



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

MAR 03 2014

Attn: Jeffery Childers  
Soda Mountain Solar Project Manager  
Bureau of Land Management  
22835 Calle San Juan De Los Lagos  
Moreno Valley, CA 92553

Subject: Proposed Soda Mountain Solar Project and Draft Plan Amendment Draft Environmental Impact, San Bernardino County, CA (CEQ#20130353)


Dear Mr. Childers:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the proposed Soda Mountain Solar Project and Draft Plan Amendment pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under § 309 of the Clean Air Act.

EPA recognizes the complexity of the proposal and supports an alternative that assures a long-term, sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health. EPA commends the Bureau of Land Management for providing a comprehensive document and examining a reasonable range of alternatives. Many issues, such as greenhouse gas emissions, were addressed in a progressive manner, and the DEIR/DEIS contained comprehensive lists of proposed mitigation measures and applicant-proposed measures for environmental impacts. However, following our review of the DEIR/DEIS, we are concerned with the lack of sufficient information to determine the extent of direct, indirect and cumulative impacts to groundwater resources, nearby springs, and sensitive biological resources. Due to these concerns, we have rated the DEIS as *Environmental Concerns – Insufficient Information* (EC-2). Please see the enclosed “Summary of EPA Rating Definitions” and detailed comments further describing our concerns.

We appreciate the opportunity to review this DEIS and are available to discuss our comments. Please send a hard copy of the FEIS to this office when it is officially filed with EPA’s new electronic EIS submittal tool: e-NEPA. If you have any questions, please contact me at (415) 972-3521, or contact Scott Sysum, the lead reviewer for this project, at (415) 972-3742 or [sysum.scott@epa.gov](mailto:sysum.scott@epa.gov).

Sincerely,

  
Kathleen Martyn Goforth, Manager  
Environmental Review Office (ENF-4-2)

Enclosures:

- (1) Summary of EPA Rating Definitions
- (2) EPA’s Detailed Comments

cc: Robert Fulton, Manager – California Desert Studies Center

## **SUMMARY OF EPA RATING DEFINITIONS\***

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement.

### **ENVIRONMENTAL IMPACT OF THE ACTION**

#### ***“LO” (Lack of Objections)***

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### ***“EC” (Environmental Concerns)***

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

#### ***“EO” (Environmental Objections)***

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### ***“EU” (Environmentally Unsatisfactory)***

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. The EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality.

### **ADEQUACY OF THE IMPACT STATEMENT**

#### ***Category “1” (Adequate)***

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### ***Category “2” (Insufficient Information)***

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### ***Category “3” (Inadequate)***

The EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

**US EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED SODA MOUNTAIN SOLAR PROJECT AND DRAFT PLAN AMENDMENT, SAN BERNARDINO COUNTY, CA, MARCH 3, 2014**

Water Resources

*Groundwater Resources*

EPA is concerned about groundwater availability for the proposed project and potential impacts to sensitive resources nearby, including the Mojave tui chub. The Soda Mountains subbasin is geographically and topographically isolated, with limited real data available. No groundwater wells are known to be within the Project area, or within the alluvial portions of the subbasin (p. 3.19-10). According to the DEIS, the Applicant will need approximately 192 acre feet per year for three years for construction and 31.4 AFY for operations (p. 3.19-12). Potable water would be trucked in from off-site and is not included in estimates of groundwater consumption.

Geophysical surveys were performed in 2010 to evaluate the subsurface geologic conditions at three key locations within the subbasin. According to the DEIS, anomalies with the data were seen at one location (TEM-11); consequently, data at this location were not judged to be reliable. The geophysical survey also included 15 soil borings, but these were of limited usefulness due to the shallow depths explored and because groundwater was not encountered. In conjunction with the geophysical data, numerical modeling was used to evaluate the effects of groundwater withdrawal. According to the DEIS, modeling results indicate that conditions are favorable for obtaining sufficient water in the subbasin (p. H.2-35). Of concern, the accuracy of the model results is limited by the scarcity of measured values for many key parameters – including groundwater levels, hydraulic head, hydraulic conductivity, aquifer recharge, depth to bedrock (p. H.2-39). In short, no actual test wells were drilled to obtain measured values for groundwater levels or quality that could be utilized in the groundwater model.

