August, 2008 was limited to

⁴ Cryptocrystalline silicates are rocks such as flint, chert, chalcedony, or jasper that contain a high percentage of silica (SiO₂), the primary compound that composes quartz.

intermittent patches of an unreported species of short desert grass. The archaeologists for the applicant note a sparse lag deposit⁵ of rock on the land surface where the site is found.

The surface component of the site, a scatter of fire-affected rock, measures approximately 16 meters from north to south and 8 meters from east to west. No other cultural material was found in or near the scatter. The fire-affected rock is reported to include approximately 230 subangular clasts of granitic rock that range from medium pebbles to small cobbles in size. The archaeologists for the applicant attribute the distribution of the fire-affected rock to past agricultural plowing.

The sedimentary deposits beneath the present surface of the site were examined using a pair of mechanically-excavated cross-trenches through the approximate center of the site. There was a 16.4-meter long, north-to-south trench through the rock scatter, and a 9-meter long, east-to-west trench that intersected the first trench at a 90-degree angle. The trenches were approximately 1 meter wide and 1 meter deep.

The subsurface component of the site, now known as a result of the excavation of the cross-trenches, includes three, apparently intact, archaeological features that the archaeologists for the applicant interpret to be hearths, Hearths 1-3. Hearth 1 was found in the western wall of the north-to-south trench, south of the east-to-west trench, and was apparently later exposed in plan. The feature was made up of 30 fire-affected rocks in a roughly circular, 46-centimeter in diameter arrangement inside a broader area of ash and charcoal-stained sediments. The overall dimensions of the feature, the fire-affected rock arrangement and the broader area of ash and charcoal-stained sediments, was 86 centimeters from north to south and 55 centimeters from east to west. The top of the feature was found 30 centimeters below the present surface of the project site and the base of the feature was 55 centimeters below that surface. Charcoal fragments of unreported size and a single bird bone fragment were found in the feature. Charcoal (50 grams) is reported to have been gathered from the feature. An assay of that sample yielded calibrated radiocarbon dates of approximately either 655 or 580 years before present (1950)⁶.

Hearth 2 was found in the north-to-south trench, south of the east-to-west trench. The feature was reported to be 0.5 meters north of Hearth 1 and was exposed in plan. Hearth 2 was apparently made up of 35 fire-affected rocks in a roughly circular arrangement, measuring 42 centimeters north to south and 62 centimeters east to west, inside a broader depression. Overall, the fire-affected rock arrangement and the broader depression were 85 centimeters in diameter. The top of the feature was found 25 centimeters below the present surface of the project site, and the base of the feature was 40 centimeters below that surface. Charcoal fragments of unreported size and a single bird bone fragment were found in the feature. Charcoal (67.9 grams) is reported to have been gathered from the feature.

Hearth 3 was found in the southern wall of the east-to-west trench, east of the north-to-south trench. The feature is depicted in Figure 5 of the report for the evaluation program (Apple, Cleland, and Glenny 2008) to be approximately 5.6 meters east-northeast of Hearth 2. Hearth 3 appears to be an earthen pit the outline of which is made more apparent by discontinuous bands of charcoal-stained, pinkish, oxidized

⁵ Residual accumulation of coarse, unconsolidated rock and mineral debris left behind by the winnowing of finer material.

⁶ The fact that the results of the assay provide multiple possible ages for the sample is a function of the results of the calibration process.

sediments. No fire-affected rocks are reported for the feature. The top of the feature was found 13 centimeters below the present surface of the project site, and the base of the feature was 25 centimeters below that surface. The diameter of the feature, in the trench wall, was 45 centimeters.

The physical contexts for Hearths 1-3 are unclear, because the broader stratigraphy of the project site is also presently unclear. Hearths 1-3 are reported to have been found in tan layers of silty sand, apparently with no gravel, that are referred to respectively as “Plow Zone” and “Root Zone” deposits. The feature pits appear to have been originally dug from former land surfaces now buried in the “Plow Zone” deposits down into the upper portion of the “Root Zone” deposits. The results of the geoarchaeology study (see “Geoarchaeology Study” subsection, above) may provide more informative physical contexts for Hearths 1-3 and facilitate the association of the features with each other and with other buried archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 11 be found eligible for listing in the CRHR. The discovery of three buried, intact fire features on the site and its association with the surface scatter of fire-affected rock make it likely that more such features are present at the site. Intact fire features are important units of archaeological analysis, because they have the potential to preserve organic residues that may inform our understanding of prehistoric patterns of natural resource selection and use, because they inform our understanding of prehistoric resource preparation technology, and because they provide datable material that places such information in time. The investigation of such features may also offer the opportunity to identify and document the former land surfaces that once surrounded the features and the contemporary material assemblages that may be present on those surfaces, and thereby inform our understanding of the broader behavioral contexts of which the fire features are a part. The above considerations, in combination with the relative general scarcity of buried, intact archaeological deposits in the Mojave Desert, lead staff to recommend that Site 11 is eligible for listing in the CRHR under Criterion 4, because the resource has yielded and has the potential to yield information important to the Late Prehistoric period prehistory of the western Mojave Desert.

Site 12

Site 12 is a prehistoric deposit of fire-affected rock that includes one subsurface fire feature, one handstone or mano fragment, and one stone flake. The feature and the artifacts were found in both surface and subsurface contexts. The site is on the floor of Fremont Valley in the northeastern portion of the project site in a former agricultural field which appears to have been subject to plowing. The vegetation on the site in August, 2008 was limited to an unreported species of dry grass.

The surface component of the site measures approximately 25 meters from northeast to southwest and 14 meters from northwest to southeast, and includes two concentrations of what are reported to be fire-affected rock, the mano fragment, and the stone flake. The concentrations are reported to be round and subangular clasts of granite and basalt that range predominantly from medium pebbles to small cobbles in size. The stone is noted to be fire-blackened and cracked. Concentration 1, in the southwestern portion of the site, consists of approximately 330 pieces of fire-affected rock and measures approximately 10 meters from north to south and 12 meters from east to west. Concentration 2, adjacent to and to the northeast of Concentration 1, consists of approximately 250 pieces of fire-affected rock and measures approximately 12 meters from north to south and 8 meters from east to west. The archaeologists for the applicant report that plowing has scattered the fire-affected rock along a northeast to southwest axis.

The surface artifact assemblage for Site 12, the mano fragment and the stone flake, are the only evidence of the character of the use of the site beyond the fire-affected rock concentrations and Hearth 1. The mano fragment is an unshaped, unifacially ground, broken cobble of granitic rock that appears to have been found in the southwestern portion of Concentration 2. The flake, of unreported character, was found adjacent to the western boundary of Concentration 1.

The sedimentary deposits beneath the present surface of the site were examined using pairs of mechanically-excavated cross-trenches through Concentrations 1 and 2. There was a 14-meter long, north-to-south trench through Concentration 1, and a 12.5-meter long, east-to-west trench that intersected the first trench at a 90 degree angle in the approximate center of Concentration 1. There was a 13.3-meter long, north-to-south trench through Concentration 2, and an 8.5-meter long, east-to-west trench that intersected the first trench at a 90 degree angle in the approximate center of Concentration 2. All trenches were approximately 1 meter wide and 1 meter deep.

The subsurface component of the site, now known as a result of the excavation of the cross-trenches, includes a single intact archaeological feature, an apparent hearth. Hearth 1 was found in the floor of the east-to-west trench through Concentration 1 just west of the intersection of that trench with the north-to-south trench through the concentration. The feature was made up of four fire-affected rocks of medium cobble size inside an earthen pit the bottom of which was apparent as charcoal-stained, reddish, oxidized sediments. The fire-affected rocks were embedded in a sedimentary matrix that included charcoal fragments of unreported size. The overall dimensions of the feature, the fire-affected rocks and the broader pit, was 46 centimeters from north to south and 46 centimeters from east to west. The top of the feature was found 36.5 centimeters below the present surface of the project site and the base of the feature was 50 centimeters below that surface. Charcoal (13 grams) is reported to have been gathered from the feature. An assay of that sample yielded a calibrated radiocarbon date of approximately 150 years before present (1950).

The physical context for Hearth 1 is unclear, because the broader stratigraphy of the project site is also presently unclear. Hearth 1 is reported to have been found in layers of silty sand referred to clearly, only as "stratigraphic layers I and II." The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide a more informative physical context for Hearth 1 and facilitate the association of the feature with other buried archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 12 be found eligible for listing in the CRHR. The discovery of a buried intact fire feature on the site and its association with the surface scatter of fire-affected rock make it likely that more such features are present at the site. Intact fire features are important units of archaeological analysis, because they have the potential to preserve organic residues that may inform our understanding of prehistoric patterns of natural resource selection and use, because they inform our understanding of prehistoric resource preparation technology, and because they provide datable material that places such information in time. The investigation of such features may also offer the opportunity to identify and document the former land surfaces that once surrounded the features and the contemporary material assemblages that may be present on those surfaces, and thereby inform our understanding of the broader behavioral contexts of which the fire features are a part. The above considerations, in combination with the relative general scarcity of buried, intact archaeological deposits in the Mojave Desert, lead staff to recommend that Site 12 is eligible for listing in the CRHR under Criterion 4, because the resource has yielded and has the potential to yield information important to the Late Prehistoric period prehistory of the western Mojave Desert.

Site 13

Site 13 is a prehistoric deposit of fire-affected rock that includes one millingstone or metate fragment, one biface fragment, one stone flake, and bone. The artifacts were found in both surface and subsurface contexts. The site is on the floor of Fremont Valley in the northwestern portion of the project site in an area where the intermittent pooling of water and the relatively high clay content of surface sediments produce polygonal mud cracks at the surface. Creosote (*Larrea tridentata*) and an unreported desert grass species are reported to have been the predominant vegetation on the site in August, 2008.

The primary surface component of the site, a scatter of fire-affected rock, measures approximately 31 meters from north to south and 35 meters from east to west, and includes the metate fragment and the fragmentary biface. The fire-affected rock is reported to include approximately 25 rounded, subangular, and angular clasts of fire-blackened and cracked granite and schist that range from medium pebbles to small cobbles in size.

The metate fragment and the fragmentary biface are the only shaped artifacts in the fire-affected rock scatter on the present surface of the site. The metate fragment is reported to be of "volcanic material." The fragment is of small cobble size, and has remnants of two different ground surfaces which are perpendicular to one another. One of the ground surfaces exhibits peck marks, indicative of grinding surface rejuvenation. The metate fragment provides no evidence as to whether the complete implement had been shaped. The fragmentary biface is of obsidian. The artifact is 4.5 centimeters in length, 2.2 centimeters in width, and 0.8 centimeters thick. The archaeologists for the consultant identify it as a tip and midsection fragment with a bending break through the midsection. The archaeologists interpret the piece as a being unfinished and broken during manufacture. The artifact was subject to x-ray fluorescence analysis to ascertain the probable source of the obsidian of which the piece was made. The results of the analysis indicate that Sugarloaf Mountain in the Coso Volcanic Field, roughly 60 miles north-northeast of the project area, is the likely source of the obsidian. The artifact was also subject to obsidian band hydration analysis to facilitate a determination of the age of the manufacture of the piece. The result of the analysis is that the biface fragment was found to have a mean hydration band measurement of 5.9 microns. The archaeologists for the consultant interpret this mean measurement to indicate a relatively crude date of manufacture sometime from the late Gypsum to the Rose Spring complex, roughly 2,500 to 900 years ago.

The sedimentary deposits beneath the present surface of the site were examined using a pair of hand-excavated cross-trenches near the center of the site. There was a 12-meter long, north-to-south trench through the rock scatter, and a 3.5-meter long, east-to-west trench to the east of the first trench that terminated in the latter trench at a 90 degree angle. The trenches, excavated as series of contiguous TEUs, were 0.5-meters wide and were excavated to an unreported depth of at least 40 centimeters.

The examination of the subsurface component of the site yielded charcoal, fire-affected rock, a stone flake, and bone. Charcoal of unreported size was found scattered throughout the deposits exposed in the trenches from 0 to 40 centimeters below the present surface. A sample of charcoal (0.1 grams) was gathered from 0 to 10 centimeters below the present surface in the northern part of the north-to-south trench. An assay of that sample yielded a calibrated radiocarbon date of approximately 810 years before present (1950). Fire-affected rock appears to have been found below the surface in twelve of the TEUs. Bone of unreported character was found in three of the TEUs. The stone flake is reported to be of "volcanic" stone and was found from 0 to 10 centimeters below the present surface in the southern part of

the north-to-south trench. The flake was apparently 3.1 centimeters in length and the archaeologists for the applicant interpret the artifact to be a core reduction flake.

The physical contexts for the material culture of the subsurface component are unclear, because the broader stratigraphy of the project site is also presently unclear. The subsurface sedimentary deposits of the Site 13 are only reported to be silty sand. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide more informative physical contexts for the materials and facilitate their association with other buried archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 13 be found eligible for listing in the CRHR. The surface and subsurface scatter of fire-affected rock and the wide subsurface distribution of charcoal make it likely that fire features such as those at Sites 8, 9, 11, and 12 are also present at Site 13. Intact fire features are important units of archaeological analysis, because they have the potential to preserve organic residues that may inform our understanding of prehistoric patterns of natural resource selection and use, because they inform our understanding of prehistoric resource preparation technology, and because they provide datable material that places such information in time. The investigation of such features may also offer the opportunity to identify and document the former land surfaces that once surrounded the features and the contemporary material assemblages that may be present on those surfaces, and thereby inform our understanding of the broader behavioral contexts of which the fire features are a part. The above considerations, in combination with the relative general scarcity of buried, intact archaeological deposits in the Mojave Desert, lead staff to recommend that 13 is eligible for listing in the CRHR under Criterion 4, because the resource has yielded and has the potential to yield information important to the Late Prehistoric period prehistory of the western Mojave Desert.

Site 17

Site 17 is a sparse (1 piece/75 square meters) prehistoric lithic scatter that measures approximately 20 meters from north to south and 15 meters from east to west, and includes one biface, one utilized flake, and two stone flakes. The artifacts were found on the surface of the site, which is in a fallow agricultural field in the southwestern portion of the project site. The present site surface is reported to be deflated and to have a gravel lag deposit. The vegetation on the site in November, 2007, a sparse cover of unreported shrub and grass species, facilitates the formation of small coppice dunes on the site surface. The archaeologists for the applicant note that a more consolidated ground surface appears to be beneath the looser surface sediments and that the site surface appears to have been subject to plowing.

The site artifact assemblage includes one biface, one utilized flake, and two stone flakes. The four pieces are of CCS and of unreported color. The utilized flake and the biface are reported to exhibit use wear. The further character of any of the four artifacts is unreported.

The physical context for the surface artifact assemblage at Site 17 is unclear, because the broader geomorphic context of the project site is also presently unclear. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide a more informative physical context for the assemblage and facilitate the association of the artifacts with other archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 17, interpreted by the archaeologists to have been a temporary camp, be found ineligible for listing in the CRHR. The sparse character of the surface assemblage in combination with the apparent absence of cultural material that would facilitate the

placement of the deposit in time would appear to indicate that the site does not have the potential to yield information important to prehistory. ~~Staff, however, awaits the results of the geoarchaeology study before recommending whether Site 17 is eligible for listing in the CRHR. Absent a better understanding of the landscape context for the archaeological site and absent any examination of the sedimentary deposits beneath the surface artifact assemblage, staff believes a determination of the historical significance of the site would be premature. Given that based on the geoarchaeological study there is also a low likelihood of a subsurface component, the site does not appear to contain sufficient information potential to meet the criteria for inclusion in the CRHR.~~

Site 18

Site 18 is an extremely sparse (1 piece/135 square meters) prehistoric lithic scatter that measures approximately 18 meters from north to south and 45 meters from east to west, and includes one core chopper, one core fragment, and four stone flakes. The artifacts were found on the surface of the site, which is in a fallow agricultural field in the southwestern portion of the project site. The present site surface is reported to be deflated and to have a gravel lag deposit. There are what appear to be three relatively long (6-13 meters), transverse sand dunes along the northern and southern site boundary. The long axes of the dunes are oriented on a roughly northeast to southwest axis with slipfaces that appear to point roughly to the southeast. The vegetation on the site in November, 2007, an extremely sparse cover of an unreported species of small bunch grass, also facilitates the formation of small coppice dunes on the site surface.

The site artifact assemblage includes one core chopper, one core fragment, and four stone flakes. The four stone flakes are of CCS and of unreported color. The further character of any of the six artifacts is unreported.

The physical context for the surface artifact assemblage at Site 18 is unclear, because the broader geomorphic context of the project site is also presently unclear. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide a more informative physical context for the assemblage and facilitate the association of the artifacts with other archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 18 be found ineligible for listing in the CRHR. The extremely sparse character of the surface assemblage in combination with the apparent absence of cultural material that would facilitate the placement of the deposit in time would appear to indicate that the site does not have the potential to yield information important to prehistory. ~~Staff, however, awaits the results of the geoarchaeology study before recommending whether Site 18 is eligible for listing in the CRHR. Absent a better understanding of the landscape context for the archaeological site and absent any examination of the sedimentary deposits beneath the surface artifact assemblage, staff believes a determination of the historical significance of the site would be premature. Based on the geoarchaeological study there is also a low likelihood of a subsurface component, and therefore the site does not appear to contain sufficient information potential to meet the criteria for inclusion in the CRHR.~~

Site 19

Site 19 is a sparse (-1 piece/76 square meters) prehistoric lithic scatter that measures approximately 13 meters from north to south and 35 meters from east to west, and includes six stone flakes. The artifacts were found on the surface of the site, which is in a fallow agricultural field in the southwestern portion of

the project site. The present site surface is reported to be deflated and to have a relatively substantial gravel lag deposit. The vegetation on the site in November, 2007, sparse patches of an unreported grass species, facilitates the formation of short (~50 centimeters) coppice dunes on the site surface. The archaeologists for the applicant note that the site surface appears to have been subject to plowing.

The site artifact assemblage includes six stone flakes. The six pieces are of CCS. The further character of the flakes is unreported.

The physical context for the surface artifact assemblage at Site 19 is unclear, because the broader geomorphic context of the project site is also presently unclear. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide a more informative physical context for the assemblage and facilitate the association of the artifacts with other archaeological deposits nearby.

