

## ***Californians for Renewable Energy, Inc. (CARE)***

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### **Comments on the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)**

K. Shawn Smallwood, Ph.D.

At a Metcalf Energy Center (MEC) Public Workshop on June 22, 2000, I raised concerns about inadequate mitigation and monitoring for biological impacts caused by the proposed MEC. I was assured that my concerns would be addressed in a biological resources mitigation implementation and monitoring plan (BRMIMP) due to be released by July 31, 2000. This release date likely would have given me the opportunity to respond to the plan with any lingering concerns prior to the California Energy Commission's (CEC) release of the Final Staff Assessment (FSA). In my July 18 letter to the US Fish and Wildlife Service (USFWS), I again expressed my concern about the scheduled release of the FSA and the Service's Biological Opinion, which appeared imminent in spite of the BRMIMP not having been released. The FSA was posted on the CEC's web site on October 10th, only 14 days after the BRMIMP was finally released on September 27th, 2000. As I earlier had feared would happen, I had no opportunity to review and comment on the BRMIMP before the CEC released its FSA.

I have to assume that one of the following scenarios took place: (1) The CEC had access to the BRMIMP before it was released to the public; (2) It quickly reviewed and analyzed the BRMIMP during the time 14 days between when it was released and when the CEC issued its FSA; or (3) The CEC prepared the FSA without having considered the BRMIMP. I have to assume the third scenario was most likely because Linda Spiegel made no reference to a completed BRMIMP in her FSA contribution, and the BRMIMP did not appear in her list of referenced documents. However the CEC considered the BRMIMP, public participation with formulating the mitigation and monitoring plan has been stifled by the late release date of the BRMIMP by Calpine/Bechtel and the subsequently quick release of the FSA by the CEC.

I hereby request a public workshop focused on the BRMIMP. The mitigation and monitoring plan is one of the critical features of a proposed project like the MEC, in addition to the alternatives analysis and the assessment of impacts. A well-prepared, effective mitigation and monitoring plan is critical to CEQA's foremost principle of maximizing environmental protection while avoiding or minimizing environmental harm. This BRMIMP is so ill prepared and so unlikely to be effective that a public workshop on it is warranted.

#### **Minimization of impacts**

In my comments on the Preliminary Staff Assessment (PSA), I pointed out that Calpine/Bechtel minimized the likely impacts of the MEC, and this minimization of impacts pervaded their environmental documents. The minimization of the potential significance of impacts on irreplaceable biological resources, whether intentional, accidental, or due to institutional bias, violates CEQA's foremost principle, which makes it impossible to perform an adequate, meaningful review, which makes it impossible to avoid or mitigate the impacts on biological (and other environmental) resources. Also, providing inaccurate or incomplete data in an effort to minimize project impacts is not only contrary to the scientific method but is misleading to the public. The BRMIMP continued to minimize the impacts of the MEC, as I will demonstrate below.

For example, the BRMIMP claimed that none of the emissions of NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub> are at levels that produce direct adverse effects on the physical aspects or physiological function of vegetation or soils in the area. In other words, Calpine/Bechtel is claiming the impacts will be *de minimus*, consistent with Calpine/Bechtel's claim that the MEC could be moved 10-15 miles north without changing the NO<sub>x</sub> pollution levels on the ridges surrounding the Coyote Valley (comments on the PSA, Set 3, page 13). This minimization of impacts contradicts the evidence (Weiss 1999),