Since groundwater extraction could adversely affect hydrologic resources, the Applicant proposed measures to reduce or avoid potential environmental impacts. These measures include the construction of a test well, observation well, and a distance observation well, and an aquifer test (APMs 14 & 15), collection of a water quality sample (APM 16), recalibration of the groundwater model (APM 17), and the development of a groundwater monitoring plan (APM 18). The groundwater monitoring plan would include quarterly reporting of levels during construction and a comparison with model predictions on an annual basis during construction, and every 5 years during project operation. Monitoring would cease after 5 years of operational monitoring if the monitoring data support the model predictions, and if the outflow from the northeast outlet is less than 50 AFY (p. 3.19-19).

*Recommendations:*

Prior to publication of the FEIS, conduct additional aquifer testing to more accurately assess groundwater resources within the Project area. Install monitoring wells to determine flow direction and depth to water level. Update the groundwater model to include any additional information obtained following the additional testing and include this information in the FEIS.

Design a more extensive groundwater monitoring network and include additional detail so that potential adverse impacts can be detected before damage has occurred, particularly at the Soda spring at Zzyzx.

Clearly describe the groundwater monitoring program within the FEIS, including the Applicant's role and responsibilities.

In the FEIS, commit to conducting sampling of groundwater monitoring wells more frequently than described in APM-18 during both construction and operations. Sampling should be conducted throughout the project life, and may need to be conducted for a longer period of time in the event that serious impacts are detected, or extreme conditions are present.

Consider collecting groundwater-level measurements on a real-time basis using an automatic sensing device and data logger.

Address what measures would be taken, and by whom, should groundwater resources in the basin become unavailable. Identify other viable sources of water that could be used for construction and operations in the event that groundwater is unavailable.

Appendix H-3 contains an Addendum to the Hydrogeologic Conditions and Groundwater Modeling Report. This report utilizes data at TEM-11 to create a conceptual model that includes a groundwater outlet at the southeast portion of the valley, where the water table is apparently much lower than elsewhere, as seen at TEM-11. According to the original Groundwater Modeling report, the TEM value at TEM-11 was not judged to be reliable because the water table was not detected and because the head value predicted by TEM results (below 992 feet amsl) was anomalously low. (The model prediction at TEM-11 was actually 1,089 feet amsl, almost 100 feet higher than the TEM result of 992 amsl.) Considering the discrepancies between the model predictions and the actual values measured, it is unclear as to how valid the other results are from the groundwater model. Furthermore, to use this data in the Addendum, when it was dismissed earlier, seems inconsistent.

*Recommendation:*

Data at TEM-11 were previously judged unreliable. If they are now deemed reliable and are being used to create a conceptual model illustrating an outlet in this area, this should be explained. The FEIS should clarify whether the data are reliable or not and if they have been incorporated into the groundwater model. Should BLM confirm that the data is not valid, the model should be updated with more reliable data.

The Addendum also notes that previous research conducted at the Desert Studies Center indicates that Soda Springs at Zzyzx is recharged locally by water flow from alluvial fan deposits. Vargas (2012) showed that water quality from the spring was similar in stable isotopes and inorganic constituents to water beneath the alluvial fan on the east side of the Soda Mountains. Local recharge along the eastern face of the South Soda Mountains is estimated in the range of 26 to 86 AFY (p. H.3-30). The combined groundwater withdrawal at the Desert Studies Center, Lake Tuendae, and Soda Springs is approximately

38.2 AFY. The Addendum concludes that local recharge is therefore sufficient to support all, or the majority of groundwater withdrawal and discharge at these sites.