The archaeologists for the applicant recommend that Site 19 be found ineligible for listing in the CRHR. The sparse character of the surface assemblage in combination with the apparent absence of cultural material that would facilitate the placement of the deposit in time would appear to indicate that the site does not have the potential to yield information important to prehistory. ~~Staff, however, awaits the results of the geoarchaeology study before recommending whether Site 19 is eligible for listing in the CRHR. Absent a better understanding of the landscape context for the archaeological site and absent any examination of the sedimentary deposits beneath the surface artifact assemblage, staff believes a determination of the historical significance of the site would be premature. Given that there is also a low likelihood of a subsurface component based on the geoarchaeological study the site does not appear to contain sufficient information potential to qualify for inclusion in the CRHR.~~

Site 54

Site 54 is a sparse (1 piece/50 square meters) prehistoric lithic scatter that measures approximately 20 meters from north to south and 30 meters from east to west, and includes one core, one modified flake, and ten stone flakes. The artifacts were found on the surface of the site approximately one mile west of the project site and approximately 0.4 mile west of SR 14. The present site surface appears to be on a mid- to lower slope of the Pine Tree Canyon alluvial fan. The predominant vegetation type on the site appears to be Mojave creosote bush scrub.

The site artifact assemblage includes one core, one modified flake, and ten stone flakes. The pieces are all of CCS. The further character of the artifacts is unreported.

~~The physical context for the surface artifact assemblage at Site 54 is unclear, because the broader geomorphic context of the project area is also presently unclear. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) may provide a more informative physical context for the assemblage and facilitate the association of the artifacts with other archaeological deposits nearby. The archaeologists for the applicant make the unsupported assertion in the inventory report (Apple and Glenny 2008, p. 52) that Site 54 has the potential to yield information important to prehistoric lithic technology in the western Mojave Desert and is, therefore, potentially eligible for listing in the CRHR under Criterion 4. Staff presently abstains, absent a rationale for the above assertion and absent more information on the physical character of the Site 54 deposit, from recommending whether Site 54 is eligible for listing in the CRHR. Staff anticipates that further consultation with the applicant and the~~

~~preliminary results of the geoarchaeology study will enable the development of a CRHR eligibility recommendation for the site prior to the publication of the FSA.~~

Given that based on the geoarchaeological study there is a low likelihood of a subsurface component, the site does not appear to contain sufficient information potential to meet the criteria for inclusion in the CRHR.

Site 59

Site 59 appears to be a prehistoric trail. The trail is approximately one mile to the west-southwest of the project site and approximately one-tenth of one mile west of SR 14, and runs approximately north-northeast to south-southwest. It occurs in two segments. The southern terminus of the southern segment is Site 40, which appears to be previously recorded archaeological site CA-KER-2142H. The trail runs north-northeast from CA-KER-2142H for approximately 1.5 kilometers and fades into the landscape. Approximately 200 meters north of the northern terminus of the southern trail segment, the northern trail segment begins and runs another approximately 1.3 kilometers to the north-northeast where it again fades into the landscape. The trail is approximately 30 to 35 centimeters in width. Erosion and heavy off-highway vehicle activity have destroyed portions of both trail segments. No cultural materials were found as a result of the close-interval pedestrian survey along the trail. The trail appears to traverse mid-to-lower slopes of the Pine Tree Canyon alluvial fan. The predominant vegetation type on the site appears to be Mojave Creosote Bush Scrub.

~~The archaeologists for the applicant make the unsupported assertion that Site 59 does not have the potential to yield information important to the prehistory of the western Mojave Desert and is, therefore, not eligible for listing in the CRHR under Criterion 4. Staff presently abstains, absent a more thoroughly documented and explicit rationale for the above assertion, from recommending whether Site 59 is eligible for listing in the CRHR. Site 59 most likely represents two segments of an extensive prehistoric trail system that winds along the southern bases of the Tehachapi and Sierra Nevada Mountains through prehistoric archaeological sites similar to the prehistoric component of CA-KER-2142H, which includes assemblages of ground and chipped stone artifacts and partially buried fire features among two areas of apparently discolored anthropogenic sediments. Staff anticipates that the applicant will reconsider the historical significance of Site 59 prior to the publication of the FSA and include a discussion of whether the recorded trail segments may contribute to the historical significance of a broader trail system.~~

The travel route represented by Site 59 could be a potentially significant resource. However, the trail segments recorded in the project area as Site 59 lack sufficient integrity and associated archaeological material to be eligible for the CRHR. The sediments in this area are sandy, making continuous segments of the trail segments difficult to discern. Site 59 has also been impacted by numerous off-road vehicle tracks. No associated cultural material was identified along the trail segments within the project limits. The setting in the vicinity of this site has also been impacted by the construction of power lines and SR 14. Accordingly, while other segments of the historic travel route could be eligible collectively or individually for the CRHR, Site 59 would not be individually eligible and does not contribute to the significance of the larger travel route given its degraded physical integrity.

Historical Archaeological Sites

BSPL-H-1

BSPL-H-1 is a historic refuse deposit approximately three miles south-southeast of the project site and approximately 20 meters east of Neuralia Road, the proposed location for the natural gas pipeline to the proposed project. The deposit appears to be a surface phenomenon and measures approximately 50 meters from north to south and 55 meters from east to west. The vegetation on the site in December, 2007 is reported as sparse creosote with burro grass and bottle brush also present. The archaeologists for the applicant state that site artifacts have been redistributed by wind and sheet wash and that the site surface is deflated.

The site artifact assemblage includes approximately 70 tin cans and tin can fragments, and glass, ceramic, and metal fragments. The tin can assemblage is reported to include hole-in-top and sanitary cans, and tobacco tins. The glass assemblage is reported to include fragments of milk glass, and fragments of manganese-decolorized, aqua, brown, green, and clear glass. The ceramic assemblage is reported to include fragments of white and green ceramics. The further character, and the absolute or relative quantity of any of the artifact types in any of the assemblages are unreported.

The archaeologists for the applicant recommend that BSPL-H-1, interpreted by the archaeologists to reflect multiple roadside dumping events from the 1920s through the 1960s, be found ineligible for listing in the CRHR, primarily due to the difficulty in associating the deposit with important historic themes or persons. While the resolution of the documentation for the deposit makes it difficult to assess the actual date range that it represents and, hence, its potential association with important historic themes, staff nonetheless recommends that BSPL-H-1 is not eligible for listing in the CRHR, because it is highly improbable that the deposit would ever be able to yield information important to the early twentieth century history of the western Mojave Desert.

BSPL-H-2

BSPL-H-2 is a historical archaeological site that includes two concrete foundations and a nearby refuse deposit. The site is approximately four miles south-southeast of the project site and approximately 20 meters east of Neuralia Road, the proposed location for the natural gas pipeline to the proposed project. The site appears to be largely a surface phenomenon and measures approximately 25 meters from north to south and 15 meters from east to west. The vegetation on the site in December, 2007 is reported to be predominantly creosote with burro grass and bottle brush also present. The archaeologists for the applicant cite the presence of silty sand on the site surface as evidence of surface deflation by sheet wash.

The archaeological features on the site include two weathered and cracked concrete foundations, a larger one toward the northern end of the site and a smaller one approximately ten meters to the southwest of the larger one. Five-eighth-inch threaded bolts appear to be set into and along the perimeter of both foundations, and both foundations appear to have local aggregate in the foundation concrete. There is a set of four steps on the northern side of the larger foundation that leads down into a basement. The archaeologists for the applicant surmise that the smaller foundation may have been for a cistern or a septic tank. ~~The type, the form, the character, and the dimensions of the foundations are unreported.~~ The site is comprised of concrete foundations with metal bolts and a concrete cistern, along with a scatter of

domestic debris. The cellar-like foundation is approximately 9 feet by 12 feet, with a series of four steps leading into it. The main foundation is approximately 10 feet by 30 feet. The feature that appears to be a cistern measures approximately 7 feet by 8 feet.

The artifact assemblage that is the refuse deposit is reported to include glass, cans, ceramics, and metal. The archaeologists for the applicant note the presence of manganese-decolorized glass, hole-in-top cans, and barbed wire. ~~The further character, or the absolute or relative quantity of any of the artifact types in any of the assemblages is unreported. The debris scatter was sparse and consisted of modern and historic material: five pieces of sun-purpled bottle glass, three hole-in-top cans, two pieces of polychrome ceramic, one white ceramic with a floral pattern, and 20 plus fragments of clear window glass.~~

The archaeologists for the applicant make the assertion in the inventory report (Apple and Glenny 2008, p. 54), on the basis of the presence of the concrete foundations and the refuse deposit, the potential presence of other refuse-filled features, and the nonspecific potential to provide information not in the archival record, that BSPL-H-2 has the potential to yield information important to the late nineteenth- and early twentieth-century history of the western Mojave Desert and is, therefore, potentially eligible for listing in the CRHR under Criterion 4. ~~Staff presently abstains, absent a more explicit rationale for the above assertion and absent more information on the physical character of BSPL-H-2, from recommending whether BSPL-H-2 is eligible for listing in the CRHR. Staff anticipates that further consultation with the applicant and the preliminary results of the geoarchaeology study will enable the development of a CRHR eligibility recommendation for the site prior to the publication of the FSA. Although the function is not currently known, it appears likely that it was a small residence. With additional research it should be possible to establish the history of property ownership. Based on this, the foundations and debris scatter would be associated with a particular individual or individuals and therefore have the potential to yield information regarding settlement of the Fremont Valley area as well as patterns of refuse disposal if buried deposits are present.~~

At the PSA Workshop it was determined that neither the Project nor the associated natural gas pipeline had the potential to impact this site in any manner, and the applicant committed to avoiding this site completely. Accordingly, no further research or information will be compiled from this site and Staff recommends that the site be dismissed from further consideration in the present siting process.

CA-KER-5264H

CA-KER-5264H was a historic-period, surficial refuse deposit in the northern portion of the project site. The archaeologists for the applicant were unable to relocate the site during the recent intensive pedestrian cultural resources survey and suggest that the artifacts that originally made up the deposit may have been entirely collected at the time of the original recordation of the site in 1997.

Staff recommends the dismissal of CA-KER-5264H from further consideration in the present siting case, because it no longer appears to exist.

Site 16

Site 16 is a historic refuse deposit near the center of the project site. The deposit appears to be a surface phenomenon in a fallow agricultural field, and measures approximately 20 meters from north to south and

15 meters from east to west. The site is devoid of vegetation. The archaeologists for the applicant note that the site surface appears to have been subject to plowing.

The site artifact assemblage includes glass, ceramics, metal, automobile parts, and a can opener. The glass assemblage is reported to include one whole bottle with a stopper finish, fragments of milk glass, and fragments of aqua, brown, and green glass. The metal assemblage includes non-diagnostic metal fragments. ~~The further character, or the absolute or relative quantity of any of the artifact types in any of the assemblages is unreported. This is scatter of modern and historic materials including modern cans, seven hole-in-top cans, two tobacco tins, two possible sardine cans, three sun-purpled glass fragments, one white ceramic fragment with a maker's mark, one green and white ceramic fragment, a clear glass fragment with embossed mark, window pane glass, and a four-hole milk glass button. The automobile parts were three spark plugs. Most of the metal consisted of can fragments.~~

The archaeologists for the applicant recommend that Site 16, interpreted by the archaeologists to reflect multiple dumping events in the historic and recent past, be found ineligible for listing in the CRHR, primarily due to the difficulty in associating the deposit with important historic themes or persons. ~~The resolution of the documentation for the deposit makes it difficult to assess the date range and, hence, its potential association with important historic themes. Staff therefore presently abstains, absent more information on the artifacts of the deposit, from recommending whether Site 16 is eligible for listing in the CRHR. Staff anticipates that further consultation with the applicant will enable the development of a CRHR eligibility recommendation for the site prior to the publication of the FSA.~~

Multiple Component Archaeological Sites

Site 3

Site 3 is an oblong archaeological deposit that includes both prehistoric and historic components. The deposit is approximately three-quarters of mile to the west of the project site and 300 feet west of SR 14. The long axis of the deposit parallels and is adjacent to an improved dirt road that runs roughly northwest from SR 14 to a nearby electrical substation. The prehistoric component appears to be a surface phenomenon, while the historic component appears to occur in both surface and subsurface contexts. The present site surface appears to be on a mid-to-lower slope of the Pine Tree Canyon alluvial fan. The predominant vegetation type on the site appears to be Mojave Creosote Bush Scrub.

The surface component of the site measures approximately 127 meters from northwest to southeast and 37 meters from northeast to southwest, and includes three concentrations of predominantly historic artifacts, which appear to be partially buried. Surface observations of the concentrations suggest that shallow depressions may have been mechanically excavated through the gravelly deposits on this portion of the Pine Tree Canyon alluvial fan, filled with historic refuse, and then partially buried with the excavated dirt and gravel. The archaeologists for the applicant note that construction-related debris and miscellaneous hardware dominate the overall artifact assemblage of the concentrations, although household refuse is present.

Concentration 1, the most northwesterly of the three concentrations on the site, includes the entire prehistoric component of the site, in addition to a concentration of historic artifacts. The concentration measures 5.5 meters from north to south and 6 meters from east to west. The prehistoric component is a sparse scatter of 10 artifacts which includes 1 core, 1 unmodified nodule of obsidian, and 8 stone flakes.

The further character of the artifacts is unreported. The historic component of Concentration 1 includes glass, ceramic, tin can, wood, and metal assemblages, and automobile parts. The glass assemblage includes what is reported to be a wine bottle fragment, 11 fragments of flat (window) glass of unreported color, 2 fragments of aqua glass, and 15 fragments of what are reported to be pink frosted glass. The ceramic assemblage is reported as polychrome, glazed, and earthenware fragments. The tin can assemblage includes what is reported to be a Prince Albert tobacco tin and modern food tins (sanitary cans) of unreported character. The wood assemblage is milled lumber of unreported quantity, dimensions, or finish. The metal assemblage includes 1 metal spike, crown caps, 1 gun cartridge, 1 spring, and 15 wire nails. The automobile parts include tire fragments, one air filter, one hose, and an unreported quantity of nuts. The further character of the artifacts in Concentration 1 is unreported.

Concentration 2, approximately 41 meters southeast of Concentration 1, is a historic refuse deposit and measures approximately 4 meters from north to south and 3 meters from east to west. The concentration includes glass, ceramic, tin can, and metal assemblages, and automobile parts. The glass assemblage includes one Delaware Punch bottle fragment with the embossed date of "March 4 1924" (bottle patent date), and two fragments of brown glass. The ceramic assemblage appears to be reported as three glazed ceramic tile fragments. The tin can assemblage is reported to be a Prince Albert tobacco tin. The metal assemblage is four wire nails and an unreported quantity or type of wire mesh. The balance of the reported portion of the concentration is reported as miscellaneous car parts. The further character of the artifacts in Concentration 2 is unreported.

Concentration 3, roughly adjacent to and southeast of Concentration 2, is a historic refuse deposit that measures approximately 5 meters from north to south and 5 meters from east to west. The concentration includes glass, ceramic, and metal assemblages, and automobile parts. The glass assemblage includes one fragment of frosted glass of unreported color. The ceramic assemblage includes what is reported to be two glazed porcelain tile fragments and one earthenware fragment. The metal assemblage is one wire fan cover, one crown cap, and three wire nails. The balance of the reported portion of the concentration is reported as miscellaneous car parts. The further character of the artifacts in Concentration 3 is unreported.

The archaeologists for the applicant interpret the historic component of Site 3 to reflect three dumping events in the early-to-mid-twentieth century. They cite the apparent similar method of refuse disposal among the three concentrations and the relative similarity of the artifacts in the concentrations as evidence that the same individual or group of people are likely to have been responsible for the deposits and that the deposits may originate from a single source. The archaeologists recommend that Site 3, be found ineligible for listing in the CRHR, primarily due to the difficulty in associating the deposit with important historic themes or persons.

The archaeologists did conduct additional archival research for the evaluation program. The study of five USGS maps for the area that date 1915, 1923, 1943, 1947, and 1956 found no structures along the improved dirt road that now fronts the site or within one mile of the site. While the resolution of the documentation for the deposits makes it difficult to assess the actual date ranges that they represent and to thereby more narrowly focus the potential association of the deposits with important historic themes or persons, staff nonetheless recommends that the historic component of Site 3 is not eligible for listing in the CRHR, because it is highly improbable that the deposit, which appears, on the basis of the above information and a field inspection of the site by staff, to be a Depression-era assemblage, would ever be able to yield information important to the early twentieth-century history of the western Mojave Desert.

~~The archaeologists for the applicant do not explicitly address the whether the prehistoric component of Site 3 is eligible for listing in the CRHR. Staff presently abstains from recommending whether Site 3 is eligible for listing in the CRHR until the preliminary results of the geoarchaeology study are available. Absent a better understanding of the landscape context for the archaeological site and absent any examination of the sedimentary deposits beneath the surface artifact assemblage, staff believes a determination of the historical significance of the site would be premature.~~

Given that based on the geoarchaeological study there is a low likelihood of a subsurface component, the site does not appear to contain sufficient information potential to meet the criteria for inclusion in the CRHR.

Site 6

Site 6 is an archaeological deposit that includes both prehistoric and historic components. The deposit is approximately one mile to the west of the project site and 650 feet west of SR 14. Both the prehistoric and historic components appear to be surface phenomena. The overall deposit measures approximately 63 meters from northwest to southeast and 40 meters from northeast to southwest. The present site surface appears to be on a mid-slope of the Pine Tree Canyon alluvial fan. The predominant vegetation type on the site appears to be Mojave creosote bush scrub.

The prehistoric component of the deposit is an extremely sparse (-1 piece/229 square meters) scatter of 11 artifacts, which are reported as 1 projectile point base fragment, 3 cores, and 7 stone flakes. The archaeologists for the applicant report that most of the pieces are of CCS. The further character of the artifacts is unreported.

The historic component of Site 6 includes glass, ceramic, tin can, wood, and metal assemblages. The glass assemblage includes an unclear number of fragments of aqua glass, one of which appears to be embossed with the date "March 4, 1924" (Delaware Punch bottle patent date). The ceramic assemblage is reported as 12 glazed, tan (yellowware) fragments, and an unspecified number of white whole plate and white plate fragments, one fragment of which represents a rice bowl. The archaeologists for the applicant identify an unclear number of the white ceramics as being Japanese in origin. The tin can assemblage includes one tobacco tin, and the archaeologists also report one Bully Beef can. The wood assemblage is milled lumber of unreported quantity, dimensions, or finish. The metal assemblage is reported as two nails, one screw, one square bolt, wire, and one oil drum. The further character of the artifacts of Site 6 is unreported.

The archaeologists for the applicant make the assertion in the inventory report (Apple and Glenny 2008, p. 36) that the historic component of Site 6 has the potential, upon the establishment of associations between the component and a particular historic event or theme, through additional archival research or data collection, to yield information important to an unspecified period in the history of the western Mojave Desert and is, therefore, potentially eligible for listing in the CRHR under Criterion 4. While the resolution of the documentation for the deposit makes it difficult to assess the actual date range that it represents and to thereby more narrowly focus the potential association of the deposit with important historic themes or persons, staff nonetheless recommends that the historic component of Site 6 is not eligible for listing in the CRHR, because it is highly improbable that the apparently sparse deposit, which appears, on the basis of the above information, to be a 1920s to 1940s assemblage, would ever be able to yield information important to the early to mid-twentieth century history of the western Mojave Desert.