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statements made elsewhere in the BRMIMP (e.g., the last sentence of the very same paragraph on page 9 of App. G, the first sentence of page 11, and on page 6), and made previously by Calpine/Bechtel (e.g., CH2MHILL 2000a: 4-2). The fact that the South Bay Area already exceeds federal air quality standards, coupled with Calpine/Bechtel's projected nitrogen pollution of 70% of Santa Clara County's remaining serpentine-based grassland (CH2MHILL 2000b), forces the conclusion that any additional emissions of these pollutants would exacerbate an already intolerable situation. Therefore, under CEQA not only must these potential impacts be deemed significant, but also they must be carefully analyzed with regard to mitigation. Whereas Calpine/Bechtel has estimated the amounts and deposition rates of NO<sub>x</sub> due to the MEC, it has made no estimate of the effects on serpentine-based grasslands. Changes in species composition in these grasslands can and should be estimated. As I pointed out in my comment on the PSA, the responses of serpentine-based grasslands to NO<sub>x</sub> loads are known (Weiss 1999), and the methods are available to estimate impacts within the entire zone of MEC-caused NO<sub>x</sub> pollution (Zhang et al. 1998).

On page 4-14, the BRMIMP minimized the impacts of NO<sub>x</sub> on Coyote Ridge by claiming that "an extremely small increase in nitrogen deposition from MEC may occur there." As Linda Spiegel pointed out in her contribution to the PSA, 10% of the floral species in California occur on serpentine soils, which compose 1% of California's geological base. Multiple endangered and special status species occur on these soils, the plant communities of which are highly sensitive to nitrogen pollution (USFWS 1998, Weiss 1999). The proposed MEC is unique in that it is the only proposed or existing power plant, to my knowledge, that (1) threatens a serpentine-based grassland that also serves to connect larger tracts of serpentine-based grasslands, and (2) composes a substantial portion of the last remaining habitat of Santa Clara Valley Dudleya, Bay Checkerspot Butterfly, and Opler's Longhorn Moth (see my comment on the PSA). Calpine/Bechtel may deem the level of nitrogen pollution on Coyote Ridge as "extremely small," but any amount adds to the other sources of nitrogen pollution from the region, such as from the Coyote Valley Research Park, which was just approved by the San Jose City Council. The cumulative impacts at this unique site are unmitigable, especially considering the fact that Calpine-Bechtel proposes to mitigate for impacts by "protecting" serpentine soils on the very same Coyote Ridge that will be polluted by NO<sub>x</sub> from the MEC.

The BRMIMP stated that the Santa Clara Valley Dudleya is susceptible to habitat disturbance from development and overgrazing (page 4-10). Although previous documents prepared by Calpine/Bechtel acknowledged NO<sub>x</sub> pollution as a threat to Santa Clara Valley Dudleya (CH2MHILL 2000a), as was supported by scientific research (Weiss 1999), NO<sub>x</sub> pollution was not identified as a threat to Dudleya on page 4-10 of the BRMIMP. Turning the page to 4-11 reveals the dislocated acknowledgement that NO<sub>x</sub> deposition fertilizes serpentine soils and encourages exotic plants to the detriment of the native plants (reference to Santa Clara Valley Dudleya was conspicuously missing from this section, however). On page 4-13, the BRMIMP stated that increased nitrate availability "*could potentially* impact the native serpentine vegetation community on Tulare Hill" (italics added for emphasis). On page 4-14, the BRMIMP listed multiple measures "*for potential* serpentine habitat losses" (italics added for emphasis) due to atmospheric nitrogen pollution from MEC. Given the evidence of NO<sub>x</sub> effects on serpentine-based grasslands, it would be more accurate to state that the increased NO<sub>x</sub> pollution *will* degrade the native serpentine plant community. In risk assessments, statements of uncertainty, which are expected in many types of scientific conclusions involving real hypothesis-testing, are supposed to be conservative in their application to environmental impacts, consistent with the Precautionary Principle (O'Brien 2000). Calpine/Bechtel violated this principle in what appears to be an effort to minimize the impacts of MEC. Also on page 4-13, the BRMIMP stated that the amounts of NO<sub>x</sub> and ammonia added to the Santa Clara Valley Air Basin from the MEC project are "insignificant by air quality standards." This additional violation of the Precautionary Principle again minimizes the impacts of the MEC on serpentine-based grasslands of Tulare Hill and Coyote Ridge.