*Recommendations:*

The Addendum does not consider the effects of climate change or drought on recharge and groundwater levels on the eastern face of the South Soda Mountains. In a dry year, recharge may be inadequate to support groundwater withdrawal and discharge at these sites. We recommend revising this sentence accordingly.

EPA recommends conducting additional water quality analyses of groundwater in the springs and nearby wells, including the water supply wells and the monitoring wells that will be installed in conjunction with the proposed Project. Such data may yield important information regarding the source of the water.

Age dating should also be conducted in order to determine better estimates of recharge.

The Addendum repeatedly notes that geophysical evidence shows the presence of up to several hundred feet of saturated alluvium in the valley floor, which directly contradicts a recharge rate of zero.

*Recommendation:*

Age date the water to determine whether it consists of old recharge (1,000 to 30,000 years before present) or modern recharge (roughly representing the last 50 years). Such information will better inform estimates of recharge.

In APM 18 it is stated that if it is determined that the Project has caused a decrease in the volume of groundwater discharged at Soda Spring such that the spring is less than 4 feet deep, thereby threatening the tui chub habitat, then the Project shall correspondingly curtail withdrawal of groundwater and import a corresponding amount of water from outside of the Soda Mountain Valley (p. 3.19-19).

*Recommendation:*

The FEIS should demonstrate the availability of sufficient alternative supply of water from outside the Soda Mountain Valley. The FEIS should identify this alternative source of water for the project.

Site Grading, Drainage and Erosion Control

The DEIS states that the approximate permanent disturbance acreage within the requested 4,179-acre ROW for the project would be 2,222 acres (p. 2-5). The DEIS also states that the existing site runoff patterns would be preserved to the extent feasible. Upgradient stormwater runoff would not be diverted around the solar arrays. The development would not detain runoff or substantially interfere with existing drainage patterns on or off the Project site and would preserve existing sediment transport throughout the site. Wildlife exclusion fencing may include break-away fences (see Section 2.4.2.4) to allow larger

flow events to pass through the array area. Fencing would be inspected after rain events and replaced or maintained as needed (p. 2-13).

The DEIS further states that up to 1,155 acres would be graded for the Project (Panorama Environmental, Inc., 2013) and additional areas would be subject to disc and roll or another type of ground treatment. The final area and limits of grading will be determined during detailed design, but will be within the footprint of disturbance analyzed in this PA/EIS/EIR (p. 2-18). The amount of acreage to be graded is approximately 52% of the total disturbed area for the arrays. Even though the site runoff is channelized due to I-15 levees and culverts, it is unclear how the applicant will be able to maintain existing site runoff patterns with this amount of grading, grubbing, disc and roll or other ground treatments.

The DEIS also states that due to the persistent winds that blow throughout the year, large portions of the desert surface have been modified into a mosaic of pebbles and stones known as desert pavement (p. 3.19-1). A plan for identification and avoidance or protection of sensitive desert pavement shall be prepared and submitted to the BLM for review and approval at least 60 days prior to start of construction (p. 3.7-25). As stated in the DEIS, the disturbance of the desert pavement by grading, grubbing or other ground treatments could cause a noticeable and possibly substantial increase in wind erosion rates during construction, especially since desert pavement overlies a stone-poor to stone-free matrix (the Av layer) of silt, clay and fine sand, derived principally from wind-blown dust. The disturbance of desert pavement as well as other grading in the project area could have the potential for the spread of dust and potentially the spread of *Coccidioidomycosis* or Valley Fever spores. Cases of valley fever have been documented in San Bernardino County.

*Recommendations:*

The FEIS should present an improved analysis of how the existing site runoff patterns will be maintained given the extensive amount of grading proposed.

The FEIS should quantify the likely impacts to desert pavement due to grading, grubbing and other ground treatments, since it proposed to grade approximately 52% of the project site.

The FEIS should include mitigation measures for Valley Fever, since dust control in the desert is problematic, especially when desert pavement is disturbed.