~~The archaeologists for the applicant express the opinion that the prehistoric component of Site 6 has the potential to yield information important to prehistoric settlement and lithic technology in the western Mojave Desert and is, therefore, potentially eligible for listing in the CRHR under Criterion 4. The archaeologists cite the diversity of the lithic assemblage as evidence that the use of the site may not have been only for lithic reduction, or tool making. They note that an investigation to discern the presence of a subsurface component at the site would help address the potential historical significance of the site. Staff therefore awaits the results of the geoarchaeology study before recommending whether Site 6 is eligible for listing in the CRHR. Absent a better understanding of the landscape context for the archaeological site and absent any examination of the sedimentary deposits beneath the surface artifact assemblage, staff believes a determination of the historical significance of the site would be premature.~~

Given that, based on the geoarchaeological study, there is a low likelihood of a subsurface component, the site does not appear to contain sufficient information potential to meet the criteria for inclusion in the CRHR.

Built Environment Resources Evaluations

There presently appear to be 16 built-environment resources that the proposed project may impact. The resources include 15 standing structures and one historic railroad in the project area of analysis that have the potential to be subject to direct impacts.

Descriptions and evaluations of the historical significance of the 16 built-environment resources that the proposed project may impact are presented below. The information for the descriptions and evaluations is drawn from (Hirsch 2008 and attachment 3 (DPR 523 series forms)).

In their survey, the applicant identified 15 standing structures that were (or would be by 2010) of sufficient age to be considered potentially significant historical resources (Hirsch 2008, p. 20). Fourteen of these resources (21000-21001 and 21257 79th Street, and 21001-21225 Neuralia Road) are simple ranch-style residences constructed between 1963 and 1964. These one-story residences are similar in plan and appearance. They are L-shaped buildings with predominantly gable roofs. The exteriors are clad with a combination of stucco and wood-veneer siding, and fenestration consists of aluminum sliding windows.

These 14 ranch-style residences located along 79th Street and along Neuralia are not eligible for inclusion in the CRHR. Evaluated under Criterion 1, the buildings are not associated with events that have made a significant contribution to the broad patterns of our history, either individually or as a part of a larger district. Rather they represent a common trend within the context of residential development. Research did not indicate these residences were associated with historically significant persons, and so they do not appear to be eligible under Criterion 2. Under Criterion 3, these fourteen resources do not embody a distinctive type, period, or method of construction. Instead, they represent a fairly standardized housing type and construction method. These resources are also not eligible under Criterion 4 because they are not likely to yield information important to history.

The remaining potential historical resource, "Rancho Cantil," located at 7696 Neuralia Road, consists of multiple structures—an abandoned vernacular residential building, a contemporary ranch-style residence, and several outbuildings. The applicant did not have access to the complex and was only able to survey the resource from the public-right-of-way. The abandoned residential structure appeared to be the only building that was more than 45 years old. The applicant reviewed historic maps and determined that the

resource appears on a 1947 USGS map, and so was constructed prior to 1947. The vernacular residence is a frame structure with a gable roof and appears to have been a ranch house at one time. The contemporary ranch-style house is thought to date within the last 30 years. The outbuildings are thought to be of wood, but neither the exact construction materials nor the age could be determined due to inaccessibility.

The applicant recommended that the pre-1947 vernacular residence at 7696 Neuralia Road could potentially be eligible for inclusion in the CRHR. However, staff believes it does not appear to meet the criteria for inclusion in the CRHR. Agricultural and ranching industries were unsustainable in the Fremont Valley and did not contribute to significant patterns within the development of this region and state. As a result, this residence does not appear to be significant within the patterns of area history under Criterion 1. Research did not indicate this residence was associated with historically significant persons, and so it does not appear to be eligible under Criterion 2. Under Criterion 3, this residence does not embody a distinctive type, period, or method of construction. This residence also is not eligible under Criterion 4 because it is not likely to yield information important to history.

An approximately 1.2-mile stretch of the “Jawbone” Branch (CA-KER-3366H) of the Southern Pacific Railroad forms the western boundary of the proposed BSEP plant site, and so was identified as a built-environment resource in the applicant’s survey of the 200-foot buffer zone around project components. This branch extends 90 miles from Mojave through the Jawbone region and Owens Valley to Owenyo (a few miles north of Lone Pine). The line was built between 1908 and 1912 to carry supplies for the construction of the Los Angeles Aqueduct. The first 23 miles of the branch line opened to Cantil on June 1, 1905. The applicant states that the Jawbone Branch is potentially significant under CRHR Criterion 1 for its association with the construction of the Los Angeles Aqueduct (BS 2008a).

Railroads, with their associated tunnels, trestles, and bridges are potentially significant under Criterion 1 if they are significantly associated with trends and/or events in transportation development or regional or local economic development. Railroads, however, like other transportation infrastructure, are inherently important to their communities, as they affect communication and the distribution of people, goods, and services that in turn affects development on both the local and regional levels. This effect is not typically sufficient to warrant recognition of a railroad as significant under Criterion 1, otherwise virtually any railroad, with its associated structures, would be shown to be important in this way.

To be eligible for listing in the CRHR, resource types such as railroads and other transportation infrastructure must have demonstrable importance directly related to important historic events and trends, with emphasis given to specific demand for such infrastructure, and its effects on social, economic, commercial, and industrial developments locally, regionally, or nationally. In this way, railroad lines and associated structures, may be significant as physical manifestations of important transportation and community developments on the local, regional, state, or national level.

The most common instance in which a railroad line or its separate structural components might be considered under Criterion 1 would be if either the line or separate components (tunnels, trestles, or bridges) were the first to be located at its site, thus providing expanded transportation opportunity and advancing economic development into previously isolated or underdeveloped areas. This development trend is identified as “ahead of demand” development, indicating the transportation route predated development and subsequent development directly related to the presence of the transportation route. One such example of this development pattern would be the line the Southern Pacific Railroad

constructed down the length of California's San Joaquin Valley. While several towns connected by wagon roads existed in the Central Valley prior to the coming of the railroad, the placement of the new line away from the wagon road initiated the development of a large number of new towns along the new transportation route. These towns, now the location of the valley's main populations, exist because the railroad was built through a previously undeveloped area, which in turn opened a new area for economic development.

In the case of the Jawbone Branch, the line did not significantly affect trends and or events in the development within the regional or local economy. Railroads are not likely to be eligible under Criterion 2 because they rarely illustrate a person's important achievements under Criterion 2. Historically significant persons associated with the development of the Southern Pacific Railroad are better represented by other historical resources. Under Criterion 3, this segment of the railroad does not represent embody a distinctive type, period, or method of construction nor would this resource be eligible under Criterion 4, for its potential to yield important information because railroads are well documented in the historical record.

Summary of CRHR-Eligible Resources for the Beacon Solar Energy Project

There are presently five cultural resources in the proposed project area that staff recommends as eligible for listing on the CRHR and that are, consequently, historical resources for the purposes of CEQA. The five historical resources are Sites 8, 9, and 11-13.

~~There are nine further cultural resources in the proposed project area that staff recommends assuming as eligible for listing in the CRHR for the purpose of the present staff assessment. Each of the nine resources, by benefit of the above assumption, would be historical resources under CEQA, and the consideration of the potential impacts of the proposed project on each would continue to be a part of the present analysis until such time as staff is able to recommend, on the basis of the results of the geoarchaeology study or further research, that a particular resource is not eligible for such listing. The nine resources are Sites 3, 6, 16-19, 54, 59, and BSPL-H-2-54. Staff recommendations on the historical significance of five of the nine subject resources, Sites 3, 6, and 17-19, await the results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) for a better understanding of the landscape context for each of these archaeological sites. Staff presently abstains from making historical significance recommendations in the present preliminary assessment for the four remaining sites, Sites 16, 54, 59 and BSPL-H-2, pending further consultation with the applicant on, variably, the character of site artifact assemblages and the rationale that structures arguments of historical significance.~~

The potential impacts of the proposed project on Sites 8, 9, and 11-13, fire-affected rock deposits that often include intact, buried fire features, and the outline of a program to mitigate those impacts and similar impacts to other archaeological sites of the same type that appear to be distributed in a zone across the eastern and northern portions of the project site are developed below.

~~The consideration of the potential impacts to Sites 3, 6, 16-19, 54, 59, and BSPL-H-2 and the mitigation for those impacts is being deferred to the FSA to allow staff and the applicant the opportunity to verify which of the sites may be subject to avoidance, to analyze the results of the geoarchaeology study, and to conclude consultation on the character of particular site artifact assemblages and the rationale that structures several of the applicant's arguments of historical significance, where such issues are unclear.~~

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE OF IMPACTS TO HISTORICAL RESOURCES

Under CEQA, “a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment” (Pub. Resources Code, § 21084.1). Thus, staff analyzes whether a proposed project would cause a substantial adverse change in the significance, that is, the CRHR eligibility, of all historical resources identified in the Cultural Resources Inventory as CRHR eligible. The degree of significance of an impact depends on:

- The cultural resource impacted;
- The nature of the resource’s historical significance;
- How the resource’s historical significance is manifested physically and perceptually;
- Appraisals of those aspects of the resource’s integrity that figure importantly in the manifestation of the resource’s historical significance; and
- How much the impact will change those integrity appraisals.

DIRECT/INDIRECT IMPACTS AND MITIGATION

In the abstract, direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic standing structures when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project construction creates improved accessibility and vandalism or greater weather exposure becomes possible.

Ground disturbance accompanying construction at a proposed plant site, along proposed linear facilities, and at a proposed laydown area has the potential to directly impact archaeological resources, unidentified at this time. The potential direct, physical impacts of the proposed construction on unknown archaeological resources are commensurate with the extent of ground disturbance entailed in the particular mode of construction. This varies with each component of the proposed project. Placing the proposed plant into this particular setting could have a direct impact on the integrity of association, setting, and feeling of nearby standing historic structures.

Construction Impacts and Mitigation

Identification and Assessment of Direct Impacts on Archaeological Resources and Proposed Mitigation

The assessment of the potential direct impacts of the proposed project on archaeological resources is presented below relative to three primary project components, the main plant site or project site, the transmission line, and the natural gas pipeline. Conceptual outlines of mitigation proposals for the impacts of each project component conclude the assessment for each respective component.

Main Plant Site

Construction related activities on the main plant site, or project site, have the potential to cause significant impacts to archaeological resources as follows:

- During site preparation, grading and leveling would take place (BS 2008a, p. 2-26), with a cut and fill method employed. These activities would destroy all surface archaeological resources on the project site and may potentially impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- During construction, a 14,000-foot long drainage channel would be constructed, with an average channel depth of 8 feet (BS 2008a, p. 2-25). This excavation could potentially impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- During construction, a 9,000-foot long existing railroad drainage (1 foot deep and minimally 15 feet wide at the bottom) would be rerouted towards the rerouted dry wash (BS 2008a, p. 2-25). These activities could potentially impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- During construction, three evaporation ponds measuring 8.3 acres each, with a depth not yet determined, would be excavated (BS 2008a, p. 2-19). These excavations could potentially impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- During construction, security fencing would be installed surrounding the project site, including the solar field (BS 2008a, p. 2-25). This activity could potentially impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- During construction, in the event that new water supply wells would be installed (BS 2008a, p. 2-14), these excavations could potentially impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- During construction, holes for foundations for components would be excavated (BS 2008a, p. 2-4-2-5; DB 2008d, Response to Data Request No. 33). These excavations could potentially impact

buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.

CULTURAL RESOURCES TABLE 7

Summary of Project Components and Component Foundation Depths⁷

Project Component	Foundation Depth's
Steam Turbine	8'-10'
Circulating Water Pipe	12'-15'
Cooling Tower Basin	18'-22'
Oil/Water Separator	2.5'-3' (above ground)
Solar Field Pedestals	12'-15'

* DB 2008d, Response to Data Request No. 33

The primary significant direct impact of the construction of the proposed project on historical resources on the project site presently appears to be the complete destruction of Sites 8, 9, ~~and 11-13, and FWARG-1.~~ It also appears likely, at present, that other archaeological sites similar in character to the subject sites are buried in a zone (~~Archaeological Zone 1 (identified as landform Hf2 in the Geotechnical Study [Response to Supplemental Data request 34])~~) across the eastern and northern portions of the project site. Many of these latter potential archaeological deposits would also be subject to destruction as a result of the proposed construction activity. The results of the geoarchaeology study ~~will~~ provide a factual basis to help delimit the extent of ~~Archaeological Zone 1 (landform Hf2)~~ and to estimate the potential population of the above and other types of buried archaeological deposits in the zone.

Staff will propose in the FSA, as a condition of certification, a mitigation program for ~~Archaeological Zone 1 (landform Hf2)~~, the purpose of which will be to reduce the direct impacts of construction activity on the historical resources in the zone to less than significant [~~Note: A draft of proposed mitigation measures for the FSA, dated April 7, 2009, were docketed on April 10, 2009. Comments on these measures are provided as Attachment CUL-2]. The results of the geoarchaeology study (see "Geoarchaeology Study" subsection, above) and further consultation with the applicant are requisite antecedents to the preparation of the formal program.~~ Staff takes the opportunity here to propose the broad strokes of the mitigation program to stimulate public discussion on its potential form.

The basic staff proposal for the mitigation program for ~~landform Archaeological Zone 1 Hf2~~ is for a phased program that mitigates the impact of the proposed project on a particular archaeological site type, clusters of prehistoric fire features. Staff envisions phases to better inventory the population of fire features in the

⁷ Once the fill has been placed, the elevations of the components inside of the power block would be 0'-5' less than what is shown here.

zone, to document the variation in the physical character, the content, and the age of the features, and to document the material culture assemblages that may be present on the buried land surfaces that may surround the features.

There a number of options to consider to better inventory the buried prehistoric fire features that are likely to be present in [landform Archaeological Zone 4Hf2](#). A staff field inspection on January 27, 2009, of the subsurface stratigraphy of the zone during the field phase of the geoarchaeology study found that the sedimentary deposits below the surface of the zone are largely made up of fine-grained silts that contain almost no gravel. The types of fire features that are now known from Sites 8, 9, 11, ~~and-12~~, ~~and FWARG-1~~, features that typically include clusters of fire-affected, igneous pebbles and cobbles, and fire-hardened bands of oxidized sediments, are so distinct from the sedimentary matrix that encases them that the features may be high quality candidates for location using geophysical methods such as ground-penetrating radar or magnetometry. The use of geophysical methods to conduct a sample survey as the initial inventory phase of the mitigation program offers the opportunity to more accurately and efficiently document the extent and the character of [Archaeological Zone 4landform Hf2](#). The results of a geophysical survey would be subject to ground-truthing to verify and refine the survey results. If the results of the geophysical survey prove to be reliable, then the mitigation program would shift into a data recovery phase to investigate a sample of the fire features and to search for and document a sample of the buried land surfaces that may surround them. If the results of the geophysical survey prove inconclusive, then a sample subsurface survey of the zone would be conducted mechanically using equipment such as a road grader.

Staff envisions a data recovery phase for the [Archaeological Zone 4 \(landform Hf2\)](#) mitigation program that would include two primary investigative foci. One focus would be small excavation exposures to uncover and document a sample of the fire features in the zone. The purpose of this documentation would be to gather data for the description of the physical variability of the features in the archaeological record, for the identification and inventory of the artifacts and ecofacts that are found in them, and for the interpretation of the methods of construction and the potential uses of the features. A second focus would be larger block exposures to attempt to uncover a sample of the buried land surfaces that may surround the fire features and to document the material culture assemblages that may be found on such surfaces. The purpose of this documentation would be to gather data on the composition and spatial distribution of the assemblages for more holistic interpretations of the use of the features and for interpretations of the broader behavioral contexts in which the use of the features were embedded. A staff field inspection on January 27, 2009, of the subsurface stratigraphy of the zone during the field phase of the geoarchaeology study found that the preservation of subtle sedimentary features such as ancient polygonal surface cracks was common and indicates that the character of the sedimentary deposition in Archaeological Zone 1 would highly favor the preservation of archaeological deposits.

The construction of the proposed project may pose other significant impacts on historical resources on the project site. it is not presently well understood the extent to which known surface archaeological sites may have significant subsurface components. There may also be other buried archaeological sites outside of [Archaeological Zone 4landform Hf2](#), or buried archaeological sites of other types may be in [Archaeological Zone 4landform Hf2](#).

The results of the geoarchaeology study ~~will~~ provide a factual basis to help develop, in the FSA, the scope of the construction monitoring that will be necessary on the project site. Staff will propose a condition of certification for construction monitoring that prescribes different monitoring protocols for the

project site, the transmission line alignment, and the natural gas pipeline alignment. The protocol for the project site will incorporate the results of the geoarchaeology study to tailor, and hopefully, diminish, the necessary scope for that monitoring effort.

Transmission Line

Construction-related activities have the potential to cause significant impacts to archaeological resources in or near the two proposed alternative project transmission line routes as follows:

- Foundation holes for 36 new steel/concrete monopoles (the same number would be required for either alternate route) would be excavated along the selected transmission line route (BS 2008a, p. 2-30). These activities could potentially impact surface archaeological resources in or near the selected transmission line route, and buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- A new dirt access road to the LADWP Inyo-Barren Ridge 230-kV transmission line would be cleared and graded, the length of the new road-1.0 mile or 1.9 miles—depending on which transmission line option is selected. Additionally, new stub access roads, about 100 feet long, would be cleared and graded from the existing LADWP service road to each of the Inyo-Barren Ridge 230-kV transmission line towers (BS 2008a, p. 2-30). These activities could potentially impact surface archaeological resources along these new roads, and buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.
- Eight pulling sites would be established along the selected transmission line route (BS 2008a, p. 2-32). The pulling activities could potentially impact surface archaeological resources in or near the selected transmission line route, and buried archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.

No significant direct construction impacts to historical resources along the alignment for the proposed transmission line are presently confirmed (see “Summary of CRHR-Eligible Resources for the Beacon Solar Energy Project” subsection, above). There appear to be two archaeological sites, Sites 54 and 59 (see “Archaeological Resources” subsection, above), that would potentially be subject to construction impacts from the proposed project, but the status of the sites as being eligible for listing on the CRHR or as being chosen by the applicant for avoidance remains unresolved at this time. Staff will propose any plans for the disposition of the sites that are ultimately requisite as conditions of certification in the FSA. The condition of certification that covers construction monitoring will include a monitoring protocol appropriate to the character of the construction impacts along the transmission line alignment.

