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September 17, 2010

James Shearer, Archaeologist
Barstow Field Office
Bureau of Land Management
U. S. Department of the Interior
2601 Barstow Road
Barstow, California 92311

Re: Comment on the BLM's Cultural Resource Eligibility Determinations for the Calico Solar Project

Dear Mr. Shearer,

Thank you for providing Energy Commission staff with a copy of your agency's July 2010 consultation letter to the State Historic Preservation Officer (SHPO) regarding the cultural resource investigation conducted by the applicant (Tessera Solar) for the Calico Solar Project. In that letter, the BLM Barstow Field Office presented its determinations of cultural resource eligibility (based on the applicant's technical report) to the SHPO and the BLM's finding that the subject project would have no adverse effect on historic properties. The BLM requested the SHPO's review and concurrence with those determinations and findings. As the California Energy Commission is an Invited Signatory to the upcoming programmatic agreement (PA) regarding the treatment of cultural resources for the Calico Solar Project, the purpose of this correspondence is to offer Energy Commission staff comments regarding your agency's determinations of cultural resources eligibility for the proposed project. Energy Commission staff's interest in and comment on the BLM's National Register determinations relates more to how these determinations correspond to staff's own determinations of resource eligibility under the California Register program than the actual National Register determinations, per se. Staff's comment here preserves our negotiated right under the PA to provide such comment in this period of time prior to the execution of that document. The comments provided here pertain specifically to the prehistoric archaeological sites in the project area.

As discussed in the August 2010 Cultural Resources Supplemental Staff Assessment for the Calico Solar Project and based on staff's review of the applicant's June 2010 Draft Final Class III Cultural Resource Technical Report, it appears that insufficient data have been presented by the applicant to enable adequate evaluations of the significance of the archaeological resources that would be affected by the project. Therefore, while staff does not necessarily disagree with the BLM's determinations of

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eligibility for the pavement quarry archaeological sites within the project's Area of Potential Effects, we are also unable to agree at this time.

Current local and regional archaeological literature contains substantive recent research pertaining to prehistoric lithic extraction sites that occur on desert pavement, commonly referred to as "pavement quarries" (see Giambastiani 2009, 2006; Giambastiani and Basgall 1999; Giambastiani et al. 2009; Byrd et al. 2010). The geoarchaeological analysis prepared by the applicant specifically points out that the prehistoric site locations within the Calico Solar Project area seem to be "dictated by" or co-occur with the availability of raw lithic materials that occur naturally in portions of the project area, and the applicant readily interprets the majority of prehistoric archaeological sites in the project area as "lithic extraction sites." Curiously, there appears to be no reference in the applicant's technical report to the current archaeological literature on pavement quarries/lithic extraction sites or the techniques that would be used to evaluate this particular type of resource in terms of its potential contribution to prehistoric research themes such as toolstone acquisition and use, and technological organization, as well as land-use and settlement systems.

The recent literature cited above is based on extensive work conducted over the course of several years at numerous pavement quarries in the Marine Corps Air Ground Combat Center (MCAGCC), approximately 10 miles south of the Calico Solar Project area. The results of this work are, therefore, particularly relevant to the conduct of cultural resource investigations for this project. Recognizing some degree of ubiquity and redundancy of quarry sites on this facility, the quarry research at the MCAGCC installation has sought to establish standards to guide how such sites are assessed for potential research value and how best to manage them so that significant archaeological data can be preserved while allowing the MCAGCC to achieve its training mission. Among the most notable findings of this pavement quarry research, as it relates to the Calico Solar Project's cultural resource investigation, is the assertion that, contrary to expectations, sites on well-developed pavements have the potential for buried artifacts and may contain large quantities of subsurface material that cannot be anticipated by surface artifact counts (Giambastiani 2006, p. 14). It should be noted that, while these deposits are not deep (typically extending to depths of only 20 centimeters or less), substantive archaeological data, contributing to the understanding of prehistoric desert adaptations, have been recovered from these relatively shallow subsurface investigations at pavement quarry sites (see Giambastiani 2009).