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Calpine/Bechtel recognizes Tulare Hill as “an important ‘stepping stone’ connector between the serpentine habitats of the Santa Cruz Mountains to the west and the Diablo Range to the east” (page 1-2). It is considered in the BRMIMP as a “stepping stone” for Bay Checkerspot Butterfly between the Santa Teresa Hills and the much superior Coyote Ridge (page 4-11). However, Tulare Hill is more than a stepping-stone – it is one of the last remaining habitat areas of Bay Checkerspot Butterfly, Opler’s Longhorn Moth, and Santa Clara Valley Dudleya. It is one of the last remnants of serpentine-based grassland in the region. Its loss or degradation caused by NO<sub>x</sub>-induced proliferation of exotic weeds cannot be replaced or mitigated. At this point in time, due to the cumulative actions of people living and working in the San Francisco Bay area, as well as the soon-to-be constructed Coyote Valley Research Park, the serpentine-based grassland on Tulare Hill is irreplaceable.

The impacts of NO<sub>x</sub> on the local plant and animal communities is again minimized on page 4-14 when Calpine/Bechtel claims that development and grazing currently threaten much of Coyote Ridge, Tulare Hill, and the Santa Teresa Hills. Any development proposal at these locations would be subject to Section 7 Consultation or Section 10 negotiations, so the threat from development is not as great as from Basin-wide deposition of NO<sub>x</sub> and other pollutants from MEC.

In another example of minimization, the California Red-legged Frog and California Tiger Salamander are said to typically use riparian habitats for dispersal (page 4-2), which ignores the importance of overland dispersal (USFWS 2000). The habitat of California Red-legged Frog is described as “ponds and permanent pools in streams and marshes ...” (page 4-6), but there is no mention in this habitat description of the importance of upland refugia in mammal burrows (USFWS 2000; California Department of Fish and Game survey protocol; also see my comment on the PSA) or of upland areas for dispersal (USFWS 2000). As a consequence of attempting to minimize the impacts, the BRMIMP contradicts its California Tiger Salamander habitat description by later stating that California Tiger Salamander travel 1/2 mile or more from aestivation sites to breeding ponds (page 4-6) and that an occupied breeding pond was found within 1/2 mile east of the MEC site (page C-2). It also contradicts its California Red-legged Frog habitat description by presuming that California Red-legged Frogs were only able to reach the portion of Coyote Creek within the MEC gas pipeline area by dispersing overland from breeding habitats (page 4-17). This contradiction also implies that the California Red-legged Frogs in this portion of Coyote Creek do not breed, which reads like another minimization of impacts. Since claiming that the presence of bullfrogs in Fisher Creek excludes California Red-legged Frog (CH2MHILL 2000a), the BRMIMP minimizes the impacts to California Red-legged Frog in a new, more convoluted way by claiming that California Red-legged Frog do indeed occur nearby in Coyote Creek, but only as non-breeding individuals that inadvertently dispersed into an ecological sink. CH2MHILL continues to go out of its way to minimize the impacts to California Red-legged Frog.

Relevant facts about California Red-legged Frog and California Tiger Salamander are scattered throughout the BRMIMP, which appears to be an attempt to minimize impacts. A search of the entire BRMIMP is required to collect these facts, which often also contradict each other and are thus confusing. Making it even more difficult for the reviewer to understand the impacts to California Tiger Salamander, Jennings (2000) is cited on page 4-6, but lacks a reference in the Literature Cited section of the BRMIMP.

The BRMIMP minimized the presence of ground squirrel burrows occurring within the riparian corridor and adjacent upland areas of Fisher and Coyote Creeks. Ground squirrel burrows are important aestivation sites of California Tiger Salamander and California Red-legged Frog. I saw more than “several” ground squirrel burrows there (page C-1). CH2MHILL (2000a) claimed that dogs at the MEC site keep away ground squirrels, which was not true. In the BRMIMP, ground squirrel presence is minimized to “several,” which is just as untrue.