Natural Gas Pipeline

Construction-related activities have the potential to cause significant impacts to archaeological resources in or near the natural gas pipeline corridor as follows:

- During construction, a 48-inch-wide trench for the installation of a new 17.6-mile long, 8-inch-diameter natural gas pipeline would be excavated to a depth of 4 to 10 feet below the surface to connect the proposed power plant to an existing Southern California Gas (SCG) pipeline located west of California City (BS 2008a, p. 2-2728). These excavations could potentially impact buried

archaeological resources, unidentified at this time, to the extent of the area and depth of the ground disturbance in the native soils of the site.

No significant direct construction impacts to historical resources along the alignment for the proposed natural gas pipeline are presently confirmed (see “Summary of CRHR-Eligible Resources for the Beacon Solar Energy Project” subsection, above). There appears to be one archaeological site, BSPL-H-02 (see “Archaeological Resources” subsection, above), that would potentially be subject to construction impacts from the proposed project, but the status of the site as being eligible for listing on the CRHR or as being chosen by the applicant for avoidance remains unresolved at this time. Staff will propose any plan for the disposition of the site that is ultimately requisite as a condition of certification in the FSA. [At the April 14, 2009 Workshop, Beacon stated that site BSPL-H-02 is outside of any area of planned disturbance for the project and that the site will be avoided.](#) The condition of certification that covers construction monitoring will include a monitoring protocol appropriate to the character of the construction impacts along the natural gas pipeline alignment.

Identification and Assessment of Direct Impacts on Ethnographic Resources

No ethnographic resources, either previously recorded or newly disclosed in the communications with Native Americans conducted by the applicant for the proposed project, were identified in the vicinity of the project. The proposed project would, therefore, have no significant impact on ethnographic resources.

Identification and Assessment of Direct Impacts on Built-Environment Resources and Proposed Mitigation

No built-environment resources that qualify as historical resources for the purpose of CEQA analysis are now known or likely to be found in the project area of analysis. The proposed project would, therefore, have no significant impact on built-environment resources.

Indirect Impacts

Neither the applicant nor Energy Commission staff has identified any indirect impacts to any CRHR-eligible resources in the project area of analysis. Staff believes, therefore, that mitigation for indirect impacts is not necessary for the proposed project.

Operation Impacts and Mitigation

During operation of the proposed BSEP project, if a leak should develop in the gas or water pipelines supplying the plant, repair of the buried utility could require the excavation of a large hole. Such repairs could impact previously unknown subsurface archaeological resources in areas unaffected by the original excavation. The measures proposed above and below to mitigate impacts to previously unknown archaeological resources found during the construction of the proposed project would also serve to mitigate impacts that occur due to repairs that are made during the operation of the plant.

Cumulative Impacts and Mitigation

A cumulative impact refers to a proposed project’s incremental effects considered over time and together with those of other, nearby, past, present, and reasonably foreseeable future projects whose impacts may

compound or increase the incremental effect of the proposed project (Pub. Resources Code sec. 21083; Cal. Code Regs., tit. 14, secs. 15064(h), 15065(a)(3), 15130, and 15355). Cumulative impacts to cultural resources in the BSEP vicinity could occur if any other existing or proposed projects, in conjunction with the proposed BSEP, had or would have impacts on cultural resources that, considered together, would be significant. The previous ground disturbance from prior projects and the ground disturbance related to the future construction of the BSEP and other proposed projects in the vicinity could have a cumulatively considerable effect on subsurface archaeological deposits, both prehistoric and historic. The alteration of the setting which could be caused by the construction and operation of the proposed BSEP and other proposed projects in the vicinity could be cumulatively considerable, but may or may not be a significant impact to cultural resources.

In addition to the BSEP, the applicant has identified two other projects in the general area. The Los Angeles Department of Water and Power (LADWP) Barren Ridge-Castaic Transmission Project is a transmission line which would run south from the Barren Ridge Switching Station (located about 1.5 miles south of the project site and the point of interconnection for BSEP's Option 1 transmission line) to Los Angeles County. This LADWP project is in the early stages of the environmental review process, and no data on potential cultural resources impacts are yet available (BS2008a, p. 5.4-24). Consequently, this project's contribution to a cumulative impact to cultural resources has not yet been determined.

Cultural resources consultants for the other known nearby project, the Pine Tree Wind Development project (located six miles west of the BSEP site) identified seven archaeological sites recommended as CRHR eligible and requiring impact mitigation in the form of data recovery (BS 2008a, p. 5.4-24). Thus this project's impacts would be mitigated, and it would not contribute to a cumulative impact to cultural resources. Staff is not aware of any other projects in the vicinity of the BSEP site.

Staff has proposed conditions of certification that would mitigate the BSEP's impacts to known CRHR-eligible cultural resources to below the level of significance. Staff has also proposed conditions of certification for the BSEP project providing for identification, evaluation, and avoidance or mitigation of impacts to previously unknown CRHR-eligible archaeological resources discovered during the construction of the project.

Proponents of any other future projects in the vicinity of the BSEP could mitigate impacts to as-yet-undiscovered subsurface archaeological sites to less-than-significant levels by requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for resources evaluated as CRHR-eligible. Impacts to human remains can be mitigated by following the protocols established by state law in Public Resources Code, section 5097.98. Since the impacts from the proposed BSEP would be mitigated to a less-than-significant level by the project's compliance with proposed Conditions of Certification CUL-1 through CUL-8, and since similar protocols can be applied to other projects in the area, staff does not expect any incremental effects on cultural resources of the proposed BSEP to be cumulatively considerable when viewed in conjunction with other projects.

COMPLIANCE WITH LORS

If the conditions of certification below and those that Energy Commission staff will propose in the FSA are properly implemented, the proposed BSEP would result in a less-than-significant impact on known and newly found cultural resources. The project would therefore be in compliance with the applicable state laws, ordinances, regulations, and standards listed in Table 1.

Kern County's General Plan has language promoting the general county-wide preservation of cultural resources, CEQA compliance for discretionary projects, and notification of Native Americans about discretionary projects of concern to them. Staff's proposed conditions of certification here and those that staff will propose in the FSA will require specific actions not just to promote but to effect historic preservation and mitigate impacts to all cultural resources in order to ensure CEQA compliance. Consequently, if BSEP implements these conditions, its actions would be consistent with the cultural-resources-related goals of Kern County.

CONCLUSIONS AND RECOMMENDATIONS

The present cultural resources analysis is able to conclude that the construction, operation, and maintenance of the BSEP will cause substantial adverse changes in the significance of historical resources, but staff is presently unable to identify or adequately anticipate the complete scope of these significant effects to the environment. The conditions of certification proposed here are, consequently, incomplete.

The applicant is in the process of preparing a geoarchaeology study (see "Geoarchaeology Study" subsection, above) the results of which will provide relatively high resolution information critical to a substantive analysis of the scope of the impacts that the project would have on cultural resources and to the development of effective mitigation measures that may demonstrably reduce such impacts to less than significant. At present, absence of the results of the geoarchaeology study precludes the ability of staff to make recommendations to the Energy Commission on the eligibility of a number of archaeological sites and archaeological site components in the project area (prehistoric components of Sites 3 and 6, and Sites 17-19) for listing in the CRHR (see "Archaeological Resources" subsection, above). The results of the geoarchaeology study are also critical to the preparation of the proposed mitigation program for [Archaeological Zone 4 Landform Hf2](#) across the northern and eastern portions of the project site (see "Archaeological Resources in the Project Area" subsection, above). [Archaeological Zone 4 Landform Hf2](#) is a zone of clusters of surface and subsurface prehistoric fire features the extent and character of which are as yet poorly known. The zone includes five historical resources (Sites 8, 9, and 11-13) which may be destroyed as result of project construction. Energy Commission staff envisions a condition of certification for a proposed, multiple-phase program of mitigation to better inventory the population of the fire features in the zone, to recover data on the variation in the physical character, the content, and the age of the features, and to recover data on the material culture assemblages that may be present on the buried land surfaces that may surround the features. The applicant is presently in the process of conducting the geoarchaeology study and foresees being able to provide preliminary results of the study prior to the publication of the FSA.

~~The construction, operation, and maintenance of the proposed project also has the potential to have significant impacts on four additional archaeological sites (Sites 16, 54, 59 and BSPL-H-2) the historical significance of which remain uncertain (see "Archaeological Resources" subsection, above). Staff anticipates that further consultation with the applicant on such issues as the character of the artifact assemblages on some of the sites and the rationale that structures arguments of the historical significance of others will resolve the outstanding concerns and facilitate the final disposition of these cultural resources. Should any of these archaeological sites warrant staff recommendations as being historical resources, staff would propose conditions of certification in the FSA to mitigate the potential impacts of the proposed project on them.~~

~~A final consideration that will shape the need for and the character of the conditions of certification that staff will propose for the FSA is that the applicant has informally proposed to avoid a total of five archaeological sites (Sites 6, 8, 54, BSPL-H-2, and CA-KER-3366H). The archaeologists for the applicant relate in the report of the evaluation program (Apple, Cleland, and Glenny 2008, p. v) that the applicant had committed to avoiding Sites 6, 54, BSPL-H-2, and CA-KER-3366H prior to the implementation of the evaluation program and subsequently committed to avoiding Site 8. Staff is unaware of any formal public commitments to avoid these cultural resources and does not know whether the applicant would propose to avoid the resources through the re-design of portions of the proposed project or through the implementation of avoidance measures. Staff requests that the applicant clarify, in response to the present document, whether and how the proposed project intends to avoid the above archaeological sites. Any plans to avoid the archaeological sites through the implementation of avoidance measures would require conditions of certification to facilitate such avoidance. Any plans to avoid the archaeological sites through project re-design would not.~~

The proposed conditions of certification below, CUL-1 through CUL-8, are standard cultural resources conditions that are applicable to the proposed project. The conditions are intended to facilitate the identification and assessment of previously unknown archaeological resources (excluding hearths) encountered during construction-related ground disturbance and to mitigate any significant impacts from the project on any newly found resources assessed as CRHR-eligible. To accomplish this, the conditions provide for the hiring of a Cultural Resources Specialist and archaeological monitors, for cultural resources awareness training for construction workers, for the archaeological and Native American monitoring of ground-disturbing activities, in particular situations, for the recovery of data from CRHR-eligible discovered archaeological deposits, for the writing of a technical archaeological report on all archaeological activities and findings, and for the curation of recovered artifacts and other data. When properly implemented and enforced, staff believes that these conditions of certification would contribute toward reducing to less-than-significant any impacts to previously unknown cultural resources encountered during construction or operation. The adoption and implementation of these conditions would also foster BSEP conformity with applicable LORS.

Staff anticipates modifying the proposed conditions of certification prior to the publication of the FSA in response to the results of the geoarchaeology study and further consultation with the applicant. The FSA will also include conditions of certification for the mitigation program for Archaeological Zone 1|andform Hf2, and for the mitigation or protection of other archaeological sites that are ultimately recommended as being eligible for listing in the CRHR.

ATTACHMENT CUL-2

PROPOSED CULTURAL RESOURCES MITIGATION

The following text, dated April 7, 2009, is from a docketed email containing Staff's proposed mitigation measures for the FSA. Beacon's amendments are included in a redline markup format.

Archaeological Zone 1

The destruction of a portion of ~~Archaeological Zone 1 (landform Hf2)~~ as a result of the construction of the proposed project would cause a substantial adverse change in the significance of ~~the a~~ historical resource, and would, therefore, have a significant effect on the environment. Staff here proposes a program to mitigate the partial loss of the resource. The ~~partial loss of the resource represents a loss of contains~~ information that it is in the public interest to preserve. The proposed mitigation program attempts to compensate the public for the potential loss of a unique body of information on the prehistory and early history of Native American life in Fremont Valley through the partial recovery and dissemination of that information. Two possible approaches to mitigation are feasible: 1) Standard construction monitoring and treatment of additional resources as discoveries under the CRMMP; or 2) a program that would first identify additional hearth features and then perform data recovery on a sample of these prior to construction.

Staff ~~proposes~~ prefers the second approach that would involve a phased program that would mitigate the destruction of buried deposits that represent the one type of archaeological site that is presently known to make up Archaeological Zone 1. Clusters of traditional Native American fire features such as those found at archaeological sites FWARG-01, and Sites 8, 9, and 11 and 12 represent that site type. The phases of mitigation that staff proposes would serve to recover information on the part of the zone that would be subject to destruction through (a) the development of a more complete inventory of the population of the fire feature clusters that make up the zone, (b) the documentation of the variation in the physical character, the material content, and the age of the constituent features in the clusters, and (c) the documentation of the material culture assemblages that may be present on the buried land surfaces that may surround constituent features. To further mitigate the ~~loss of information on impacts to the resources contained in the landform Hf2 zone~~, staff also proposes that the applicant review the appropriateness of designating an archaeological district based on the results of the data recovery program. If, in consultation, it is determined that a district has been identified, a State district form could be completed, along with the preparation of a National Register of Historic Places nomination and its formal submission to the State Historical Resources Commission for consideration, and professional and public interpretation initiatives.

There a number of options to consider to better inventory the balance of the buried fire features that are most likely present in ~~Archaeological Zone landform Hf2~~ 1. A staff field inspection on January 27, 2009, of the subsurface stratigraphy of the zone during the field phase of the geoarchaeology study found that the sedimentary deposits below the surface of the zone are largely made up of fine-grained silts that contain almost no gravel. The types of fire features that are now known from archaeological sites FWARG-01, and Sites 8, 9, 11, and 12 features that typically include clusters of fire-affected, igneous pebbles and cobbles, and fire-hardened bands of oxidized sediments-- are so distinct from the sedimentary matrix that encases them that the features may be high-quality candidates for location using geophysical methods such as ground-penetrating radar or magnetometry. The use of geophysical methods to conduct a

sample survey as the initial inventory phase of the mitigation program offers the opportunity to more accurately and efficiently document the extent and the character of Archaeological Zone 1 the resources in Hf2 [Note: at the April 14, 2009 PSA Workshop, Staff recommended a geophysical sample of 20% of landform Hf2]. A representative sample of the results of a geophysical survey would be subject to ground-truthing to verify and refine the survey results-methods. If the results of the geophysical survey prove to be reliable, then the mitigation program would shift into a data recovery phase to investigate a sample of the fire features and to search for and document a sample of the buried land surfaces that may surround them. If the results of the geophysical survey prove inconclusive, then a sample subsurface survey of the zone would be conducted mechanically using equipment such as a road grader or a backhoe [Note: At the April 14, 2009 PSA Workshop, Staff recommended mechanical sampling of 10% of land for Hf2].

Hf2 encompasses approximately 550 acres. It is proposed that a geophysical sample be conducted of up to 5 percent (approximately 27 acres) of Archaeological Zone 1. If the results of the geophysical survey are inconclusive, then up to a 2.5 percent sample will subject to mechanical investigation. To maximize subsurface identification efforts, work will focus first in the vicinity of known sites with buried hearth features. In addition a stratified sample will be included to address the distribution of the hearth features. Within these stratified sample units both randomly and judgmentally placed transects will be subject to investigation.

Staff proposes a data recovery phase for the Archaeological Zone 1 archaeological resources mitigation program that would include different modes of investigation for different aspects of the fire feature clusters. No data recovery is required at the known sites with hearth features. One mode would be small excavation exposures to uncover and document a sample of the individual fire features in the zone. The purpose of this documentation would be to gather data for the description of the physical variability of the features in the archaeological record, for the identification and inventory of the artifacts and ecofacts that are found in them, and for the interpretation of the methods of construction and the potential uses of the features. It is proposed that up to 12 of the features be excavated as small excavation exposures up to 1 m³ each. A second mode of investigation would be larger block exposures to attempt to uncover a sample of the buried land surfaces that may surround individual fire features or groups of them, and to document the material culture assemblages that may be found on such surfaces. The purpose of this documentation would be to gather data on the composition and spatial distribution of the assemblages for more holistic interpretations of the use of the features and for interpretations of the broader behavioral contexts in which the use of the features were embedded. It is proposed that up to four of the features be subject to the larger block excavations, not to exceed 2 meter by 2 meter areas. A staff field inspection on January 27, 2009, of the subsurface stratigraphy of the zone during the field phase of the geoarchaeology study found that the preservation of subtle sedimentary features such as ancient polygonal surface cracks was common and indicates that the character of the sedimentary deposition in Archaeological Zone 1 would highly favor the preservation of former land surfaces and archaeological deposits related to their use. In areas where features are covered by non-cultural deposits, mechanical excavation may be employed to remove overburden.

Successful implementation of the field portion of these mitigation measures will allow construction to proceed. In addition, the construction monitoring program will involve only the upper 2 meters of landforms Hf1 and Hf1d, and upper 4 meters of landform Hf4. No construction monitoring of landforms Hf2 or Hf3 will be required.

Staff proposes further mitigation measures to promote the preservation of the portion of Archaeological Zone 1 that the construction of the proposed project would not destroy and to interpret the zone for the benefit of the public and the professional archaeological community. One ~~measure would be the preparation of a National Register of Historic Places nomination for the zone and the submission of the nomination to the State Historic Resources Commission for formal consideration. Such a nomination would facilitate pulling the extant information for the zone together in one place, and the consideration of the nomination would help to raise public awareness of it, if not afford it greater protection under State and Federal historic programs in the future.~~ Another measure would be the preparation and presentation of materials that interpret the zone for the public so that the public derives a direct benefit from the degradation of their environment. Public interpretation initiatives may include the preparation of an instructional module for use in local school districts, or the preparation of a display for existing public interpretation venues such as Red Rock Canyon State Park, or a presentation to local groups such as the Maturango Museum. As a final measure Beacon will give the Cultural Resource Specialist, or other qualified researcher permission to use data collected for BSEP to be used in the ~~would be the~~ preparation and presentation of a paper or a journal article to inform the professional archaeological community of the zone and to interpret its implications for our understanding of the prehistory and early history of Native American life in the region.

HAZARDOUS MATERIALS MANAGEMENT

Requested Changes to the Conditions of Certification for Hazardous Materials Management

Beacon's proposed changes to two conditions are presented below.

HAZ-1 The project owner shall use only those hazardous materials listed in Appendix A unless the hazardous material is in quantities less than 55 gallons for liquids, 500 pounds for solids, 200 cubic feet for gases, and any amount of extremely hazardous materials. For materials in excess of the aforementioned thresholds, the hazardous material shall be approved in advance by the Compliance Project Manager.

For materials less than the aforementioned thresholds, the hazardous material shall be reviewed and approved by the Construction Safety Supervisor (CSS) prior to bringing the material on-site. The CSS shall submit in the Monthly Compliance Report a list of all new hazardous materials approved for use by the CSS for the applicable month.

~~The project owner shall not use any hazardous materials not listed in Appendix A, below, or in greater quantities than those identified by chemical name in Appendix A, unless approved in advance by the Compliance Project Manager (CPM).~~

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.