The applicant's evaluations of the prehistoric archaeological sites in the project area relied heavily on the sites' purported lack of potential to possess subsurface deposits, based on the conclusions of the geoarchaeological analysis conducted for the project. The applicant's reliance on the conclusions of the geoarchaeological analysis as a basis for determining site eligibility presumes that the sites have no data potential and are, therefore, not significant because they lack the kind of deeply stratified archaeological deposits that one would expect to encounter at a prehistoric habitation site that was subject to intensive, long term occupation or use. This line of reasoning, however, fails to acknowledge the archaeological sites for what they are, *lithic extraction/pavement*

quarry sites, and, correspondingly, does not address the important data this particular resource type may have to offer, as well as the existence of techniques for evaluating the significance of such sites. One would not expect a pavement quarry site to contain deeply stratified deposits, nor would one want to rely on the lack of potential for deeply stratified deposits as a basis for evaluating the data potential of a pavement quarry site. Rather, it is the collection and analysis of both surface and shallow subsurface materials obtained through excavation and soil screening, typically using broad areal 'surface scrape' units within the more complex segregated reduction loci (SRLs[1]) that would provide the best means for understanding and evaluating this type of resource.

As the distribution of pavement quarry sites within the Calico Solar Project area covers roughly a five square-mile area containing multiple SRLs that would be permanently affected by the project, and in light of the current and directly relevant archaeological research regarding the treatment and analyses of pavement quarry sites in the Mojave Desert, Energy Commission staff believes that additional investigation of the more complex SRLs in the Calico Solar Project area is warranted, prior to their permanent destruction by the project, in order to assess their data potential. Among the reasons in support of conducting additional field investigations to evaluate these sites are: (1) The presence of other items beyond basic lithic reduction debris (i.e., groundstone, fire-affected rock, hearths, rock features, time-sensitive artifacts) implies there is a little more complexity occurring at the pavement quarry and suggests an "embedded" procurement strategy (see Giambastiani 2009, p. 68, for discussions on direct vs. embedded strategies). Thus, there is an increased likelihood that dateable artifacts could be recovered and studied; (2) SRLs typically have very shallow deposits and can be quickly excavated (via surface scrape units), after which the materials can be collected and analyzed later in a laboratory setting; and (3) There are emerging technical procedures that would allow archaeologists to date artifacts based on varnish and rubification (see Helms, et al. 2001; Liu 2003; Liu and Broecker 2000; and Quade 2001). Thus, materials possessing such weathering should be collected in order to allow for such dating procedures.

In the SHPO's August 25, 2010 response to the BLM's request for review and concurrence with site determinations, the SHPO stated "it has not been fully demonstrated that the sites in question do not include a subsurface archaeological component, which might change your eligibility determinations." In this regard, Energy Commission staff would like to go on record as concurring with the SHPO's perspective that additional investigation of the prehistoric sites that would be impacted by the project is necessary in order to determine their potential significance. The SHPO has recommended that this be accomplished through the systematic mechanical stripping of the top 20 cm of soil within the boundaries of known sites, the details of which would be presented in the Monitoring and Discovery Plan to be developed as part of the BLM's Programmatic Agreement for the Calico Solar Project. While staff continues to have

[1] One of the two main structural aspects of pavement quarries, SRL features are clusters or concentrations of flaking debris resulting from one or more episodes of later stage toolstone reduction. SLRs are differentiated from the broader and more sparsely distributed assaying debris (tested cobbles and cortical flakes) that comprises the other main structural aspect of pavement quarries. Pavement quarries containing multiple SRLs are considered to be major sites (see Giambastiani 2006, p. 5).

reservations regarding the SHPO's suggested use of mechanical excavation to evaluate the pavement quarry sites in question, we have proposed a methodology that we believe targets the modes of data collection suitable for evaluating pavement quarry sites and is compatible with Energy Commission staff's agreement with the BLM and the SHPO to use mechanical excavation. Our proposed methodology can be found in staff's September 17, 2010, comments on the Calico Solar PA.

Energy Commission staff would like to thank you for your assistance and professionalism over the past several months and for being forthcoming with the data necessary for our analysis in spite of the data-sharing constraints that were imposed in this regard. If you are interested in obtaining copies of any of the literature cited in this letter or if you have any questions regarding this letter, please do not hesitate to contact me.

Sincerely,

SARAH M. ALLRED, Archaeologist
Siting, Transmission, and Environmental Protection Division

cc: Docket (08-AFC-13)
Christopher Meyer, Project Manager
Dwight Dutschke, Office of Historic Preservation

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