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Although California Red-legged Frog, California Tiger Salamander, and Western Pond Turtles were considered present despite not being seen at the MEC site (page C-2), coast horned lizards were given no such benefit of conservatism. Coast Horned Lizards occur on Coyote Ridge (Fig. 2a, BRMIMP) and the prey base certainly occurs on Tulare Hill (see my comment on the PSA, Photo 2), so considering this species as absent on Tulare Hill appears to minimize impacts. The BRMIMP contradicts Calpine/Bechtel's Set 7 (Attachment BR 1: 3) responses to comments on the PSA, in which Calpine/Bechtel admits that Coast Horned Lizards may be present on Tulare Hill.

The BRMIMP minimized impacts when it claimed that the placement of the electric transmission lines could have a "slight" increase in the chance for birds to collide with the top ground wires, and the 145-foot tall HRSG stacks "could" also present a collision hazard to birds (page 4-7, F-2). Based on the Precautionary Principle, and the empirical evidence (e.g., my comment on the PSA, Photo 11), it would be more appropriate to assume that collisions *will* occur. The added transmission line and 145-foot tall HRSG stacks will, with no uncertainty, present hazards to birds. The BRMIMP minimized these certain impacts, but this time using a different approach than appeared in CH2MHILL (2000a). Whereas CH2MHILL (2000a) argued that the elevation of Tulare Hill will somehow prevent migratory birds from flying through Santa Clara Valley at the altitude of the electric transmission lines and HRSG stacks, thereby minimizing collision hazards, this time the BRMIMP simply states that the hazards are "slight" and "potential."

### **Formulation of mitigation and monitoring plans deferred to later date**

On page, G-11, the BRMIMP states "It is anticipated that this draft Management Plan will be modified during CEC Workshops and further discussions with the USFWS, California Department of Fish and Game, Stanford University Center for Conservation Biology, and local cattle ranchers ..." It also states that the "final Management Plan for Tulare Hill will be complete in November, 1999" (I assume it was meant November, 2000). To be consistent with CEQA, the BRMIMP should have presented a complete formulation of the mitigation and monitoring plan, and it should have done so in a single document that includes all the other analyses and issues typically presented in an EIR. Under CEQA, the applicant is not supposed to defer the formulation of the mitigation and monitoring plans to a later date, because the public has a right to comment on these plans before they are finalized and certified by the lead agency.

Similarly, the BRMIMP (App. G, page 16) claims that a detailed monitoring plan for preserved habitats will be developed with professors and research graduate students from the Center for Conservation Biology at Stanford University. In other words, Calpine/Bechtel clearly intends to shut out public participation with the formulation of a monitoring plan. Again, it is a violation of CEQA to defer the formulation of a mitigation plan to a later date. The monitoring plan is a critical component of a mitigation plan such as should be provided by the proponents of a project like MEC.

The BRMIMP (page F-2) claims that the number of birds allowed to be killed by the electric transmission line and HRSG stacks (i.e., significance criteria) will be determined by the California Energy Commission CPM. Again, this is deferring the formulation of the mitigation and monitoring to a later date, out of compliance with CEQA, and shutting out the public from participation.

### **Mitigation effectiveness**

#### *Goals*

The BRMIMP claims to "protect biological resources from project impacts to the maximum extent feasible" (page 3-2). With protection measures, the BRMIMP claims that "the MEC project will have little or no adverse affects on Bay Checkerspot Butterfly" (page 4-11) and will also protect

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Opler's Longhorn Moth (page 4-12). Based on the premise that grazing has not yet wiped out Santa Clara Valley Dudleya, the BRMIMP claims that managed cattle grazing will maintain the population of Santa Clara Valley Dudleya (page 4-10). The BRMIMP seeks to minimize impacts to California Red-legged Frog, California Tiger Salamander, and Western Pond Turtles by conducting preconstruction surveys and relocating individuals to safe areas (page C-2). The BRMIMP claims that preserving 116 acres of Tulare Hill will minimize the potential impacts on Burrowing Owls (page 4-14). In the following text, I will explain why the goals and objectives of the BRMIMP cannot be realized.