RATIONALE

Appendix A lists all chemicals planned for use in "large quantities," which was defined as 55/gallons/500 pounds/200 scf. There is already a requirement in California to advise the Kern County Environmental Health Services Department (KCEHSD) of any new chemical brought on site above the threshold, or a 100% increase in any existing chemical storage. These trigger levels are appropriate for the advance notice and approval requirements contained in HAZ-1. As written, the proposed condition does not allow for the use of small quantity materials (e.g., janitorial and office supplies, spray paints, calibration gases, etc.). The Condition appears to apply to both construction and operation phase hazardous materials. It is unreasonable to propose an "any" standard.

HAZ-5 The project owner shall prepare a site-specific Security Plan for the operational phase and shall be made available to the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high around the Power Block and Solar Field;
2. Main entrance security gate, either hand operable or motorized;
3. Evacuation procedures;
4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;
6.
 - a. A statement (refer to sample, attachment "A") signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;
 - b. A statement(s) (refer to sample, attachment "B") signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner) that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractor personnel that visit the project site.
7. Site access controls for employees, contractors, vendors, and visitors;
8. Closed Circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate; and
9. ~~Additional measures to ensure adequate perimeter security around the Power Block consisting of either: Additional measures to ensure adequate perimeter security consisting of either:~~
 - a. Security guard present 24 hours per day, seven days per week, OR
 - b. Power plant personnel on-site 24 hours per day. Seven days per week and all of the following:
The CCTV monitoring system required in number 9(b)(1) above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100% of the perimeter fence of the Power Block, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; AND
 - c. Perimeter breach detectors or on-site motion detectors.

~~Power plant personnel on-site 24 hours per day, seven days per week and all of the following:~~

 - 1) ~~The CCTV monitoring system required in number 8 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100% of the perimeter fence, the outside entrance to the control room, and the front gate from a monitor in the power plant control room~~

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical

Reliability Council, after consultation with appropriate law enforcement agencies and the applicant.

Verification: At least 30 days prior to the initial receipt of hazardous materials on-site, the project owner shall notify the CPM that a site-specific Operations Site Security Plan is available for review and approval. In the Annual Compliance Report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and updated certification statements are appended to the Operations Security Plan. In the Annual Compliance Report, the project owner shall include a statement that the Operations Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

RATIONALE

The Condition requires either 24-hour/seven day security guard or 24-hour manned facility operation plus closed circuit TV (CCTV) and perimeter breach detectors or on-site motion detectors of the entire perimeter of the facility, including the solar field. To require CCTV and breach detectors or motion sensors around the power block appears reasonable, but imposing this same requirement around the entire perimeter of the facility including the solar field is excessive. In terms of the potential for security issues that could pose risks for the public outside the facility itself, the potential risks are very small for the solar field in comparison to the power block.

LAND USE

Requested Changes to the Conditions of Certification for Land Use

Beacon's proposed changes are presented below.

LAND-2 The project owner shall notify the Department of Defense (DOD) about the radio frequencies that would be used during the BSEP's operation. This would allow the DOD to determine if the project's use of those radio frequencies would interfere with military activities within the R-2508 Military Complex area.

Verification: At least 30 days prior to ~~publication of the Final Staff Assessment for construction of~~ the Beacon Solar Energy ~~P~~project, the project owner shall provide DOD representatives with information about the specific radio frequencies to be used during project construction and operation. As needed, the project owner will modify the radio frequencies per DOD requirements. These modifications must be confirmed in writing from the DOD and shall be submitted to the CPM for review and approval.

RATIONALE

The timing of having the radio frequency provided prior to issuance of the FSA is unreasonable. Radio frequencies will not be finalized and confirmed until prior to construction and operation. Beacon therefore requests that the timing of the condition be modified as requested.

NOISE

Requested Changes to the Conditions of Certification for Noise

Beacon's proposed changes are presented below.

NOISE-6 If a traditional, high-pressure steam blow process is employed, the project owner shall ~~equip steam blow piping with a temporary silencer~~ perform the steam blow in such a way that ~~quiets the~~ noise of steam blows is to no greater than 110 dBA measured at a distance of 100 feet from the property line. The project owner shall conduct steam blows only during the hours of 8 a.m. to 5 p.m., unless the CPM agrees to longer hours based on a demonstration by the project owner that offsite noise impacts will not cause annoyance. If a low-pressure continuous steam blow process is employed, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM. ~~comply with the applicable California and federal regulations.~~

Verification: At least 15 days prior to the first ~~high-pressure~~ steam blow, the project owner shall submit to the CPM drawings or other information describing the process, the methodology to be used to ~~temporary steam blow silencer~~ reduce noise to the acceptable levels, and the noise levels expected, and a description of the steam blow schedule. ~~At least 15 days prior to any low pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.~~

RATIONALE

Beacon notes that the requirements for steam blows for a solar plant are significantly different than those required for a combined-cycle plant. Furthermore, the power block for the BSEP is located fairly distant from nearby residences and other receptors. Therefore, Beacon does not believe that silencing equipment for steam blows is needed and is investigating historical experience for steam blows of solar projects including the options outlined by Staff for low noise, long duration steam cleaning.

PUBLIC HEALTH

Per Staff recommendations, a multi-pathway health risk assessment (HRA) was performed for the BSEP using the Hotspots Analysis and Reporting Program (HARP) software (version 1.4a). The HRA evaluated toxic air contaminant emissions from the proposed operation of the auxiliary boilers, emergency diesel fire water pump, cooling tower, the HTF vent, and waste-loadout at the BSEP. The dispersion of the pollutant emissions was modeled outside of HARP using the U.S. EPA regulatory model AERMOD to estimate ambient concentrations, which were later used in HARP to estimate health impacts. The HARP On-Ramp tool (version 1) facilitated the use of AERMOD files with HARP. The HRA was performed for three consecutive years of sequential hourly meteorological data (same as in the air quality impact analysis). The receptors evaluated included discrete fence-line and nested Cartesian grid receptors within 10 km of the facility boundary.

The HRA results show that the maximum cancer and non-cancer health impacts from the operation of the BSEP are well below the significance thresholds adopted by the KCAPCD. Thus, the operation of the BSEP is not expected to pose a significant risk to public health. Detailed discussion of the HRA is provided in Attachment PUBLIC HEALTH-1.

Summary of Maximum Impacts

Receptor/Exposure	Maximum Cancer Risk ¹ (Receptor ID)	Maximum Chronic Hazard Index (Receptor ID)	Maximum Acute Hazard Index (Receptor ID)
MEIR	0.57 (5867)	0.0003 (5867)	0.0004 (717)
MEIW	0.11 (5867)	0.0003 (5867)	0.0004 (717)
Sensitive (Child)	0.14 (5867)	--	--
Significance Criteria	10	1	1
Significant (Yes/No)?	No	No	No
MEIR – Maximum Exposed Individual Resident (70-year exposure); MEIW – Maximum Exposed Individual Worker (40-year exposure); and MEIC – Maximum Exposed Individual Child (9-year exposure).			
¹ Cancer risk is reported as additional cases per one million exposures.			

These results are provided solely such that Staff can more readily compare these insignificant impacts to other projects. No changes to PSA proposed Conditions of Certification are requested.

ATTACHMENT PUBLIC HEALTH-1

HEALTH RISK ASSESSMENT

This report presents the results of an updated health risk assessment (HRA) performed for the BSEP using Hotspots Analysis and Reporting Program (HARP) software per Staff recommendations. The report only discusses the health risk modeling methodology and results and does not include detailed discussions on other unaffected areas of the original Public Health Section (Section 5.10) of the BSEP Application for Certification (AFC) submittal.

Health Risk Assessment Methodology

The HRA contains three quantitative determinations: emission estimation, air dispersion modeling, and health risk characterization. With limited exceptions, source emissions of Toxic Air Contaminants (TAC) from the Project were estimated based on EPA emission factors and quantification methods for facility operations. Exposure calculations were performed using air dispersion modeling analysis to predict ground-level air concentrations, by source. Results of the air modeling exposure predictions were then applied to the emission estimates and, along with the respective cancer health risk factors and chronic and acute non-cancer reference exposure levels for each toxic substance, a health risk characterization was performed that quantified individual health risks associated with predicted levels of exposure.

The Project HRA was performed using the HARP software package (Version 1.4a) developed by the ARB for conducting health risk assessments in California under the Air Toxics Hot Spots Program (ARB, 2008). The Project HRA is a multi-pathway risk analysis including evaluation of inhalation, soil ingestion, dermal absorption, and mother's milk ingestion. The inhalation pathway would be the dominant pathway for public exposure to chemical substances released by the Project and is expected to represent the majority of the predicted risk.

Toxic Air Contaminant Emissions

Emission sources of chemical substances of concern that may be associated with the BSEP facility include the auxiliary boilers, emergency diesel fire water pump, the cooling tower, HTF vent, and waste-loadout. No appreciable quantities of TAC are expected to be emitted from operation of the solar field array or the emergency fire water pump fuel tank. Detailed emissions from the project are provided in the original Application for Certification (AFC) submittal to the CEC (BSEP AFC, Section 5.10, Public Health, March 2008).

Air Dispersion Modeling

The methods and requirements used to conduct the air dispersion modeling analysis for estimating concentrations of TAC are presented below.

Air Dispersion Model. The dispersion analysis was performed outside the HARP modeling system using EPA regulatory model AERMOD (version 5.8.0), which estimates both short-term and long-term average ambient concentrations at receptor locations to produce exposure estimates. AERMOD was used in the rural mode with all model option switches set to regulatory-default settings. Modeling was performed using a Universal Transverse Mercator (UTM), zone 11 NAD83 datum coordinate system. AERMOD accounts for site-specific terrain, meteorological conditions, and emissions parameters such as

stack exit velocities and temperatures in order to estimate ambient concentrations. The emissions from the BSEP sources were modeled in AERMOD using a normalized (“unit”) emission rate to later use with the actual emission rates for risk characterization in HARP. HARP On-Ramp (version 1) which allows use of AERMOD modeling files with HARP was used to prepare HARP required files from AERMOD dispersion modeling files.

Meteorological Data. Air dispersion analysis was conducted using three consecutive years (2002-2004) of sequential hourly meteorological data. Three years (2002-2004) of wind speed, wind direction and temperature data from the nearby Mojave Poole Street meteorological site were obtained from EPA Air Quality System (AQS) (<http://www.epa.gov/ttn/airs/airsaqs/aqsweb/>). The meteorological tower has an anemometer height of 10.0 meters. The tower data were supplemented with National Weather Service (NWS) data from General William J. Fox Field in Lancaster, California to fill in missing data and to provide cloud cover and cloud ceiling height data also required for the modeling. Concurrent upper air data from Mercury Desert Rock Airport in Mercury, Nevada were also used as required for the dispersion modeling. Note that although 2005 and 2006 data were available, it was not used because of the poor data recovery of the upper air data at Mercury Desert Rock Airport during that year. The surface and upper air data were processed with the AERMOD meteorological processor, AERMET (06341). Meteorological data for the year 2003 was determined through modeling analysis to produce worst-case (highest) annual air toxic concentrations and risks from the proposed Project.

Modeled Source Release Parameters. Sources of TAC emissions from the operation of the auxiliary boilers, cooling towers and fire-water pump were modeled as point sources with release parameters consistent with those used for modeling air quality impact analysis of criteria pollutants (BSEP AFC, Section 5.2, Air Quality, March 2008). Two additional sources were included in the HRA to account for the benzene emissions from their operation – the HTF vent (point source) and the waste load-out (area source).

Building Downwash. The latest version of the EPA Building Profile Input Program (BPIP-PRIME) was run to determine dominant structures for building downwash in AERMOD for the point sources. Direction specific building heights and widths of the dominant downwash structure(s) were included in the AERMOD model data input file directly from BPIP-PRIME results.

Terrain. Terrain elevations were included in the dispersion modeling analysis to evaluate receptors above stack height and above final plume height for point source releases. Terrain elevations from Digital Elevation Model (DEM) data acquired from United States Geological Service (USGS) were processed with AERMAP (the AERMOD receptor processor) to develop the terrain elevations and corresponding hill height scale required by AERMOD.

Receptors. A comprehensive Cartesian receptor grid network extending to approximately 10 kilometers (km) from the proposed emission sources was used to assess maximum ground-level pollutant concentrations in AERMOD and health impacts in HARP. The Cartesian receptor grid network consisted of: 1) receptors at 100 meters (m) spacing extending to 3000 m from the fenceline; 2) receptors at 200 m spacing extending from 3000 m to 5000 m; and 3) receptors at 500 m spacing extending from 5 km to 10 km. Discrete receptors were placed approximately every 50 m along the plant fenceline for increased resolution of impacts along this boundary. Since model-predicted maximum impacts at the property line and at the offsite Cartesian grid receptor networks were insignificant, discrete residential, worker and sensitive receptors were not analyzed explicitly. Instead, for health risk evaluation, the location of the

maximum impact determined by HARP for each of the exposure scenarios (resident – 70 year exposure; worker – 40 year exposure; and child – 9 year exposure) was assumed to be the Maximum Exposed Individual Resident (MEIR), or the Maximum Exposed Individual Worker (MEIW), or the Maximum Exposed Individual Child (MEIC).

Health Risk Characterization

The BSEP HRA evaluated the facility for cancer risk and non-cancer health hazards. The health risk methodology is based on the OEHHA Guidance Manual. Carcinogenic risks and potential non-carcinogenic chronic health effects were calculated using the annual ground level concentrations while the acute non-cancer health hazards were determined using the predicted maximum 1-hour ground level concentrations. The latest OEHHA cancer potency factors, and chronic and acute reference exposure levels (RELs) for each TAC were used (OEHHA, 2009). The approved health values are incorporated into HARP Version 1.4a. The HARP software performs the necessary risk calculations following the OEHHA risk assessment guidelines and the ARB Interim Risk Management Policy for risk management decisions (ARB 2003).

The following HARP modeling options were used for the risk analysis to estimate cancer and non-cancer impacts at the MEIR and the MEIW.

- 70-year Resident Cancer Risk – Derived (Adjusted) Method
- 9-year (Child Resident) Cancer Risk – Derived (OEHHA) Method
- 40-year Worker Cancer Risk – Point Estimate
- Chronic Hazard Index – Derived (OEHHA) Method
- Acute Hazard Index – Simple Acute HI

The Derived (OEHHA) risk analysis method uses the high-end point-estimates of exposure for the two dominant (driving) exposure pathways, while the remaining exposure pathways use average point estimates. The Derived (Adjusted) method is identical to the Derived (OEHHA) method but uses the breathing rate at the 80th percentile of exposure rather than the high-end point-estimate when the inhalation pathway is one of the dominant exposure pathways. The cancer risk estimates using the Derived equations/methods are based on a 70-year exposure (resident receptors). The point-estimate analysis uses a single value rather than a distribution of values in the dose equation for each exposure pathway. The off-site worker exposure duration assumed a standard work schedule since the facility will operate full time, per OEHHA guidance (OEHHA 2003). For the cancer and chronic HI impacts at the MEIW, the HARP modeling option “modeled GLC and default exposure assumptions” was used. This includes the highly conservative 40-year exposure duration for the worker receptors along with an OEHHA-defined 95th percentile breathing rate of 393 liters of air/kg-day. Child cancer risk was evaluated for a 9-year exposure scenario. Simple acute risk method is a conservative approach where the maximum concentrations from each emission source are superimposed to impact receptors at the same time, irrespective of wind direction and/ or atmospheric stability and is a health protective approach to assess acute impacts.

The modeled exposure pathways consisted of all pathways recommended for a health risk assessment. Exposure pathways that were enabled include homegrown produce (using urban default ingestion fractions), dermal absorption, soil ingestion, and mother's milk in addition to the inhalation pathway. Exposure routes for the ingestion of local fish, poultry, or livestock, and drinking water were not considered in this risk analysis because there are no such areas within the Project's area of influence. Long-term risks (i.e., cancer and chronic non-carcinogenic hazard index) and short-term risk (acute hazard index) were calculated at the property line as well as the offsite Cartesian grid locations.

Exposure Assumptions. The chief exposure assumption is one of continuous exposure to the TAC concentrations produced by continuous emissions at the maximum emission rates over a 70-year period at each receptor location. The actual risks are not expected to be any higher than the predicted risks and are likely to be substantially lower. The cancer risk for an inhaled TAC is estimated by multiplying the exposure concentration by the breathing rate (L/kg-day) times the inhalation cancer potency factor (mg/kg-day)⁻¹. The averaging time for the cancer risk estimate is usually 70 years, which is used to represent a lifetime exposure.

Risk Assessment Results

Table 1 presents the risk assessment results due to the operation of the BSEP. The HRA results show that the cancer and non-cancer impacts from the proposed Project are well below significant risk thresholds adopted by the KCAPCD. Digital modeling files are provided on a CD-ROM accompanying this memo.

Since the cancer risks and non-cancer health effects estimated from the HRA using a 10 km x 10 km Cartesian grid network showed insignificant health effects (cancer risk and non-cancer HI below 1), specific modeling for discrete locations of residential, worker and sensitive receptors was not conducted. The maximum cancer risk was obtained for the 70-year residential exposure scenario. Therefore for evaluation purposes, the estimated maximum impact for each exposure scenario was assumed to be the MEIR, MEIW, or the MEIC even though the actual use of the location could be residential or commercial or sensitive. This presents the conservative (absolute maximum) estimate of the health effects for each of the exposure scenario. The maximum individual cancer risk and chronic HI for the three exposure scenarios occurred at a fence line receptor south-east of the emission sources, while the acute HI occurred to the northeast. The estimated risks at all other receptor locations are lower than the maximum estimated.

Table 1 Summary of Maximum Impacts

Receptor/Exposure	Maximum Cancer Risk ¹ (Receptor ID)	Maximum Chronic Hazard Index (Receptor ID)	Maximum Acute Hazard Index (Receptor ID)
MEIR	0.57 (5867)	0.0003 (5867)	0.0004 (717)
MEIW	0.11 (5867)	0.0003 (5867)	0.0004 (717)
Sensitive (Child)	0.14 (5867)	--	--
Significance Criteria	10	1	1
¹ Cancer risk is reported as additional cases per one million exposures.			

In conclusion, estimated cancer risks at all receptors in the HRA were very low, with a worst-case cancer risk of 0.57-in-one-million for residential 70-year exposure scenario. The estimated health risks for all exposure scenarios were below the KCAPCD significance criterion of 10-in-one-million for cancer risk and one for non-cancer chronic and acute health impacts. Based on results of the risk assessment, the Project poses an insignificant incremental cancer risk and non-cancer health risk impact, according to established regulatory guidelines. Thus, the BSEP will not have a carcinogenic or non-carcinogenic risk above the significance thresholds adopted by KCAPCD.

SOCIOECONOMICS

There are no comments on Socioeconomics.

SOIL AND WATER RESOURCES

Comments and Requested Changes to the PSA Analysis and Conclusions for Soil and Water Resources

Beacon's proposed changes are presented below.

Method and Threshold for Determining Significance

- Whether the project substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there is a net deficit in aquifer volume or lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted). ~~For example, increase water level drawdown in nearby pre-existing wells to a level that fails to support permitted existing or planned land uses.~~

RATIONALE

If the proper significance criteria are applied, per the proposed changes above, CEC Staff would be compelled to conclude that the proposed Project would NOT have a significant impact on groundwater resources. However, staff has incorrectly applied the significance criteria. Intrinsic to most of the groundwater discussion in the PSA, and the genesis for much of Beacon's disagreement, is the fact that Staff misconstrued and/or misapplied the standards of significance under CEQA with respect to impacts to groundwater. Page 4.9-14 of the PSA sets forth the thresholds for determining significance and lists the various items that staff assessed to evaluate whether significant impacts to soil or water resources would occur. The vast majority of these items appear to have been copied almost verbatim from the model Environmental Checklist Form, as published in Appendix G of the CEQA Guidelines; however, with respect to groundwater standards, Staff did not accurately paraphrase Appendix G. In evaluating potential significant impacts to groundwater supplies, Appendix G presents the threshold which asks whether the project would "[s]ubstantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?"¹ Staff's iteration of this standard omits the second "substantially," thereby inferring that any interference with groundwater recharge is a significant adverse impact. This is an incorrect inference and logically untenable. Where the recharge rate of a basin or sub-basin will clearly outpace the annual or lifetime groundwater usage of the project, as is the case here, there is no basis for finding an adverse environmental impact on the grounds that the project will "interfere substantially with groundwater recharge."

If properly applied, this threshold focuses on whether a project substantially depletes groundwater supply or interferes substantially with groundwater recharge. In contrast, the significance criteria in the PSA defined anything that would interfere with aquifer recharge such that there would be a net deficit in aquifer volume or lowering of the water table as a significant impact without evaluating whether the impact would not support existing land uses. This criterion was later applied using five feet or more of drawdown as predicted by the numerical groundwater model for adjacent water supply wells identified adjacent to the

¹ Emphasis added. See Cal. Code Regs., tit. 14, Appendix G, § VIII, subd. (b) and PSA at 4.9-14.

site from literature and field research. Staff stated that BSEP groundwater pumping could “result in well interference and impact nearby groundwater users.”² Staff also claimed that cumulative impacts may be significant because “long-term groundwater storage declines would negatively impact water users by increasing pumping lifts, possibly causing wells to go dry, and negatively impacting the primary potable [sic] water supply to the Fremont Valley.”³ The PSA’s reference to the Fremont Valley as being the location for groundwater impact is incorrect. We note that the groundwater basin in question is the Koehn Sub-basin, which is a subset of the Fremont Valley Groundwater Basin. The project does not affect other sub-basins within the Fremont Valley Groundwater Basin. The PSA concluded from predictions derived from the calibrated numerical model, that 20 wells would experience five feet or more of drawdown at the end of the Project (model period – 30 years).⁴

In reaching its conclusions, Staff never addressed whether BSEP would “substantially” deplete or interfere with groundwater supply and recharge. The term “substantial” is generally accepted to mean “considerable in quantity” or “significantly great.”⁵ The *Sierra Club v. Mission Springs Water District* case found reasonable an EIR’s conclusion that a minimal project-related drawdown of groundwater (0.2 percent per year) was insignificant.⁶ That same decision also offered that an “EIR . . . could reasonably gauge substantiality against total quantities, rather than extraction rates.”⁷ Beacon acknowledges that the *Mission Springs Water District* decision is unpublished and therefore not precedent. However, the opinion still provides an example of a California court evaluating and upholding an agency’s determination of insignificance under CEQA for a project-related reduction in groundwater. Here, it is important to state that the proposed BSEP pumping (1,600 acre-feet per year) will be a fraction of the recharge to the Koehn Sub-basin estimated in the PSA. This means that the Project is expected to only reduce the amount of water recharged to the Koehn Sub-basin by a range of between 10% and 18% based on a recharge estimate of between 10,000 to 15,000 acre-feet per year.⁸ The PSA itself states that “[g]roundwater storage and water levels in the immediate site vicinity could continue to increase with time but at a reduced rate.” Therefore, as explained in further detail below, Beacon emphasizes that the proposed reduction in the amount recharged should be considered insignificant and therefore, not a substantial interference with groundwater recharge.

Although the PSA generally sets forth the remainder of the Environmental Checklist criteria for groundwater – which defines substantial interference as a “net deficit in aquifer volume or a lowering of the groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)” – Staff’s assessment does not in fact apply this standard. The PSA fails to demonstrate that there will be a “net deficit in aquifer volume” or that the groundwater table would be lowered in a manner that would affect nearby wells to this degree. The modeling data provided by Beacon, the parameters of which Staff

² PSA at 4.9-50.

³ PSA at 4.9-47.

⁴ PSA at 4.9-29.

⁵ Webster’s Online Dictionary, at <http://www.merriam-webster.com/dictionary/substantial> (last visited April 21, 2009).

⁶ *Sierra Club v. Mission Springs Water Dist.*, 2006 WL 2692697, 7 (Cal.App.4 Dist.). Unpublished opinion.

⁷ *Id.*

⁸ AFC at 5.17-33 and 5.17-15; PSA at 4.9-25.

generally approved, demonstrates that no such results will occur, and that the Koehn Lake sub-basin would continue to experience a significant net recharge during the life of the Project. The term “net deficit” implies a reduction in volume which will simply not occur in the Koehn Sub-basin as a result of the Project since the Sub-basin will be recharging at a higher rate than the Project will be consuming groundwater. If Staff attempts to construe “net deficit” to mean any reduction in groundwater volume, such interpretation would render this particular Appendix G threshold of significance entirely useless since any amount of groundwater pumping by any user (including farmers) would be considered a significant impact. Such a conclusion is untenable. While the rate of recharge would be reduced by 10% to 18% as a result of project operations, as long as this impact on recharge would not cause 1) a “net deficit in aquifer volume”, or 2) a “lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)”, neither of which would occur with the proposed Project, then Staff should be compelled to find an insignificant impact to groundwater resources in this case.

Staff also concludes that Fremont Basin has historically been in overdraft.⁹ However, Staff fails to clarify that the Fremont Basin is currently not in overdraft.¹⁰ In fact as stated in the PSA, the Koehn Sub-basin of the Fremont Valley Groundwater Basin is in recovery. Staff’s speculation on page 4.9-47 of the AFC that “increased groundwater consumption by existing or future users” could negatively impact groundwater storage and availability in the area “possibly causing wells to go dry” strays impertinently far outside the acceptable scope of consideration for cumulative impacts. Speculating as to hypothetical impacts from future population growth or new uses is neither appropriate nor relevant to an evaluation of the cumulative impacts of the BSEP.¹¹ Furthermore, casually stating that wells may “possibly . . . go dry” is speculative and unnecessarily alarming due its very serious implications. Staff’s assertion is completely unsupported in the PSA. Accordingly, Beacon requests that Staff remove the statements at the top of page 4.9-47 from the FSA.

The PSA stated (page 4.9-26) that additional analysis is needed to quantify recharge, groundwater inflow, and water level transients to reliably assess basin sensitivity to pumping and potential impacts from groundwater consumption. Beacon believes however, that sufficient effort has been provided in the AFC, corroborating prior analysis by several other investigators regarding the recharge to the Koehn Sub-basin. The water level data provided in the PSA (Soil and Water Table 5, Reported Fremont Valley Basin Water Levels, page 4-9.21) shows clearly that for the past two decades groundwater levels in the Koehn Sub-basin where the project is located are in recovery. The comment made during the PSA Workshop that only two wells show recovery trends is contrary to data provided in this table and data provided in Appendix J-1 of the AFC and AFC Figure 5.17-5. In fact, of the nine wells provided in PSA Table 5 within the Koehn Sub-basin, for the period between 1998 and 2008, only one well shows a declining trend, the remaining eight wells show a positive (i.e., increasing) trend and six of the wells show recovery trends of one foot per year or more. The single well (30S/38E-24F01) is located due south of Keohn Lake and is sandwiched between the lake and the Randsburg-Mojave Fault. The small declining trend at this location indicates no influence from on-going recharge from Pine Tree Creek or Jawbone Canyon on the west side of the valley, as would be expected given its isolated location within the groundwater basin.

⁹ PSA at 4.9-1.

¹⁰ PSA at 5.2-7; and AFC at 5.17-14.

¹¹ Cal. Code Regs., tit. 14, § 15065(a)(3), “cumulatively considerable” includes effects of *probable* future projects.

As presented, the recharge estimates provided in the AFC and for the numerical model were within the ranges reported by GSi (1993) and EarthSat (1997) in the Samda Study, and now apparently as indicated in the Public Meeting on April 14, 2009, those of an independent groundwater model constructed for California City. At the public meeting the California City engineer indicated that their estimate of recharge was about 13,000 AFY or within the range of what the AFC had indicated and within the range of values provided by others. In essence, there have been four studies on the recharge to the Koehn Sub-basin, all coming within the range of between about 10,000 and 15,000 AFY. The results from four independent investigations establish a reliable prediction of the recharge into the groundwater basin. Additional analyses are simply not warranted.

In sum, Beacon is concerned that Staff has misconstrued and misapplied the standards for finding a significant impact to groundwater resources. Staff derived its significance threshold from the CEQA Guidelines' Appendix G but failed to use that standard properly thereby setting forth an improper significance threshold for impacts to groundwater resources. Based on the data provided in the PSA, there is not substantial evidence supporting a determination that the BSEP will have a significant and unavoidable adverse impact to groundwater resources as proposed.

Beacon has, as discussed during the PSA public meeting, provided a draft water resources mitigation plan that outlines steps to evaluate and compensate local water users should their wells be adversely impacted by project water use and provide several measures to offset proposed project water usage. The plan outlines an approach to gathering historic data, collecting water level data prior to, during and following project operation and establishing trends in the water level data and criteria of implementation of compensation to impacted wells (see Attachment Soil and Water-1).

COMPLIANCE WITH LORS AND POLICIES

Staff has reviewed the LORS and policies presented in **Soil & Water Table 1** and believes the project, as proposed, does not comply with all LORS and policies. A discussion of selected LORS and policies are presented below.

SWRCB RESOLUTION 75-58 AND ENERGY COMMISSION'S 2003 INTEGRATED ENERGY POLICY REPORT

SWRCB Resolution 75-58 is a policy staff evaluates when reviewing power plant water use. Staff has determined that, as proposed, the BSEP ~~does not comply~~ complies with SWRCB Resolution 75-58 and Energy Commission's 2003 Integrated Energy Policy...

Based, in part, on the State Constitution and SWRCB Policy 75-58, the Energy Commission adopted its own policy for water conservation in the cooling of power plants. The Energy Commission's 2003 IEPR specifies that "the Energy Commission would approve the use of fresh water for cooling purposes by power plants which it licenses only where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound,'" which are interpreted to mean the same as "economically or otherwise infeasible." The 2003 IEPR then defines "feasible" to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors." (Citing Cal. Code Regs., Tit. 14, § 15365.)

The applicant proposes the use of high quality fresh groundwater for power plant construction (primarily dust suppression and grading) and operation (primarily power plant cooling). Use of high quality fresh groundwater for power plant cooling is allowed only when other sources of water are environmentally undesirable or economically unsound. However, there are economic, environmental and social factors that should be considered in the form of renewable energy, reduced greenhouse gas emissions, and direct economic benefits to the local community. After taking into account reduced greenhouse gases increased contribution to state-mandated renewable portfolio standards targets, and economic impacts to the local area, staff concludes that these benefits have the effect of negating the BSEP's relatively minor conflict with SWRCB Policy 75-58 and the 2003 IEPR. Staff further finds that all other water sources and alternative technologies described in this assessment are infeasible and economically unsound.

RATIONALE

Beacon contends that Staff's assumptions regarding the Project's compliance with local laws, ordinances, regulations and standards (LORS) fails to fully evaluate "feasible" as defined in the 2003 Integrated Energy Policy Report (IEPR).

In its discussion of the Project's "Compliance with LORS" beginning on Page 4.9-47, Staff asserts that BSEP "does not comply with SWRCB [State Water Resources Control Board] Resolution 75-58 and Energy Commission's 2003 Integrated Energy Policy." This is because, according to Staff, the Project's proposed use of fresh groundwater for power plant cooling conflicts with the 2003 Integrated Energy Policy Report's (IEPR) and Resolution 75-58's (together, "the Policies") requirements that lowest quality water be used for cooling purposes and that use of fresh water will be approved only "where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound.'"¹² Staff conducted its own independent economic feasibility study and found that use of brackish water from Koehn Lake, dry cooling and use of Photo Voltaic (PV) technology were all "feasible" alternatives to the proposed Project (See Alternatives Discussion).

Evaluating Feasibility

Beacon notes that critically absent from the alternatives analysis is a discussion of what constitutes a "feasible" alternative under CEQA. CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."¹³ Accordingly, a project alternative would be infeasible if it is determined that there are specific economic, legal, social, technological or other considerations that make the alternative infeasible. Without such a framework consistently in mind, any discussion of alternatives is logically flawed.¹⁴ CEQA does not demand what is not realistically possible, given the limitation of time, energy and funds.¹⁵

¹² PSA at 4.9-48.

¹³ Pub. Res. Code § 21061.2. Cal. Code Regs., tit. 14, § 15364 and Cal. Code Regs., tit. 20, § 1702(f) repeat that definition and add "legal" factors.

¹⁴ This is especially true as applied to the PSA's analysis of alternative water sources given that, in the 2003 IEPR, when discussing power plant water use and alternatives, the Energy Commission defined "economically unsound" to mean the same as "infeasible", referencing CEQA's definition of feasible (a definition which is repeated in the Energy Commission's siting regulations at section 1702(f)). See 2003 IEPR at 41, fn. 64.

¹⁵ *Concerned Citizens of South Central Los Angeles v. Los Angeles Unified School Dist.* (2d Dist. 1994) 24 Cal.App.4th 826, 841.

In discussing its interpretation of “economically unsound” alternatives to freshwater use to mean “economically infeasible,” the 2003 IEPR itself references the CEQA Guidelines definition of “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.”¹⁶ Therefore, in evaluating alternatives for the Project as proposed, the 2003 IEPR reiterates Beacon’s position that Staff should be evaluating the environmental and societal factors that BSEP will provide, that may not be achieved by Staff’s proposed alternatives and will certainly not be obtained within the same time frame as that posed by Beacon. For instance, Staff’s proposed alternative of using dry cooling technology would actually be more detrimental to the public and environment due to the fact that dry cooling is far less efficient than wet cooling. Employing dry cooling technology reduces the amount of energy that can be extracted from a solar field on a megawatt per acre basis thereby requiring more acres of solar collectors to produce the same amount of energy as a wet cooled solar field. This, in turn, creates greater impacts to the environment due to the increased footprint of the project. Furthermore, as articulated by Beacon at the PSA workshop, a dry cooled alternative means this project will not go forward.

Beacon also emphasizes that several aspects of BSEP, as proposed, make it a necessary and beneficial project for the residents of both Kern County and the state as a whole that needs to move forward as soon as possible. First and foremost, BSEP will greatly aid the State of California in its effort to reduce greenhouse gas (GHG) emissions and develop renewable energy sources. Assembly Bill (AB) 32 set up a comprehensive GHG reduction mandate for California to guide the state toward reducing GHG emissions to 1990 levels by 2020. California has also established its Renewable Portfolio Standard Program (or “RPS,” Senate Bill 1078), which provides that 20% of the total electricity sold to retail customers in California per year by December 31, 2010 must consist of renewable energy. In addition, pursuant to Executive Order (EO) S-14-08, California has accelerated its RPS program to set a target of 33% procurement from renewable energy sources by 2020. The Climate Change Scoping Plan, a Framework for Change adopted by the California Air Resources Board relies significantly upon a shifting the mix of resources serving California load to 33% renewable to reach the targets of reducing California’s greenhouse gas profile to 1990 levels by the year 2020 (See Scoping Plan, Table 2). Moreover, the 2007 IEPR recognizes the State’s attempt to “[d]iversify its electricity mix and reduce its output of greenhouse gases” by choosing to “significantly increase the amount of its electricity generation from renewable energy sources.”¹⁷ As noted in the PSA, the Project will contribute to the achievement of all of these goals, thus providing “significant and environmentally important public benefits.”¹⁸

Even though these significant environmental factors are recognized in some sections of the PSA they are not even mentioned here in this analysis of compliance with SWRCB Policy 75-58 and the IEPR. Significant project redesigns not to mention changes in technology that would require local permitting would significantly delay this project. Any delay in construction and operation will delay California receiving the benefits of clean, very low carbon energy serving California load and displacing higher carbon energy. Therefore, Staff’s attempts to redesign the project even if economical and capable of being financed would delay project construction and operation and delay these significant environmental

¹⁶ 2003 IEPR at 41 citing Cal. Code Regs., tit. 14, § 15364 and tit. 20, § 1702(f).

¹⁷ 2007 IEPR at 23.

¹⁸ PSA at 1-7.

improvements. Beacon believes these delays and time extensions do not make any of these alternatives capable of being accomplished within a reasonable period of time.

In addition, BSEP's economic factors beyond a simple analysis of costs to the project must be considered. These economic factors include additional tax revenue (both property and sales tax), jobs, and revenue related to construction and operation of the Project.¹⁹ These benefits are in addition to the 250 MW of 100% solar generated power that will be delivered to the Los Angeles Department of Water and Power grid.²⁰ For those families with one or both parents out of work, delays in construction and operation of a project like Beacon is untenable and unacceptable. Thus, alternatives that put financing in question or cause delays in construction are infeasible.

Finally, Staff's discussion of the Koehn Lake alternative water source was cursory and did not demonstrate that it is a "feasible" alternative as defined by CEQA. Although Beacon is investigating the feasibility of Koehn Lake water, Beacon does not believe the resource is sufficient to provide the necessary quantity of high TDS water for the life of the project.

Taking into account economic, environmental, social, and technological factors, Beacon finds that Staff's proposed Koehn Lake, PV and dry cooling project alternatives are not capable of being accomplished in a successful manner within a reasonable period of time. BSEP, as proposed, is critical to the environmental and social welfare of the State because it will greatly aid California in its efforts to reduce GHGs and increase renewable sources of energy. These factors need to be taken into account when determining whether there are truly "feasible" alternatives to the proposed use of 1,600 acre feet per year of water for Beacon when groundwater storage has increased by between 10,000 and 15,000 acre feet per year.

Comparison to Other Water Uses

SWRCB Policy 75-58 requires that the SWRCB consider the reasonableness of the proposed use when compared to other needs for the water:

In considering issuance of a permit or license to appropriate water for powerplant cooling the Board will consider the reasonableness of the proposed water use when compared with other present and future needs for the water source and when viewed in the context of alternative water sources that could be used for the purpose.