The BRMIMP offers absolutely no protection measures for Bay Checkerspot Butterfly, and falls far short of protecting biological resources to the maximum extent feasible. Only one impact is offered as roughly proportional mitigation, which is required under CEQA, and even this mitigation is not sustainable over the life of the project. In my comment on the PSA, I recommended mitigation measures for the various impacts, but the BRMIMP offers no explanation for not selecting my recommended, alternative mitigation measures, which again violates CEQA.

### *MEC Implementation area*

According to the BRMIMP, the MEC implementation area will consist of 14 acres, although the FSA identifies 20 acres as the implementation area where construction will take place. I recommended a 1:1 mitigation-to-take ratio for this upland area, which is possible California Red-legged Frog and California Tiger Salamander aestivation habitat, and is habitat for many other species. The BRMIMP offers no mitigation for the loss of these 14 acres (20 acres in the FSA). In other words, the mitigation ratio for the loss of this habitat is 0:1.

No additional compensatory mitigation measures were proposed for impacts in the MEC implementation area. There is no compensatory mitigation for indirect impacts due to increased lighting and noise. Also, in preparing to relocate special status species to "safe areas" outside the construction zone limits (pages C-2, C-4, C-5), the BRMIMP does not indicate that these animals will be relocated to outside the deposition zone of NO<sub>x</sub> and other pollutants produced by the MEC. I consider this mitigation inadequate until the animals are relocated outside the MEC impact area. In my comment on the PSA, I recommended that there be mitigation for all of these impacts. The BRMIMP offered no explanation as to why my recommendations were rejected.

### *Fisher Creek riparian corridor*

The BRMIMP proposes to mitigate impacts to Fisher Creek riparian habitat by planting new trees and doubling the spatial extent of riparian vegetation at the MEC site from 4.3 to 8.6 acres. However, no performance standards were specified in the BRMIMP. There are no consequences for half of the trees dying within 5 years, for example. Also, the BRMIMP does not explain how NO<sub>x</sub>, ammonia, SO<sub>x</sub>, PM<sub>10</sub>, salt, formaldehyde, and other pollutants will affect the expanded riparian vegetation and the organisms that might reside within. Therefore, the mitigation ratio starts off at 2:1, but there is no means described in the BRMIMP to sustain this ratio.

### *Electric transmission line*

The BRMIMP proposes no compensatory mitigation for the impacts of the 240-foot electric transmission line on Tulare Hill. The adequacy of the monitoring and remedial actions is discussed below under *Bird collisions with tall structures*.

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### *Bird collisions with tall structures*

As I stated in my comment on the PSA, to thoroughly assess the impacts of the tall MEC structures on birds, the applicant should monitor for evidence of collisions during the entire life of the project. The BRMIMP ignores my recommendation and presents a flawed monitoring plan for bird collisions with the new electric transmission lines and the 145-foot tall HRSG stacks (page 4-7 and F-3). It proposes to monitor impacts for three years, which is too brief to characterize the role of weather on bird movement and migration behavior because the weather cycle in California is much longer than three years. Periods intervening peaks or troughs in rainfall, for example, span 10-12 years. The BRMIMP defers the formulation of the monitoring plan for tall structure impacts to a later date, which prevents the public from participating with the planning process for the MEC and is contrary to the spirit and language of CEQA.

In my comment on the PSA, I recommended that the collision hazard be reduced to the extent possible and that it be factored into the formulation of the mitigation plan. The BRMIMP ignores my recommendation. The remedial actions for bird collisions that are listed on page F-6 should be offered as mitigation right now, at the start of the project. Why wait until birds die on the electric transmission line and HRSG stacks before marking these hazards so that birds can see them? It would be prudent, as well as consistent with the intent of CEQA, to mark these structures prior to getting proof of injury.