(SWRCB Policy 75-58, at 4.) At the PSA workshop Lorelei Oviatt, Division Chief of the Kern County Planning Department clarified that the County does not want to see a housing development on the Beacon site. Thus, using the water for housing is not a preferred option. Beacon expects all parties can agree that returning the site to its previous agricultural use and consumption of between 12,000 to 17,000 acre feet per year of water is not a preferred use of the water resource. Therefore, the proposed use of water for a solar energy facility is the preferred use when compared to other needs for the water.

¹⁹ PSA at 4.8-14.

²⁰ PSA at 3-5 and 1-7.

Conclusions

As discussed in the comments on alternatives, Beacon respectfully disagrees with Staff's conclusions concerning alternatives to the BSEP as proposed in the AFC. Beacon believes that Staff's proposed alternatives (dry cooling technology, use of solely brackish water from Koehn Lake and a complete project redesign to use PV technology) are not feasible.

Requested Changes to the Conditions of Certification – Soil and Water Resources

SOIL&WATER-1: The project owner will comply with the requirements of the Kern County Environmental Health Services Department, regarding sanitary waste disposal facilities such as septic systems and leach fields.

Verification: The project owner will submit all necessary information and the appropriate fee to the county of Kern to ensure that the project has complied with the county's sanitary waste disposal facilities requirements. A written assessment prepared by Kern County of the project's compliance with these requirements must be submitted to the CPM for review and approval 30-days prior to the start of operation.

SOIL&WATER-3: ~~Prior to the initiation of any streambed or wetland activities for pipeline installation(s), including horizontal directional drilling and jack & bore techniques, the project owner shall provide a copy of the following permits to the CPM, as appropriate:~~

- ~~5. Section 404 acceptance of Pre-construction Notification for Nationwide Permit(s) from the U.S. Army Corps of Engineers.~~
- ~~6. Section 401 Water Quality Certification or a Waiver of Waste Discharge Requirements from the LRWQCB or the State Water Resources Control Board.~~

~~Modifications of the construction techniques to be used or the location of the crossing as a result of permit conditions must be reviewed and approved by the CPM. The project owner will notify the appropriate agency of any modifications to the construction techniques or pipe alignment and implement the terms and conditions contained in the permit(s). The final design and construction of the pipeline shall anticipate channel erosion or scour caused by flood related channel incision.~~ The project owner shall complete all necessary engineering plans, reports, and documents necessary for Kern County to conduct a review of the proposed pipeline and provide its written evaluation as to whether the proposed utility crossing, at the FEMA regulated Zone B Special Flood Hazard Area, will comply with all county requirements. The project owner shall ensure compliance with all county standards and requirements for grading and erosion control.

Verification: The project owner shall do all of the following:

- ~~1. No later than 90 days prior to start of site mobilization, the project owner shall submit to the CPM and LRWQCB, verification from the Department of the Army, Los Angeles District Corps of Engineers that the BSEP linear pipeline construction is not subject to jurisdiction under Section 404 of the Clean Water Act or provide a copy of the Section 404 Permit.~~

2. No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of utility crossing engineering design to Kern County for review and comment. A copy shall be submitted to the CPM no later than 60 days prior to the start of site mobilization for review and approval. The CPM shall consider comments received from Kern County.
3. ~~At least 30 days prior to the start of construction, the project owner shall provide the CPM and the LRWQCB verification that the Streambed Alteration Agreement includes activities associated with construction of the gas pipeline.~~
4. At anytime during the planning for construction, ~~Modifications~~ modifications of the construction techniques to be used or the location of the crossing as a result of permit conditions must be reviewed and approved by the CPM.

RATIONALE

The natural gas pipeline is located entirely within existing roadways or developed areas. There are no jurisdictional features present within the proposed natural gas pipeline route. Further, there are no features within the pipeline route that would suggest the need for a delineation nor are their features that meet the criteria or definition of jurisdictional waters as listed in CDFG code 1600 et. seq. and defined in CCR Title 14 CCR 1.72 (streams) or Title 14 CCR 1.56 (lakes).

In addition, the notion of a horizontal jack-and-bore program requiring a 404 or 401 permit is not correct and unreasonable. The sole purpose for using this technique would be to avoid any disturbance to streambed or wetlands areas.

- SOIL&WATER-5:** Prior to site mobilization, the project owner shall obtain CPM approval for a site specific DESC that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operation phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, and identify all monitoring and maintenance activities. The project owner shall complete all necessary engineering plans, reports, and documents necessary for Kern County to conduct a review of the proposed project and provide its written evaluation as to whether the proposed grading, drainage improvements, diversion channel design, and flood management activities comply with all county requirements. The project owner shall ensure compliance with all county standards and requirements for grading, erosion control, and flooding for the life of the project. The plan shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1**. The DESC shall contain the following elements:
- **Vicinity Map** – A map shall be provided indicating the location of all project elements with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, major utilities, and sensitive areas.
 - **Site Delineation** – The site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities. Adjacent property owners shall be identified on the plan maps. All maps shall be presented at a legible scale

- **Drainage** – The DESCPC shall include the following elements suitable for submittal to FEMA as part of **SOIL & WATER-6**:
 - a. Topography – Topography for offsite areas are required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing Pine Tree Creek flood hazard. Spot elevations shall be required where relatively flat conditions exist.
 - b. Proposed Grade – Proposed grade contours shall be shown at a scale appropriate for delineation of onsite sub-basins, drainage ditches, pond contours, diversion channel, and tie-ins to the existing topography.
 - c. Hydrology - Existing and proposed hydrologic calculations for on-site areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow. Hydrologic calculations for the Pine Tree Creek watershed.
 - d. Hydraulics - Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, retention facilities and best management practices (BMPs). Design calculations and the results of the hydraulic backwater model for the Pine Tree Creek diversion channel shall be included.
 - e. Channel Stabilization Plan – The Project Owner shall present methods to mitigate for adverse hydraulic conditions (high velocities, high shear stress, Froude Numbers greater than 0.8) in the proposed diversion channel. Channel plan and profile maps showing water surface elevations, channel slope, bank protection, channel stabilization elements. Channel banks Levees shall also be identified.
- **Watercourses and Critical Areas** – The DESCPC shall show the location of all nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas:
 - a. FEMA Regulated Special Flood Hazard Areas (Effective floodplain from DFIRM) shall be shown on site as well as upstream and downstream within 2,000 feet from the BSEP property boundary;
 - b. Existing Conditions 100-year Floodplain – Shall be continuous with the effective floodplain; and
 - c. Proposed (Revised) Conditions 100-year Floodplain – Shall be continuous with the effective floodplain.
- **Clearing and Grading** – The plan shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, cut/fill depths or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing

topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the project. Areas of no disturbance shall be properly identified and delineated on the plan maps.

- **Project Schedule** – The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element and diversion channel excavation, and construction, and final grading/stabilization). The project schedule shall identify the duration of the temporary diversion of Pine Tree Creek. Separate BMP implementation schedules shall be provided for each project element for each phase of construction.
- **Best Management Practices** – The DESCP shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.
- **Erosion Control Drawings** – The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion-control specialist.
- **Agency Comments** – The DESCP shall include copies of recommendations, conditions, and provisions from Kern County, CDFG, and LRWQCB.
- **Monitoring Plan** – ~~Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, stormwater retention basins, and the diversion channel. Additional~~ monitoring requirements shall be presented in a Desert Wash Mitigation and Monitoring Plan discussed in Condition of Certification BIO-18.
- **Maintenance Plan** – The maintenance plan shall identify activities and procedures needed to maintain capacity within the Pine Tree Creek diversion channel, and all onsite drainage ditches, ~~and the offsite drainage ditch that currently diverts flow along the western property boundary.~~ Channel maintenance may include erosion control repairs, bank stabilization, debris removal, grade control, and revegetation. The maintenance plan shall support the objectives of the revegetation-mitigation effort. Maintenance activities must also include removal of accumulated sediment from all retention basins when an average depth of 0.5 feet of sediment has accumulated in the retention basin. The maintenance plan shall be developed for the life of the project.

Verification: The project owner shall do all of the following:

1. No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to Kern County and the LRWQCB for review and comment. A copy

shall be submitted to the CPM no later than 60 days prior to the start of site mobilization for review and approval. The CPM shall consider comments received from Kern County.

2. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage-, erosion- and sediment-control measures and the results of monitoring and maintenance activities.
3. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities.
4. Provide the CPM with two (2) copies of all monitoring or other reports required for compliance with Kern County, CDFG, and LRWQCB.
5. Provide Kern County, LRWQCB and the CPM with quarterly maintenance activity reports for the Pine Tree Creek diversion channel. These reports shall also provide an account of any significant runoff event or bankfull-channel forming event and will describe the channel performance.

SOIL&WATER-6:

In accordance with Kern County's Floodplain Management Ordinance and 44 CFR 65.12, the project owner shall prepare all necessary engineering plans and documents to support a Conditional Letter of Map Revision (CLOMR) application submittal to FEMA. The project shall not commence construction in the SFHA until the Kern County receives from FEMA a CLOMR. Following construction the Project Owner shall prepare all necessary documents required for a final Letter of Map Revision (LOMR). The project owner shall use FEMA's Guidelines and Specifications for Mapping Partners for guidance. The project owner shall:

- a. Prepare hydrologic analyses to estimate the 10-, 2-, and 1-, and ~~0.2~~-percent annual chance flood events for the Pine Tree Creek watershed. The analyses would be conducted using numerical models approved by FEMA.
- b. Prepare preliminary design drawings for the channel, include: typical channel dimensions, any structural elements required to protect the channel from erosion, and a grading plan for proposed conditions.
- c. Conduct hydraulic analyses for existing and proposed conditions;
- d. Prepare flood hazard mapping for the existing and proposed conditions. Floodplain mapping shall tie-into the upstream and downstream special flood hazard mapping shown on the effective DFIRM.
- e. Provide notification to all adjacent property owners, impacted by the proposed change to the SFHA; and
- f. Complete the necessary FEMA MT-2 application forms package and pay all applicable CLOMR review fees. The submittal shall be certified by a professional engineer;
- g. Address all FEMA review comments as needed to receive approval of the CLOMR.

Prior to mobilization the Project Owner shall receive confirmation from Kern County that FEMA has issued a CLOMR for the BSEP. The Project Owner shall address all "conditions" in the CLOMR during project construction. Following construction the Project Owner shall:

- h. Conduct an As-Built survey of the completed construction;
- i. Update the Proposed Conditions Model to reflect the As-Built Revised Conditions and delineate the resulting flood hazard;

- j. Complete the necessary FEMA MT-2 application forms package and pay all applicable LOMR review fees. The submittal shall be certified by a professional engineer;
- k. Address all FEMA review comments as needed to receive approval of the LOMR; and
- l. Notify the CPM that the LOMR has been approved.

Verification: The project owner shall do all of the following:

- 1. No later than thirty (30) days after receiving notification from FEMA that all required CLOMR or LOMR documents have been received by FEMA, the Project Owner shall notify the CPM that the project is currently being reviewed by FEMA. During the review process the Project Owner shall submit all correspondence between FEMA and Project Owner's engineer representative responsible for addressing FEMA's comments.
- 2. Prior to construction activity within the SFHA the Project Owner shall provide a copy of the CLOMR to the CPM for verification.
- 3. Following construction of the channel improvements the Project Owner shall complete an As-built survey of the improvements, update the hydraulic model, and prepare a final submittal for a LOMR. The Project Owner shall submit a copy of completed LOMR submittal to the CPM for review.
- 4. No later than thirty (30) days after receiving notification from FEMA that the LOMR has been issued to Kern County the Project Owner shall submit a copy of the LOMR to the CPM for verification.

RATIONALE

The request to model a 500-year flood event is unreasonable, since the map revisions pertain to a 100 year flood.

SOIL&WATER-7: ~~If required by FEMA, t~~he project owner shall ~~coordinate with Kern County to~~ establish a maintenance district for maintaining the integrity, design, and capacity of the Pine Tree Creek diversion channel. The Maintenance District will manage utility crossings of the Diversion Channel and where the linear (gas pipeline) crosses existing drainageways. The maintenance district shall be formed with consideration of all appropriate LRWQCB permit requirements. Maintenance District shall be developed according to the CDFG stream alteration agreement provisions. Funding for the maintenance district shall be provided in perpetuity.

Verification: ~~Prior to completion of the CLOMR submittal the Project Owner shall receive written consent from Kern County allowing BSEP to create a special maintenance district. If required by FEMA, the project owner shall do all of the following:~~

- 1. A copy of the final Maintenance Agreement shall be provided to the CPM for approval and shall include a detailed discussion of the funding mechanism for the channel maintenance.
- 2. Once operational, the project owner shall provide in the annual compliance report information on the District's monitoring and maintenance activities. The District's reports shall include a discussion of the available funds.

RATIONALE

A Maintenance District is only required if the project were to result in the creation of levee conditions at the project site. No levees are expected for the project. Nonetheless, if FEMA determines that a levee conditions exists, provisions for a Maintenance District will be identified. Additionally, the proposed natural gas pipeline does not cross drainage ways.

Response to the Question of Groundwater Discharge to Koehn Lake

The PSA notes (page 4.9-73) that there is a discrepancy between the water balance (Table 112W – December 2009) and the numerical groundwater model, wherein the numerical groundwater model assumed no evaporative flux from the lake post 1976 and the water balance showed between 2,800 and 3,000 acre-feet per year for 2007. Table 112W has been revised to show zero for evaporative flux from Koehn Lake, which matches the numerical groundwater model (see Attachment Water-2). The prior interpretation of water balance was based on standing water observed on an aerial photo on the west side of Koehn Lake and the assumption that this water was from groundwater discharging to the lake surface.

Subsequently, Beacon believes that the surface water in the photo was discharged to the lake from runoff and is not groundwater “wicking” through capillary action and discharging to the lake. This reinterpretation is based on groundwater levels in a well next to the lake showing water historically has been 10 feet or more below the surface of the lake and the interpretation at this depth there would not be significant wicking of water up through the lake bed sediments, and as such, significant evaporative losses (see DR116 -December 2008). Additionally, the results of the groundwater model calibration, wherein the model was adequately calibrated to water levels in the immediate vicinity of the lake without discharge being simulated through evaporation from the lake. Though model calibration it became apparent that the loss of water from Koehn Lake was not possible at this time and that the water was going into storage, and not being lost by evaporation due to wicking.

The CEC notes in the PSA (page 4.9-73) that groundwater movement in the Koehn Sub-basin is toward Koehn Lake, and that the lake is the natural discharge point for groundwater in the basin. The Applicant believes that as the groundwater basin continues to recover in the Koehn Sub-basin that groundwater will in the future discharge to Koehn Lake as it likely had done previously prior to development. At this present time, our interpretation is that most of the water that is recharging the groundwater basin and migrating toward Koehn Lake is being returned to storage and there is not significant discharge from Koehn Lake. An analysis using the current model without modifications proposed in the PSA would suggest that groundwater will begin to discharge to Koehn Lake around 2014.

**ATTACHMENT SOIL AND WATER-1
OUTLINE
DRAFT WATER MITIGATION AND OFFSET PLAN
BEACON SOLAR ENERGY PROJECT**

GROUNDWATER MONITORING PROGRAM

To provide for land owner protection and participation in evaluation of project impacts, a Koehn Sub-basin groundwater monitoring committee will be formed. The committee will include a representative from the following:

- California City
- Community of Cantil
- Rancho Seco
- Honda
- Beacon Solar LLC

The monitoring committee's function will be to implement and oversee the groundwater monitoring program and to verify that there are no unacceptable impacts to groundwater levels or quality in water supply wells adjacent to the BSEP.

Gather Historic Water Level and Water Quality Data

- Secure access, if authorized by the land owner, for the purpose of monitoring of water levels and water quality for those water supply wells predicted by the numerical groundwater model to experience water level decline over the term of the project (30 years).
- Through the access agreement, obtain all historic water level and water quality data for each water supply well. Additionally, obtain well completion information, historic well performance data, including pumping and non-pumping water levels and pump specifications for each well to be monitored.
- Update the application for certification (AFC) water level and geochemical and water level database with all new information.
- Prepare time series graphs (i.e., trend plots) for water level and total dissolved solids (TDS) data, as information is available for each well.
- Perform statistical trend analysis using Mann-Kendall Trend Test and Sen's Slope Estimator for water levels and the TDS data. The Mann-Kendall Trend Test and the Sen's Slope Estimator are proposed to statistically analyze the data because they are the accepted non-parametric trend analysis methods for data that are not normally distributed. Use trend analysis to determine the significance of an apparent trend and to estimate the magnitude of that trend. Further, use adjacent well data to evaluate local affects from pumping in water level trends.

Establish Pre-Project Baseline Water Quality and Water Level Database

- To the extent possible, prior project construction collect groundwater levels from the off-site and on-site wells. Additionally, collect groundwater samples to provide baseline TDS data for both on-site and off-site wells. Analyze TDS samples using Standard Methods 2540C by a California Certified Analytical Laboratory.
- Map TDS data and groundwater levels within the Koehn Sub-basin from the groundwater data collected prior to construction. Update trend plots and statistical analyses, as data is available.

Groundwater Monitoring During Construction

- During construction, collect water levels on a quarterly basis for a period of one year or on a quarterly basis through the construction period, and collect TDS data at the end of the construction period and prior to site operations.

Groundwater Monitoring During Operation

- On a quarterly basis for the first five years, collect water level measurements from the wells and collect TDS data to evaluate operational influence from the project. Additionally, monitor quarterly operational parameters (i.e., pumping rate) of the water supply wells.
- After a period of five years, evaluate the data and determine if the sampling frequency and TDS sampling should be revised or eliminated.
- Subsequently, evaluate the data set every five years and determine if the sampling frequency and TDS sampling should be revised or eliminated.

MITIGATION OPTIONS

Water Level Offset Mitigation Options

Based on the results of the statistical trend analyses, determine if the project pumping has induced a drawdown in the water supply at a level of five feet or more below the baseline trend. If water levels have been lowered below pre-site operational trends, then implement any of the following options, as appropriate and considering the cost effectiveness of each option.

- Electrical cost reimbursement – If the pumping water level falls below a depth of 5 feet from an average of the baseline measurements, the well owner will be compensated for the additional electrical costs commensurate with the additional lift required to pump. The water level in the well will be assessed relative to the pumping rate during pre-site operational period.
- Pump lowering – In the event that groundwater is lowered and existing pumps are day lighted, pumps can be lowered to maintain production in the well.
- Deepening of wells – If the groundwater is lowered enough that there is insufficient water in the well and pump lowering is not an option, then wells can be deepened.