### *NOx pollution*

Calpine/Bechtel proposes to mitigate for “potential” serpentine habitat losses, and to minimize the “potential” impacts of Burrowing Owls, by acquiring and preserving 116 acres of the south side of Tulare Hill. It is important to note that the serpentine grassland community *already resides* on these 116 acres, and so far *remains unpolluted* by MEC. However, NOx pollution will increase vegetation height on Tulare Hill (Weiss 1999), and tall vegetation is avoided by Burrowing Owls (Coulombe 1971, Haug and Oliphant 1990, Rogriguez-Estrella and Ortega-Rubio 1993). Purchasing 116 acres of Tulare Hill and grazing one cow for every 10 acres cannot mitigate the impacts to Burrowing Owls.

Furthermore, this parcel is where a Burrowing Owl and a Golden Eagle nest were sighted, whereas the endangered species locations were recorded on the remaining portion of Tulare Hill, which was not acquired as mitigation. Even if such a land acquisition were to be considered as compensatory mitigation, I would expect the northern half of Tulare Hill to be more appropriate for serving this purpose because that is where the endangered species records occur.

Calpine/Bechtel’s goal for managing Tulare Hill is to maintain the serpentine habitat in its current condition through managed cattle grazing (App. G, page 11). The BRMIMP then lists cattle grazing prescriptions that are claimed will maintain the serpentine habitats on Tulare Hill in current condition *or better* (App. G, page 12). However, this goal cannot be achieved because cattle grazing harms Santa Clara Valley Dudleya (Weiss 1999), and cattle grazing, and all the prescriptions listed in App. G, in no way changes the amount of NOx and other pollutants that will deposit upon Tulare Hill due to stack emissions from MEC. Cattle grazing will not substantially reduce, avoid, or compensate for impacts caused by NOx pollution of serpentine-based grassland, especially considering the low stocking rate proposed. However, the FSA makes clear that Calpine/Bechtel has no intention of fencing their 116 acres, thereby giving up control of stocking rates to neighboring owners of Tulare Hill. Calpine/Bechtel offers no control on stocking rates, which therefore threaten Santa Clara Valley Dudleya. Cattle grazing already occurs on Tulare Hill, so Calpine/Bechtel offers nothing new there except increased pollution by NOx and other hazardous waste.

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Furthermore, the success criteria to be determined in the monitoring plan cannot indicate *better* conditions because these criteria consist of maintaining populations of Santa Clara Valley Dudleya, Opler's Longhorn Moth, and Bay Checkerspot Butterfly in currently occurring numbers. There is no way to detect better conditions when the success criteria do not exceed the status quo. If the monitoring shows the success criteria are not being achieved, then Calpine/Bechtel says it will fund research to determine the cause (App. G, page 14). However, research is not a solution, and should in no way be considered as mitigation. Also, App. G did not present a plan to protect the Opler's Longhorn Moth, as was promised on page 4-12.

These flaws in the mitigation of impacts to Tulare Hill's serpentine-based grassland are especially troubling because Tulare Hill was identified as a high priority protection site for the Opler's Longhorn Moth (page 4-12, USFWS 1998). If Tulare Hill is a priority site for protection, and other alternative sites are available for the Calpine/Bechtel project with many fewer impacts, then I fail to see why MEC is even being considered.

The BRMIMP refers the reader to App. G, which is said to include a description of an adaptive management strategy on Tulare Hill (page 4-14). App. G includes no description of any adaptive management strategy, nor does the term "adaptive management" appear anywhere in the text of App. G. **No place in the BRMIMP is adaptive management described.** I have to assume that Calpine/Bechtel is continuing to rely on the erroneous description of adaptive management that appeared in CH2MHILL (2000a), and in its response to my PSA comments (Set 7, Attachment BR-1: 4).

At the public workshop of June 22nd, I commented that adaptive management had been promised as a mitigation in previous Calpine/Bechtel documents related to the MEC, and I commented that Calpine/Bechtel needs to explain what they mean by adaptive management so that the public can understand it, as well as the USFWS and the CEC prior to the former issuing a Biological Opinion pursuant to ESA Section 7 consultation, and prior to the latter issuing its FSA. At that public workshop, Debra Crowe of CH2MHILL assured me that the BRMIMP would include a detailed description of the adaptive management plan for Tulare Hill, and that it would be released by July 31. Now that the BRMIMP has been released, two months later than July 31, page 4-14 refers the reader to App. G for a description of adaptive management that, in fact, is not provided.

The BRMIMP proposes to purchase and preserve 15 acres on Coyote Ridge as compensation for cumulative impacts of NOx deposition in the Valley (page 4-14). It also proposes to manage these 15 acres with cattle grazing (page 4-14). As I pointed out in my comment on the PSA, the area affected by NOx pollution is much greater than 15 acres. Fifteen acres is trivial compared to the outer contour of projected NOx pollution due to the MEC. The BRMIMP did not specify where the 15 acres would occur on Coyote Ridge, much of which will be polluted by the MEC. If this mitigation site occurs within the zone of NOx pollution, then it will be within an area of impact rather than serving as mitigation.

The BRMIMP proposes to mitigate for impacts by providing an approximately 30-year long endowment fund for managing and monitoring the preserved habitats. Calpine/Bechtel apparently rejected Linda Spiegel's PSA request for an endowment fund in perpetuity. No explanation is provided for why Spiegel's alternative mitigation measure was rejected.

The BRMIMP also rejected my request for a rigorously described monitoring program to ensure that we learn about the impacts of the MEC on the serpentine-based grassland community. The 1-paragraph description of the monitoring plan on page 16 of App. G is fatally flawed and includes none of the design features I recommended in my PSA comment, and that Calpine/Bechtel claimed would be described in the BRMIMP (Set 7 response to PSA comments, Attachment BR-1). The

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monitoring design is pseudoreplicated (see Hurlbert 1984). Without concurrent offsite monitoring using identical methods, there is no means to compare the Tulare Hill monitoring results with changes in the conditions of serpentine-based grasslands that might be due to other environmental influences. Without any means to account for the effects of environmental factors other than pollution from MEC, it will be impossible for Calpine/Bechtel to attribute any trends in measured variables to the activities of the MEC (see my comment on the PSA). This plan includes no means to perform power analysis, which is important for proper interpretation of trend data (Gerrodette 1987), and it gives no consideration to the importance of avoiding Type II error (Shrader-Frechette and McCoy 1992). In responding to my PSA comments (Set 7 response to PSA comments, Attachment BR-1), Calpine/Bechtel claimed that the CEC was requiring a rigorous monitoring program as part of the BRMIMP, including out-of-area controls, BACI design, and other features that would qualify the monitoring program as scientifically defensible. The BRMIMP described none of these features, and is therefore grossly inadequate.

### **Designated Biologist**

Calpine/Bechtel proposes to hire Debra Crowe as the Designated Biologist. In my comment on the PSA, I recommended that an outside employee should conduct the monitoring work. The BRMIMP did not explain why my recommendation was rejected. Ms. Crowe prepared many of Calpine/Bechtel's documents related to the MEC. To avoid any perception that the prospect of a future job might have biased the preparation of MEC documents, I again recommend that a non-CH2MHILL and non-Calpine/Bechtel biologist be hired as the Designated Biologist. Furthermore, if Ms. Crowe contributed substantially to the preparation of the BRMIMP, then the BRMIMP reflects poorly on the preparedness of Ms. Crowe to serve as the Designated Biologist.

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