Groundwater Storage Mitigation Options

Expected groundwater usage during BSEP operation is estimated to be 1,600 acre feet per year (AFY). During construction, groundwater use would be much higher over a short period; therefore, the mitigation options proposed here would only be useful to mitigate groundwater consumption during the operational life of the Project. In an effort to mitigate the estimated 1,600 AFY consumption of groundwater for the project, the following groundwater storage mitigation options are proposed.

- Implement the partial Zero-Liquid Discharge Option as described in the Introduction of the PSA response. Through the use of this option, it is anticipated that groundwater production will be reduced by an estimated 200 acre-feet per year.
- Tamarisk removal – Tamarisk is a highly aggressive weed species that was introduced to the region as a flood and wind control method. Full-grown tamarisk trees are thought to absorb up to 200 gallons per day per tree, significantly reducing available water in the area. Removal of tamarisk can introduce a significant amount of water back into the system.

Methods for Tamarisk removal include:

- Cut and spray method: Tamarisk is cut and then environmentally appropriate herbicide is applied to the cambium layer to kill the root system. Roots stay in place to reduce erosion potential.
- Cut and pile method: Tamarisk is cut and piled away from water ways where it dries and becomes benign. The piles are also found to provide habitat for local wildlife. Roots stay in place to reduce erosion potential.
- Weed wrench method: Tamarisk is removed by the roots using a hand tool called weed wrench and then removed from the area. This method is used for smaller plants.

Funding and implementing the Tamarisk removal program can be accomplished through agency programs such as:

- Bureau of Land Management (BLM) can take money and earmark it for specific projects. Some overhead costs are associated, but are not cost prohibitive.
- Resource Conservation District (RCD) has traditionally used grant money to accomplish projects and can also take in money earmarked for specific projects.
- RCD can work with private land owners to convince them of the benefits of Tamarisk removal on their property.

ATTACHMENT SOIL AND WATER-2

REVISED TABLE 112W

Table DR-112W
Water Balance Comparison
Conceptual Site Model and Numerical Groundwater Model
Beacon Solar Energy Project
Kern County, California

Water Balance Components	1958		1976		2007	
	Conceptual Model	Groundwater Model	Conceptual Model	Groundwater Model	Conceptual Model	Groundwater Model
acre-feet per year						
Inflow						
Flow from California City	1,000	997	1,000	997	1,000	997
Flow across Muroc Fault	--	670	--	670	--	670
Mountain-Front Recharge	6,800-7,800	15,000	6,800-7,800	15,000	6,800-7,800	15,000
Groundwater flow from Northeast of Koehn Lake	3,000	3,450	3,000	3,450	1,000-3,000	3,450
Outflow						
Evaporation from Koehn Lake ⁴	--	15,800	--	0	0	0
Water use by Honda Wells	none	0	0	0	150	included with ag pumping ³
Domestic Water Use ¹	not considered	0	not considered	not considered	50	included with ag pumping ³
Agricultural Water Use ²	up to 18,000	846	60,000	60,000	843	846
Notes						
1 = "Domestic water" use was not considered in some cases since it was a fraction of the agricultural water use and there was no data from which to provide an annualized volume estimate						
2 = "Agricultural use" is after Koehler, 1977 for 1958 and 1976. The value for 2007 is based on an estimate of acres under agricultural use from field surveys and photographic research.						
3 = "Included with ag pumping" indicates that the model combined domestic and Honda water usage into the agricultural useage.						
4 = Water levels suggest that groundwater is not discharging to the lake. At this time, water that would have discharged to Keohn Lake under pre-development conditions is being returned to storage.						
-- = Not known or available in literature for the Koehn Sub-basin.						

TRAFFIC AND TRANSPORTATION

Requested Changes to the Conditions of Certification for Traffic and Transportation

Beacon's proposed changes are presented below.

TRANS-1 Prior to the start of construction activities the contractor shall coordinate with Caltrans Staff, prepare improvement plans and submit for an encroachment permit to complete required physical improvements at the SR-14 entrance into the project site. The project owner shall complete all physical improvements and construction conditions of the encroachment permit at the SR-14 entrance prior to beginning on-site activities requiring more than 150 construction workers per day, the project owner shall complete the construction of the physical improvements at the SR-14 entrance into the project site.

Verification: At least 30 days prior to start of construction, the project owner shall in coordination with Caltrans, design and submit for an encroachment permit to construct the roadway improvements described above ~~to their satisfaction.~~ Prior to initiating construction activities requiring a workforce of 150 persons or more, the project owner shall have completed construction of the improvements and the project owner shall notify the CPM that these roadway improvements have been completed and are ready for inspection.

RATIONALE

It will not be practical for Beacon to mobilize a separate construction crew and contract just for these road improvements prior to initiating the general site construction, assuming that is the intent of this condition. More logically, this work would be done in conjunction with the early site civil work.

TRANSMISSION LINE SAFETY AND NUISANCE

There are no comments on Transmission Line Safety and Nuisance.

VISUAL RESOURCES

Determination of Impact Significance

The PSA concludes that the BSEP would change the existing physical setting of the Fremont Valley floor from a moderately disturbed desert floor landscape to a highly human-altered landscape. Staff concludes that this change would be considered a significant “aesthetic impact” under CEQA. Beacon respectfully disagrees, for the following reasons.

In determining whether a project will have a significant impact on visual resources and/or aesthetics, the lead agency has the discretion to determine whether to classify an impact as “significant,” depending on the nature of the area affected. *Mira Mar Mobile Comm. v. City of Oceanside* (2004) 119 Cal.App.4th 477, 493; see also *National Parks & Conservation Assn. v. County of Riverside* (1999) 71 Cal.App.4th 1341, 1357 (varying thresholds of significance may apply depending on nature of area affected). “In exercising its discretion, a lead agency must necessarily make a policy decision in distinguishing between substantial and insubstantial adverse environmental impacts based, in part, on the setting.” *Mira Mar*, 119 Cal.App.4th at 493. Here, although Beacon agrees that the project would change the current view, Beacon does not agree with the significance of the impact. The PSA has failed to properly apply its “visual character or quality” significance threshold to the BSEP. In employing the third question of the Appendix G significance thresholds related to “aesthetics,” Staff should have focused on whether BSEP would “substantially degrade the existing visual character of the site and its surroundings.”¹ A project’s environmental context is a key consideration in aesthetic impacts analysis.² Despite the fact that some, or perhaps all, environmental impacts have an aesthetic facet, does not mean that all adverse aesthetic impacts affect environment.³ Instead, the PSA concluded that the Project would change the visual quality of the desert floor of the entire “Fremont Valley.”⁴ However, the significance threshold used by Staff clearly asks whether a project would impact the visual character of the “site and its surroundings.” Beacon disagrees with PSA’s implication that the site’s “surroundings” include the Fremont Valley in its entirety. The PSA also failed to emphasize the highly degraded character of the site as it exists now. Without an accurate aesthetic baseline established, it is difficult for Staff to properly analyze whether a significant impact will occur as a result of the Project. The ranch that comprises the project site was historically intensively farmed, which is also a highly human altered landscape. Historic aerial photographs of the area show the land to be substantially denuded and altered, including “a compound of twelve deteriorating buildings and mobile homes that served the former farm operation.”⁵ Currently, the outlines of the ranch are clearly distinguishable from the surrounding desert landscape, even from low-level vantage points such as SR-14. Simply put, the project would change the view from one highly human-altered landscape to an alternative highly human-altered landscape.

¹ Emphasis added. See Cal. Code Regs., tit. 14, Appendix G, § I, subd. (c).

² *Bowman v. City of Berkeley* (2004) 122 Cal.App.4th 572, 589.

³ *Id.* at 591, quoting *Maryland-National Cap. Pk. & Pl. Com’n. v. U.S. Postal Serv.* (D.C. Cir. 1973) 487 F.2d 1029, 1038-1039.

⁴ PSA at 4.12-26.

⁵ PSA at 4.12-5

Beacon provided simulations with and without BSEP features for eight Key Observation Points. The changes in visual characteristics from the KOPs were not found by Beacon to be significantly different between the existing and proposed conditions, certainly not to motorists driving by at high speed on SR-14. While some hikers on the neighboring hills would see a difference, the current view is far from pristine desert landscape, as discussed above, and the significance of the change should appropriately take that into account.

No “substantial” degradation of the “existing” visual character of the project site will occur as a result of BSEP since there will be little change in aesthetic quality from the existing highly human-altered setting. Therefore, the PSA’s conclusion that there will be a “significant adverse change to the visual character and quality”⁶ of the existing physical setting reveals that Staff has misapplied the threshold of significance.

Requested Changes to the Conditions of Certification for Visual Resources

Beacon’s proposed changes are presented below.

VIS-6 Unless an alternative approach is agreed to with Kern County, the project owner shall provide a comprehensive landscaping and irrigation plan for the project site in accordance with the requirements of Chapter 19.86 of the Kern County Zoning Ordinance. ~~A minimum of five (5) percent of the developed area shall be landscaped with xeriscape or drought tolerant plantings that are to be continuously maintained in good condition.~~ Landscaping shall be installed or bonded prior to the start of commercial operation.

The project owner shall submit to the Director of the Kern County Planning Department for comment and to CPM for approval a landscaping and irrigation plan.

The Director of the Kern County Planning Department shall have 60 calendar days to review the landscaping and irrigation plan and provide written comments to the project owner. The project owner shall provide a copy of the Director of the Kern County Planning Department’s written comments to the CPM for review and approval.

The project owner shall not implement the landscaping and irrigation plan until the project owner receives approval of the plan from the CPM. The planting must be completed by the start of commercial operation, and the planting must occur during the optimal planting season.

The project owner may submit to the CPM for approval an alternative to onsite landscaping for the project. The project owner may contribute the equivalent cost of the landscaping to the Kern County Parks and Recreation, a Kern County public school or other non-profit organization in the County of Kern acceptable to the Director of the Kern County Planning Department. The project owner’s payment of the contribution shall be made prior to the start of commercial operation.

⁶ PSA at 4.12-26.

Verification: Prior to commercial operation and at least 45 days prior to installing the landscaping, the project owner shall provide a copy of the landscaping and irrigation plan to the Director of the Kern County Planning Department for review. The project owner shall allow the Director of the Kern County Planning Department at least 30 days to provide comment on the submitted landscaping and irrigation plan.

The project owner shall provide to the CPM a copy of the transmittal letter submitted to the Director of the Kern County Planning Department requesting their review of the submitted landscaping and irrigation plan.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and the Director of the Kern County Planning Department a landscaping and irrigation plan with the specified revision(s) for review and to the CPM for final approval before the plan is implemented.

The project owner shall notify the CPM within seven days after completing installation of the landscaping and irrigation that the landscaping and irrigation is ready for inspection.

If the alternative to the planting of onsite landscaping is invoked by the project owner, the property owner shall provide to the CPM a copy of the receipt demonstrating payment to the Kern County Parks and Recreation, a Kern County public school or other non-profit organization in the County of Kern prior to the start of commercial operation.

RATIONALE

Kern County has indicated that they would prefer that the Applicant fund other County projects in lieu of providing all of the landscaping at the facility. It will not be practicable or feasible to have landscaping on five percent of a solar field.

WASTE MANAGEMENT

Requested Changes to the Conditions of Certification for Waste Management

Beacon's proposed changes to two conditions are presented below.

~~**WASTE-5** — Upon learning of any impending waste management-related enforcement action by any local, state, or federal authority for violation of requirements imposed by federal law, the project owner shall notify the CPM of any action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.~~

~~**Verification:** — The project owner shall notify the CPM, in writing within 10 days of learning of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required to the manner in which project-related wastes are managed.~~

RATIONALE

This condition is an unreasonable burden for several reasons: 1) many contractors are national organizations – an enforcement action against one division somewhere in the country does not necessarily mean a problem at the facility; 2) “enforcement action” is not defined and the mere fact of an impending enforcement action cannot appropriately be understood to mean that the “accused” is guilty before the issue is resolved, 3) “when the owner becomes aware” is very vague – how does one establish when and if the owner becomes aware of this type of information? This condition should be deleted.

WASTE-9 The project owner shall ensure that all spills or releases of hazardous substances, materials, or waste are reported, cleaned up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.

Verification: The project owner shall document all unauthorized releases and spills of hazardous substances, materials, or wastes that are in excess of reportable quantities (RQs) that occur on the project property or related pipeline and transmission corridors during construction and on the project property during operation. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; amount of contaminated soil/material generated; how release was managed and material cleaned up; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release. Copies of the unauthorized spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

RATIONALE

There are two problems with this Condition.

First, the Verification for the condition requires that ALL spills be reported. This is an unreasonable burden that exceeds the LORS requirements and would mean that every drip or leak from every connector or valve be reported. This Condition should be revised to indicate that all spills in excess of the

EPA's "reportable quantity" (RQ) be reported. RQs can be found in the "List of Lists", EPA document number EPA 550-B-01-003 (<http://www.epa.gov/ceppo/pubs/title3.pdf>).

Second, the Verification requires that all spills related to the pipeline or transmission line corridors be reported by the Project owner. This is reasonable during construction activities, but it is not reasonable for the Project's transmission line or gas pipeline because the Project owner would not be the owner or operator of the transmission line or pipeline, and would not have knowledge of or control over activities associated with operation and maintenance of these linears. The Verification should be modified to differentiate between the construction and operations phases with respect to spills associated with the transmission lines that interconnect the Project with the regional grid.

WORKER SAFETY & FIRE PROTECTION

Requested Changes to the Conditions of Certification for Worker Safety and Fire Protection

Beacon's proposed changes to several conditions are presented below.

WORKER SAFETY-2

The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- An Operation Injury and Illness Prevention Plan;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Kern County Fire Department for review and comment.

Verification: At least thirty (30) days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. ~~The project owner shall provide a copy of a letter to the CPM from the Kern County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.~~

RATIONALE

We recommend amending this requirement to provide a copy of a letter to the CPM from the Kern County Fire Department (KCFD) regarding the KCFD's comments on the Operations Fire Prevention Plan and Emergency Action Plan. The owner does not have control on whether or not a letter will be issued. We propose correspondence from the KCFD containing comments on the Construction Prevention Plan or Emergency Action Plan will be provided to the CPM.

~~**WORKER SAFETY-4** — The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO, and will be responsible for verifying that the Construction Safety Supervisor, as required in Worker Safety 3, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill these responsibilities.~~

~~**Verification:** At least thirty (30) days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.~~

RATIONALE

This requires the Owner to pay the Chief Building Official (CBO) for the services of a Safety Monitor to verify that Owner's Construction Safety Supervisor is complying with all OSHA and CEC requirements. It is excessive to require the Owner to both fund a Construction Safety Supervisor and also fund another position to monitor the Owner's Safety Supervisor. The requirement for the Owner to fund the Safety Monitor should be deleted.

WORKER SAFETY-7

The project owner shall identify and provide a second access point for emergency personnel to enter the site ~~if required by. This access would enter from Neuralia Road, unless the~~ Kern County Fire Department. ~~agrees to an alternative route.~~ This access and the method of gate operation shall be submitted to the Kern County Fire Department for review and comment and to the CPM for review and approval.

Verification: At least sixty (60) days prior to the start of site mobilization, the project owner shall submit to the Kern County Fire Department and the CPM preliminary plans showing the location of a second access point to the site and a description of how the gate will be opened by the fire department. At least thirty (30) days prior to the start of site mobilization, the project owner shall submit final plans to the CPM for review and approval. The final plan submittal shall also include a letter containing comments from the Kern County Fire Department or a statement that no comments were received.

RATIONALE

Beacon has contacted the Kern County Fire Department and received approval of single access from SR-14 in writing. This approval was submitted to Staff prior to release of the PSA. A copy of this letter has been included as Attachment Worker Safety – 1.

Kern County Fire Department & Office of Emergency Services

DENNIS L. THOMPSON
Fire Chief & Director of Emergency Services

5642 Victor Street Bakersfield, CA 93308-4056
Telephone 661.391.7000 Fax 661.399.2915
TTY Relay Service 1.800.735.2929

Chief Deputy
ROBERT KLINOFF

Deputy Chiefs
PHIL CASTLE
NICK DUNN
MICHAEL W. CODY
BRIAN S. MARSHALL

Emergency Services Manager
GEORGIANNA ARMSTRONG

March 6, 2009

To : Jarod Foster

From : Captain Don Napier

Subject : Beacon Solar Energy Project

After reviewing the Fire Access Roads on the plans last Spring, The Kern County Fire Department has come to these conclusions: Establish the main gate at the entrance and have another gate at the south end using the dirt road along the railroad tracks.

If you have any questions please feel free to call me, 661 205 2848
cprdon3@aol.com

Don Napier
Don Napier

ENGINEERING ASSESSMENT

FACILITY DESIGN

There are no comments on Facility Design.

TRANSMISSION SYSTEM ENGINEERING

There are no comments on Transmission System Engineering

POWER PLANT EFFICIENCY

It was noted in the PSA that the Project boilers would be used only at start-up. To clarify, the Project would utilize two auxiliary boilers fueled by natural gas to reduce start-up time as well as to keep the temperature of the heat transfer fluid above its relatively high freezing point (54 degrees Fahrenheit). Except during startup, the Project would not use fossil fuel to generate electricity.

POWER PLANT RELIABILITY

There are no comments on Power Plant Reliability.

GEOLOGY AND PALEONTOLOGY

Requested Changes to the Conditions of Certification for Geology and Paleontology

Beacon's proposed changes are presented below.

PAL-4 Prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for the following workers: project managers, construction supervisors, foremen, and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training, or may utilize a CPM-approved video or other presentation format, during the project kick off for those mentioned above. Following initial training, a CPM-approved video or other approved training presentation/materials, or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontological sensitivity;
3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. A WEAP certification of completion form signed by each worker indicating that he/she has received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification:

1. At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow.
2. At least 30 days prior to ground disturbance, the project owner shall submit the training program presentation/materials script and final video to the CPM for approval if the project owner is planning to use a presentation format other than an in-person trainer for a video for interim training.

3. If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.
4. In the monthly compliance report (MCR), the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or other approved presentation format~~video~~) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

RATIONALE

Beacon requests the flexibility to use a power point presentation or other acceptable format for the WEAP training.

GENERAL CONDITIONS

Requested Changes to the General Conditions

Beacon's proposed changes are presented below.

Definitions

The following terms and definitions are used to establish when Conditions of Certification are implemented.

Pre-Construction Site Mobilization

Site mobilization is limited to preconstruction activities at the site to allow for the installation of fencing, construction trailers, associated site preparation to install construction trailers, construction trailer utilities, activities required to moisture condition soil needed to complete these pre-construction site mobilization activities, installation of construction access road, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization.

RATIONALE

Minor site preparation will be required to install construction trailers and parking and should be considered as part of the pre-construction activities. Moisture conditioning will be required prior to earth moving activities; therefore, should be considered as a pre-construction activity.

**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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